

COUNTING MATERNITY:
THE MEASURE OF
MIDWIFERY IN AUSTRALIA,
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by

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ABSTRACT

The aim of this Professional Doctorate in Midwifery is to challenge the status quo in maternity services through scholarly reflection and research. Through the studies reported here I aim to provide women with information on which to make informed choices about the services available to them, and to ensure politicians become more responsive to the lack of options currently available in Australia. My aim is also to provide measures that would allow maternity service managers to deploy resources more efficiently to achieve the best care.

The majority of the papers in the portfolio are derived from population data that is routinely collected in Australia. One of the cornerstones of healthcare improvement is creating meaningful information and measurement from these collections. True comparisons from accurate data can be used to better understand the nature of the system, and to gauge whether changes have been effective. Thus, the information derived from various collections of routinely collected data is used to measure and evaluate the maternity services. This measures only part of the experience of childbirth, however.

The Doctorate is a collection of nine major works undertaken in the years 1999 to 2002, during my appointment as a research midwife with the Australian Midwifery Action Project (AMAP). The first paper is an essay that tells of the juxtaposition of two different worldviews and the paradigmatic issues that shape the professional differences between obstetrics and midwifery. The second consists of a brief overview of the Australian maternity system described within the terms of reference for a Senate Inquiry into Childbirth Procedures. The third and fourth papers explore the levels of obstetric intervention for low risk women and the cost of these interventions using a new costing model derived from population data. The fifth paper reviews the contemporary issues in the workforce and education of midwives. The sixth paper outlines a proposal for funding reform and a new model of midwifery care. The seventh paper compares midwifery in Australia and New Zealand, in terms of a public health strategy. The eighth paper explores the concept of a new research method called Graffiti; and the final paper continues the theme of measurement in an essay titled 'Evidence based Everything'.

The portfolio explores a number of issues around public funding and the call for reform of the maternity services in Australia. In particular it argues for reforms to fund a more responsive service, based on values outlined by women who experience maternity care in Australia, as opposed to those guided by obstetrics and technology who currently set the agenda and determine the way maternity services will be offered and funded.

Although I have articulated and measured some of the characteristics of midwifery and obstetric care in Australia, this disentangling or quantification merely underlies and emphasises the many more continuations and complexities that coexist beyond that, which is 'measured'.

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Glossary

AHA	Australian Healthcare Association
AAPTC	Australian Association of Paediatric Teaching Centres
ACMI	Australian College of Midwives Incorporated
AMAP	Australian Midwifery Action Project
AIHW	Australian Institute of Health and Welfare
BMID	Bachelor of Midwifery
CHERE	Centre for Health Economics Research and Evaluation
DHB	District Health Board
EB	Evidence based
IPO	Independent Practitioner Organisation
MDC	Midwives Data Collection
MMPO	Midwifery and Maternity Provider Organisation
MCCP	Midwifery Co-ordinated Care Provider
NH & MRC	National Health and Medical Research Council
NMAP	National Maternity Action Plan
NCEPH	National Centre for Epidemiology and Population Health
NSW	New South Wales
NZCOM	New Zealand College of Midwives
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
RCT	Randomised Controlled Trial
RHA	Regional Health Authority
SECs	Socially Equitable Comparisons

PROLOGUE

A NOTE ON THE PROFESSIONAL DOCTORATE

“Some ways of knowing have traditionally occupied spaces at the edge of the dominant vision, the same kinds of spaces as are filled by the lives and experiences of the socially marginalised, including women. Thus, neither methods nor methodology can be understood except in the context of gendered social relations. Understanding this involves a mapping of how gender, women, nature and knowledge have been constructed both inside and outside all forms of science.”¹

Ann Oakley, *Experiments in Knowing*, P4

The stated goal of the Professional Doctorate at UTS is to advance, in the field of professional practice, the development of “solutions” for practice problems in the workplace, in combination with an opportunity for the candidate to develop and enhance her attributes towards professional leadership in the field.²

A Doctorate may be presented as a portfolio of written works that include ‘reflections on the implication of the work for practice and strategies for bringing change in practice as appropriate’³The objective is to challenge accepted wisdoms and orthodoxy whilst ‘advancing knowledge through scholarly engagement with the practice of a profession’⁴.

Although without precedent in Australia, this first Professional Doctorate in Midwifery aims to integrate practice related outcomes with a level of scholarly expertise that is both interdisciplinary and practice based.

My appreciation for inquiry is based on the recognition of certain connections. To be mindful that the ‘separation of knower from known implies a separation of self from other and researcher from subject...’⁵, in my view, validates the subjective nature of my Professional Doctorate. The connection between understanding in the scientific and biological domain, and the experience we bring from our family, our practice, our social and political contexts, together with our use of language, is the reason why we can expect to have different and multiple understandings of the world. The influence of previous learning and the conceptual framework I bring to my practice enables me to make sense of facts, to select and organise all the observations I make at a range of conceptual or epistemic levels.

¹ Oakley A. *Experiments in Knowing: Gender and Method in the Social Sciences*. Polity Press. Cambridge 2000

² Browne M. 1998 The Professional Doctorate at UTS: A discussion paper. University Graduate School. www.gradschool.uts.edu.au/p&p/p2b.html

³ See Browne M. 1998 as above

⁴ UK Council for Graduate Education. *Practice-Based Doctorates in the Creative and Performing Arts and Design*. Coventry. UKCGE, 1997

⁵ Reason P. *Human Inquiry in Action: Developments in New Paradigm Research* London: Sage 1988

In her latest book, *Making Sense of Life*, Evelyn Fox Keller⁶, suggests that it is the stories that are drawn from our reservoir of experiences and social contexts that connects us through language and metaphor to understand the sciences. The understanding of biological systems depends on a multiplicity of understandings, explanations and connections. The portfolio before you is a collection of works that records some of the interconnections and information that may shape and change some areas of midwifery practice in Australia. Some may find it disturbing and ambiguous, others may dismiss it as non-scientific. My hope is that there will be a number of midwives and women who can use the information presented here to call for long overdue reforms in the maternity system of Australia.

⁶ Evelyn Fox Keller. *Making Sense of Life* Harvard University Press. 2002.

INTRODUCTION

A NOTE ON THE MEASURE OF.....

'Est modus in rebus' - 'There is measure in (all) things'.

Horace 65-8 BC

This Professional Doctorate in Midwifery is a portfolio of works that reflect considerable variety in their appearance and purpose. The overall theme, is as the title suggests.... the 'measure' of midwifery.....

The aim of the work is to challenge the status quo through scholarly reflection and research, and to raise a political awareness amongst women, midwives, obstetricians and policy makers about current issues affecting midwifery practice within the maternity services in Australia in 2002. The diversity of writing styles, and the variations in the use of language are an attempt to make information accessible and meaningful to a wide spectrum of the public for whom the pieces were written. This strategy is strengthened by reporting research findings in journals intended for the audience I hoped to engage. Each paper is prefaced with a short introductory note giving the context and rationale for the language and methods used and its location within a body of work.

In the year 1999 no comprehensive analyses of Australian midwifery policies were available, nor were the effects of current policies in regulation , education and service delivery well understood. This led to serious constraints in policy and planning and a continuing lack of communication between stakeholders in maternity care.

In 1999, 257,394 babies born to 253,352 mothers were notified to perinatal data collections in the States and Territories of Australia. This represents a birth every two minutes and approximately 705 births a day in Australia in 1999 (Nassar and Sullivan 2001⁷). Every birth is attended by a midwife, and midwives are the largest single group of health workers in the maternity care system in Australia. A national study was urgently needed to investigate the present constraints on the midwifery contribution to maternity care.

The objective of this professional doctorate in midwifery was to contribute data and policy analysis to the Australian Midwifery Action Project (AMAP), which was launched in 1999. The doctorate describes the current situation in the workforce and education of Australian midwives. It also describes the funding and policy arrangements for midwifery within the Australian context and compares these policies with our nearest geographical neighbour and trading partner, New Zealand. The results of research undertaken to demonstrate the critical state of affairs in terms of medical intervention for childbearing women in Australia, further demonstrates the need for maternity service reform.

⁷ Nassar N, Sullivan EA 2001. Australia's mothers and babies 1999. AIHW Cat. No. PER 19. Sydney: AIHW National Perinatal Statistics Unit (Perinatal Statistics Series no11).

The Doctorate is a collection of the work undertaken during the years 1999 to 2002, during my appointment as a research midwife on a national research project known as the Australian Midwifery Action Project (AMAP)⁸. The project was funded by an Australian Research Council (ARC) grant, and a Strategic Partnerships in Research and Training (SPIRT) grant over the period of three years.⁹ The Australian Midwifery Action Project, as its name implies, an action oriented project. The challenge facing the research team of AMAP was how to both conduct empirical research and at the same time inform and facilitate improvements in midwifery practice within the maternity system. Some of the 'actions', therefore, within the project constituted empirical studies whilst others took the form of processes such as: reports, submissions, interviews and the preparation of policy statements for specific meetings with government officials. Where the strategy for change included forming a collaboration of authors, the individual expertise of each author, and my own participation in the collaboration is fully acknowledged.

The title I have chosen for my Professional Doctorate implies in the most general sense, a level of simple quantification of midwives or others currently employed within the maternity service in Australia. Certainly the concept of 'measure' is integral to the whole portfolio and is a thread that binds all these papers together. However, I have chosen to use the terms 'counting' and 'measure' not to reduce and quantify the service and the providers within a notional objective description of reality, but to keep in mind that through mere quantification of anything we are in danger of disregarding, devaluing or even denying that which we cannot measure. So in 'counting maternity', I am implying that, rather than singling out and quantifying the discreet elements of a set of factors that contribute to maternity in Australia, my observations of maternity are inseparable from the subjective views of myself (the observer/midwife and mother) in my account of maternity services. Similarly I have used the word 'measure' to suggest that the qualities I describe are not relative to any objective body of knowledge separate from my own search for meaning and value. Although I have articulated and measured some of the characteristics of midwifery and obstetric care in Australia, this disentangling or quantification merely underlies and emphasises the many more continuations and complexities that coexist beyond that, which is 'measured'.

Part 1, the essay **Reconceptualizing Risk and Uncertainty**, is primarily preoccupied with the concept of 'measure'. It narrates the historical path where new paradigms emerged through time as a result of dissatisfaction with previously held ideas and beliefs within the scientific community. It tells of the juxtaposition of two different worldviews and the paradigmatic issues that shape the professional differences between obstetrics and midwifery. The qualities of empiricism and measurement are intrinsic to the story of how

⁸ Please see P 21 following, The Australian Midwifery Action Project (AMAP)

⁹ For this reason several of the research papers contained in this portfolio also contribute directly to the final report of the AMAP project. However, other than papers that are in the public domain in their published form, the AMAP report and the Doctorate are separate and complimentary publications.

Western science sought to quantify existence. The essay is an account of the evolution of Western scientific thought and its relation to medicine (obstetrics) and midwifery; where science is regarded as the triumph of reason and experiment over the contested authority of the other. The essay tells of the elevation of the quantitative in nature over the qualitative; the objective and sceptical over the subjective; the separation of the natural from cyclical nature; the superiority of rational over intuitive discourse. In summary, the turning away from the ancient fascination with individual and portentous events toward the search for general and overarching laws; from individual belief to sharable results; the dismissal of the contemplative relation with nature, in favour of active intervention; and above all the mechanization of the universe. The essay illustrates the paradigmic crises encountered during the evolution of Western scientific thought from its beginnings to the present. From this account one would be forgiven for thinking the paper is unreflectively essentialist in placing obstetrics and midwifery in a binary analytic framework that idealises one and demonises the other. Midwives have been part of a spectrum of manifestations whose collective record, explored in part by this essay, offers an opportunity to measure our current understandings of women's voices and positions as mothers and midwives. The reader should be reassured though, the essay is a description of the historical milestones that mark our evolutions of knowing from a scientific framework on the one hand and an experiential framework on the other. Both are capable of intersection and reform however, and the reader is not left without hope!

Alongside an empirical estimation of certain attributes of the maternity services, the concept of measure is used in a more literal or figurative sense to mean an estimation of the different dimensions of midwifery. This implies an intrinsic qualitative meaning to the word 'measure'. According to the Shorter Oxford Dictionary: to measure is to "estimate the quantity or degree or proportion of something that is bestowed or granted to a person. It can also ascertain the spatial magnitude of something; to estimate the amount duration and value of something, not so much to denote a count or the weight of, but figuratively to estimate the amount duration, and *quality* of..."¹⁰ In defining 'measure' as a quality or attribute, it is perhaps useful to look at the literary use of the word 'measure'. In its most celebrated literary context, in Shakespeare's *Measure for Measure*, the qualities, or measures of justice and mercy are balanced against each other.¹¹ Without considering the question further - whether every measure or quality is equal to or comparable to all others, let's consider the famous line of Lord Tennyson's, "Man is the measure of all truth unto himself" (Tennyson).

In art, in music, architecture, commerce and morality there are multiple allusions to 'measure'. The reproduction of "The Measurers", a Flemish painting from the sixteenth century (see following) shows scenes of practical measurement inferring the intrinsic nature of measure in everyday lives. The universality of this attribute in all aspects of our lives, is

¹⁰ The Shorter Oxford Dictionary on Historical Principles, Eds, C T Onions, 1969, Oxford Clarendon Press

¹¹ The hidden text here asks the question 'can an immoral act be justified for a good cause?'

further intimated through the reference to the words of the Latin Lyric poet Horace: 'Est modus in rebus' - 'There is measure in (all) things'.

It's an old and often used cliché that the true measure of any man or woman is only evident when they are no longer present. The gap left by their absence suddenly reveals the true stature to which we were previously blind because we took it for granted when it was always there. Can the same be true of midwifery? In this thesis then, the meaning of measure is also to suggest both a 'contemporary state of affairs' and a measure of midwifery that is a description of the magnitude, the character, and the dimension of midwifery evident in Australia in 2002.

The papers that comprise Parts 2,3,4,5,6 and 7 of this portfolio are derived from data that is routinely collected in Australia. One of the cornerstones of healthcare improvement is creating meaningful information and measurement from these collections. True comparisons from accurate data can be used to better understand the nature of the system and to gauge whether changes have been effective. Measurement that is used appropriately is crucial for a range of purposes such as quality improvement, accountability, regulation and changing services to improve outcomes. The challenge is always to balance progress or 'goodness' in public policy and public choice between competing views of the world -- each justified by how we measure and understand the quality of the service delivered. The balance to be struck is that between overemphasizing accountability and underemphasizing learning¹², or as the policy reformers of the NHS claimed five years ago, "Measurement for improvement is not measurement for judgment."¹³ Simply developing state of the art tables to demonstrate efficiency and accountability are not enough. Women need to see comparisons and relate their own contextual understanding in making their choices about care. The information derived from various collections of routinely collected data is used to measure and evaluate the maternity services. This measures only part of the experience of childbirth, however. Through the studies reported here I aimed to provide women with information on which to make informed choices about the services available to them, and to ensure politicians become more responsive to the lack of options currently available in Australia. My aim was also to provide measures that would allow service managers to deploy resources more efficiently to achieve the best care. With this in mind, I have made every effort to base the findings from these papers on measures of quality that demonstrate attributes such as validity, reliability, comparability and communicability.¹⁴ I am also mindful of the critics of these methods who claim that our increasing reliance on measures of effectiveness, safety, acceptability, and efficiency reduces all traditionally qualitative, anecdotal approaches that are supplemented by trust¹⁵. The problem, of course, is that measurement itself, like evidence,

¹² Berwick D. Looking forward: The NHS: feeling well and thriving at 75. *BMJ* 1998;317:57-61

¹³ Pringle M, Wilson T, Grol R. Measuring "goodness" in individuals and healthcare systems. 2002 *B MJ* 2002 ;325::704-8

¹⁴ *ibid*

¹⁵ *op cit*

does *not* in fact improve outcomes. Measurement will only serve to demonstrate where improvements can be made, through informing and identifying where the problems lie. In addition, both measurement and evidence can be denied and manipulated.

Part 2, Childbirth in Australia: Measuring the current state of play, is based on a written Submission to the Senate Inquiry into Childbirth Procedures held in Australia during 1999. I prepared the submission as a brief summary of current research that informed the key issues raised by the Inquiry. The Findings¹⁶ from the Inquiry provided a basis for much of the work that follows in my professional doctorate, particularly in areas of obstetric intervention, funding midwifery, and workforce issues. In particular the Inquiry highlighted the dire situation in the workforce where a shortage of midwives and the lack of non-interventionist midwifery models of care were strongly noted. It found that women perceived themselves to be disempowered in the decision making around birth, and that too many caesarean sections were being performed. The issue of early discharge following birth, without the necessary community midwifery support was also identified as an area of deep concern.

In **Part 3, Measuring Obstetric Intervention in Australia**, the notably high levels of interventions during childbirth are addressed in a paper that was written in collaboration with clinicians representing each of the specialties, obstetrics, epidemiology, and midwifery. The paper, *Rates of Obstetric Intervention among private and public patients in Australia: population based descriptive study* was published in the British Medical Journal in July 2000. (A second paper, *Trends in labour and birth interventions among low risk women in New South Wales*, was written in collaboration with the same multidisciplinary team with the addition of an anaesthetist. See Supplementary Paper 1.)

The population data that informed these two intervention papers was further developed into **Part 4** of the portfolio, **Measuring the Cost of Obstetric Interventions**. The paper, *Costing the cascade: estimating the cost of increased obstetric intervention in childbirth using population data* was accepted for publication in the BJOG on the 18th October 2002, and is to be published in the near future. This paper outlines the development of a costing formula to assist in cost analysis and cost projections for managers of midwifery services.

Part 5, of the portfolio, **A Measure of the Australian Midwifery Workforce**, maps the current situation in the midwifery workforce in terms of gaps in data collection, inconsistencies in educational programs and recommendations for reform. In addressing one of the main objectives of the Australian Midwifery Action Project, to determine the barriers to midwifery care in Australia, I undertook a descriptive analysis around current workforce and education issues for midwives in Australia. The paper: *Contemporary Issues In The Workforce And Education Of Australian Midwives*, was published in the Australian Health Review in November 2000, and highlighted the need to address many of the issues that were later examined in the first Commonwealth Midwifery Workforce Review undertaken by The

¹⁶ Rocking the Cradle. See Part 2 and <http://www.aph.gov.au/senate/committee/history/index.htm#Community>

Australian Health Workforce Advisory Committee (AHWAC) in 2002¹⁷ to be released at the end of 2002

Part 6, Measures in Health Reform and Funding is presented in four sections. Section 1 provides an overview of health funding and reforms from an international perspective. This fulfils a compulsory requirement of the Professional Doctorate to submit a piece of writing addressing the international context of the subject under review. Section II compares and contrasts the health systems of New Zealand and Australia with particular reference to the funding of midwives. Section III is based on the submission to the second Commonwealth Senate Roundtable Discussion on Hospital Funding in 2000, on behalf of the Centre for Family Health and Midwifery, UTS, Sydney. Section IV proposes a new model for Australia in a proposal for an integrated midwifery model across a continuum of care and location.

The need for funding reform is highlighted again in **Part 7, Midwifery and Public Health**. This is an evidence based argument presented as a discussion paper on the subject of midwifery as a public health strategy. In comparing the scope of practice of midwives in Australia and New Zealand, it advances further the argument that funding is one of the pivotal issues in need of reform in the maternity services in Australia.

Part 8 of this doctorate describes the intrinsic nature the **Graffiti Method – a measure of utterance**. This is an innovative research tool that was devised within the larger AMAP research project. It was used to gather ideas and opinions from midwives all over Australia to inform the study affectionately known as the Midwives Voices Study¹⁸ in AMAP. The paper presented here takes the reader on another explorative journey, briefly into the realms of the writings of modern French theorists such as Gilles Deleuze, Claire Parnet, Felix Guattari and Roland Barthes, and the feminist theorist, Elizabeth Grosz, in a separate dissertation on ‘measure’. The method evolved as a means for midwives and researchers to connect with the complex reality within and around us during the research process of the Australian Midwifery Action Project.

The portfolio concludes the theme of measurement with **Part 9, Evidence Based Everything**. This is an essay, designed originally as an introductory lecture for practicing midwives studying for a postgraduate diploma. It concedes both to the notion that there is measure in all things and that to ‘measure’ has the potential to be a rewarding and liberating experience. The paper describes for midwives the key factors behind the evidence based movement and summarises the main theme of my Professional Doctorate, that to challenge the status quo, is to effect change through research based practice. It encourages midwives to embrace the strength of our special partnership in practice, as midwives in the company of women

¹⁷ Australian Health workforce Advisory Committee (2002), *The Midwifery Workforce In Australia*, AHWAC Report 2002.2, Sydney NSW.

¹⁸ Brodie, P. (2002). Addressing the barriers to midwifery: Australian midwives speaking out. *Australian Journal of Midwifery*. 15 (3): 5–14.



ABOUT THE SUPPLEMENTARY PAPERS

I have included several pieces of work as a collection of Supplementary papers at the end of this portfolio. They represent major pieces of work that supplement, or are a continuation of the work gathered here for the portfolio, and undertaken during the term of my professional doctorate.

The first supplementary paper is a continuation of the research presented in Part 3. It was undertaken with the same multidisciplinary team, with the addition of an anaesthetist, and led by Dr Christine Roberts. Although I contributed to the research process, I did not initiate the research in this study, as I had in the previous work¹⁹ presented in Part 3.

The National Maternity Action Plan is included here as Supplementary Paper 2. It is the result of a broad coalition of consumer and midwifery representatives and organisations from across Australia, of which I was a contributing author. The NMAP outlines the rationale behind the need for major reform of maternity services, and, proposes a strategy for Federal and State/Territory governments to enable comprehensive implementation of community midwifery services in both urban and regional/rural Australia within the public health system. This is a vision document that grew from the energy and enthusiasm of a group of women who have the same vision for reform in Australia's maternity services that I share. The plan was launched nationally in every state parliament and in national parliament on the 24th September, 2002.

Supplementary Paper 3 is a program outline for the implementation of NMAP through caseload community midwifery care in the public health sector. As a contributing author, I was able to elaborate on the model of midwifery outlined in this current portfolio on Pp 142-146. The program was presented to Professor William Walters, Chair of the NSW Maternal and Perinatal Committee within the NSW Health Department, for discussion at the meeting on December 11th, 2002.

Supplementary Paper 1

Roberts CL, Algert C, Peat B, Tracy S, Douglas I. Trends in labour and birth interventions among low-risk women in an Australian population. ANZJOG. 2002; 42:2:176 - 181

Supplementary Paper 2

The National Maternity Action Plan (NMAP), Maternity Coalition, 2002.

www.maternitycoalition.org.au

Supplementary Paper 3

Implementing Community Midwifery in NSW. Maternity Coalition, 2002.

¹⁹Roberts C, Tracy S, Peat B (2000) Rates for obstetric intervention rates among private and public patients in Australia: population based descriptive study. BMJ 2000;321(7254):137-141. <http://bmi.com/cgi/content/abstract/321/7254/137> accessed 18th August 2002

THE AUSTRALIAN MIDWIFERY ACTION PROJECT (AMAP)

The Australian Midwifery Action Project (AMAP) was initiated by a group of midwives, researchers and service managers who shared concerns for the development and sustainability of the current systems of midwifery education and practice in Australia. The three-year project began in April 1999 and was funded through a Strategic Partnerships with Industry Research and Training (SPIRT) grant from the Australian Research Council, in collaboration with five Industry partners, NSW Health, SA Health Commission, South Eastern Sydney Area Health Service, Women's Hospitals Australasia and the Australian College of Midwives Inc.

The overall aim of the study was to provide evidence on which to base strategic planning, workforce review, educational reform, and policy direction, as well as improvements in midwives' contribution to maternity care through facilitating and supporting institutional and systems reform. Consumer input is of course vital to this work and two sociologists in the research team provided a key role in this area ensuring that the needs of women and communities remained a priority. Priorities also included rural and remote issues, including equity and access to services provided for Indigenous women and babies. The research team consisted of the Chief Investigator, Professor Lesley Barclay, two full time research midwives, Pat Brodie and Sally Tracy and four associate researchers, Nicky Leap (Flinders University), Karen Lane (Deakin University), Kerreen Reiger (La Trobe University) and Linda Saunders (Flinders University).

THE RESEARCH QUESTIONS

The research addressed these questions:

- What are the barriers to the provision of safe, efficient and economic midwifery care within maternity services?
- What are the strategies to overcome these barriers?

The project, therefore, consisted of two concurrent and interlinked strands:

STRAND I consisted of several interrelated studies investigating state and territory differences in service provision, education, policy and regulation associated with midwifery care within maternity services.

STRAND II worked towards interaction across sectors during the research and engaged a broad range of individuals, groups and institutions in the research process.

THE AUSTRALIAN CONTEXT

Workforce One of the most alarming concerns is the shortage of midwives in each state with rural and remote areas being particularly affected by short supply. Clearly, strategies are required to ensure the supply and maintenance of the current numbers of midwives and, whilst there are exceptions, many state governments do not have a coherent plan in place

that signifies their concern. Incentives to address priority areas such as rural and remote regions are urgently needed.

Education and regulation

Midwifery education, leading to an authority to practice is provided through Universities and classified as a postgraduate qualification which attracts either post graduate Higher Education Contribution Scheme (HECS) payments, or full course fees. This places a considerable personal financial burden on nurses who wish to study midwifery, and affects both the recruitment and attrition rates of Australian students. There is no national monitoring system to ensure a particular standard of midwifery education across the country or an adequate baseline of competence. Reliable anecdotal reports suggest enrolments are decreased in some cases by as much as 50% with attrition rates as high as 25% in some midwifery programs. Strategies for educational reform are being explored on a number of levels including the introduction of an under graduate Bachelor of Midwifery.

Organisation of maternity care

The integration of autonomous midwifery practice into mainstream maternity services through a collaborative approach that includes the care of all women, remains a major challenge for service providers, policy makers, medical practitioners and midwives , in both urban and rural settings.

Rural and remote issues

Rural and remote midwifery is in decline, with some midwives and employers concerned not only with the lack of availability of midwives, but also the potential loss of skills and expertise necessary to practice safely.

PART 1: RECONCEPTUALIZING RISK AND UNCERTAINTY

CONTEXT

The following essay *Reconceptualizing Risk and Uncertainty*, takes the reader on a narrative journey through some of the historical origins of midwifery and obstetrics. A shorter version was originally written as the text underlying a script for a documentary to be made on the philosophical differences between midwives and obstetricians. By telling the events in an historical tale, I hope to engage an audience of both midwives and obstetricians at a semi-theoretical level to consider the historical origins of many of the prevailing theoretical frameworks shaping today's practice and research. I have introduced the concept of risk, not in an attempt to theorise on risk, but rather, to alert the reader to the fact that midwives and obstetricians see things differently, and the way we interpret risk is a clear example of these differences.

It is also my aim to look forward, and suggest how our professional distances might be abridged in the future. Without denying the past knowledge for practice, based on clinical experience and expert opinion, the essay invites midwives and obstetricians to consider basing their practice around childbirth within a new paradigm of creative uncertainty.

The essay is the thesis that informs much of my thinking and the theoretical research framework for the papers that follow in this professional doctorate. It provides the reader with an insight into my understanding of the differences and the tensions that currently manifest themselves in the maternity services in Australia, between the professions of obstetrics and midwifery.

“The problem is not that physicists use mathematics to describe the world but rather how they have used it, and to what ends. There is nothing in a mathematical approach to nature that demands a focus on particles and forces, or on arcane abstraction. Because science is always a culturally directed pursuit, there is no reason that we cannot have a mathematically based science focused on different goals and dreams. Such a science would not be practiced just by women, but also by men.”

Margaret Wertheim, *Pythagoras' Trousers* 1997 p15

ABSTRACT

The current ‘boundaries’ of professional practice in maternity services in Australia are principally negotiated around the interpretation of ‘risk’ and the way it should be managed. Divergent views have resulted in a ‘demarcation dispute’ between the practice of obstetrics on one hand, and the practice of midwifery on the other, with little agreement on issues such as the safest place to give birth. There is no unanimous understanding of risk amongst the midwifery and obstetric professions, primarily because its constructed meaning draws heavily on different worldviews. Nevertheless, reaching a common understanding of risk and safety within the context of maternity services in Australia, is one of the biggest challenges currently facing all of us.

This paper explores the influence of Western scientific thought on the construction of knowledge within obstetrics and midwifery as they are practiced within the developed world by addressing some of the historical underpinnings that have influenced our thinking. I propose that acknowledging uncertainties in the way we routinely practice may lead to the discovery of other ways of doing things and new ways of professional ‘knowing’. Embracing scientific methods that move beyond the dichotomous positivist stance of the past may draw both professions towards discovering other truths and ways of knowing, in addition to a newly shared understanding of risk and its implications for practice and therefore for women and their babies.

INTRODUCTION

The practice of midwifery and the practice of obstetrics in Australia, are currently 'worlds apart'. Nothing illustrates this divide more clearly than the opposing and strongly held beliefs about safety and risk in childbirth, and in particular the controversy about the safest place to give birth [Tew 1990, Campbell & Macfarlane 1990]. Such a controversy is not surprising to those who see 'risk' as one of the defining cultural characteristics of western society [Douglas 1994], and believe that the creation and accentuation of 'risk' is itself a means of establishing a professional power base [Lupton 1995, de Vries 1996, Mander 2001].

There are claims that the obstetrician observes childbirth with a 'clinical or technological gaze' in the belief that the event is potentially hazardous [Robertson 2001]. For that reason, women are advised to give birth in hospital where technology is on hand to 'save' both mother and baby should the need arise. The iatrogenic nature of technology, although now the subject of rigorous research, [Enkin et al 2000], is, however, very seldom questioned. Minimising risk, as the obstetrician perceives it, depends on engineering and controlling normal physiology in order to prevent the abnormal occurring [Schwartz 1990]. The belief that controlling physiology will eliminate adverse outcomes for mother and baby has inevitably resulted in higher insurance premiums to cover liability in practice, and more invasive, interventionist practice to counteract the fear of claims of negligence. [Johanson and Newburn 2001,2002].

It is claimed that midwives perceive the greatest risk to childbearing women as the loss of control by women themselves. With this there is an apparent loss of the capacity of midwives and women to make decisions during pregnancy and birth [Kitzinger 1980; Green et al 1990; Stapleton et al 2002]. In addition to this, midwives are conscious of the morbidity associated with high levels of intervention, and believe they constitute a significant risk to childbearing women. [Johanson and Newburn 2001, 2002; Roberts et al 2000] The 'watchful waiting' midwife has been superseded by the obstetric 'team' offering scientific technological 'expert' care [Myles 1981; Kitzinger 1991], and as a corollary to this, the scope of midwifery practice is shrinking to that of an obstetric nurse, subordinate to the new obstetric technology.

For childbearing women the perception of risk lies somewhere on a continuum encompassing all these beliefs. Advising women that the hospital is the safest place to birth, acknowledges the ever-present fear that something 'might go wrong', as well as providing universal access to medical decision making. This in turn almost guarantees the systematic use of technology and obstetric interventions that were originally developed for the treatment of difficult and life threatening events [Wagner 2000]. Increasing numbers of women surrender control at the beginning of the birth process, turning to a doctor to confirm pregnancy, and an ultrasound to predict the date of birth. From that moment onwards they are on a conveyor belt from which it is very difficult to opt out. They no longer weigh up the risks and choose their own path [Greer 1999]. However, being attached to monitors and other diagnostic machinery gives many women the feeling they are being well cared for and are

safe [Davis-Floyd 1992,1994]. For other women, this same combination of restrictive hospital policies increases the fear of losing control of their birth process and constitutes the greatest risk associated with childbirth [Green et al 1990, Oakley 1992]. For these women a birth at home is a way of minimising the risk of alienation from their baby at birth, or from the possibility of being unable to make decisions and thus jeopardise their ability to 'mother' successfully [Kitzinger 1980]. Studies examining the impact of women's childbirth beliefs on selecting a birth attendant, have shown that women who believed childbirth is a natural phenomenon perceived childbirth as less risky than those who see childbirth as a medical procedure, and chose their birth attendant accordingly, either midwife or obstetrician. [Howell-White 1997].

There is no doubt that the management and anticipation of risk is a complicated and widely debated issue [Lupton 1995, Robertson 2001, Turner 2001, Dew 2001]. The fact that it may have an entirely different meaning for childbearing women, obstetricians and midwives, means that a shared definition is difficult to reach. The problems cannot be described simply in terms of binary points of view and the position adopted by the two professions is not solely oppositional. Midwifery is not simply the 'antithesis to obstetrics' [Annandale and Clark 1996]. The problem is more complex than this, and I invite the reader to consider that our differences stem from the historical foundations of professional knowledge constructed within contrasting and often opposing worldviews.

TWO SEPARATE WORLD VIEWS

"The pursuit of knowledge always takes place within a given paradigm, within a conceptual matrix – a womb that provides an intellectually nourishing structure, that fosters growth and increasing complexity and sophistication – until gradually that structure is experienced as constricting, a limitation, a prison, producing a tension of irresolvable contradictions, and finally a crisis is reached".

Richard Tarnas *The Passion of the Western Mind* 1991, p 438

The practice of both midwifery and obstetrics reflects a unique evolution of 'professional knowledges' structured and defined by differing worldviews through the course of history. Gaining an insight into the social construction of knowledge may enable practitioners to better comprehend the influence that professional knowledge has on every day practice [Kincheloe 2001]. Certainly, in considering the evolution of scientific thought one recognises the origin of many of the current prevailing social constructs in both professions.

Although an in depth analysis of the historical underpinnings of knowledge construction, may provide deeper insight, there is not the scope in this essay, to elaborate beyond a simple commentary of significant events describing how consciousness and the knowledge of the world changed significantly during the course of history. I have sketched for the reader some of the more remarkable landmarks in the history of scientific thought and

midwifery, in the hope that the origins of many of the prevailing theoretical frameworks that inform contemporary practice and research in Australia will be apparent. I believe that a different worldview does not suggest an inferior knowledge, but rather a different metaphoric expression of the world resulting from a different state of consciousness. This difference is manifest in contemporary professions as well as in the historical context. As physicist, Roger Jones explains in his book, *Physics as Metaphor*, the concept of modern space is the 'perfect metaphor for separation, extension, individuation, and alienation.... space is a background from which we emerge. But to the mind of medieval people space did not have the cold empty geometric character that it has for us...they felt a kind of extrasensory but conscious connection to the plants and animals around them, and to the heavenly objects, to the very elements and minerals of the earth itself...we explain them away as examples of animism and anthropomorphism...modern science rejects and discredits them as alchemy and astrology' [Jones 1982, p60].

In this essay it will become evident that many of the prevailing theoretical constructs of obstetric knowledge are heavily dependent on the three fundamental principles that form the bedrock of Western scientific thinking; empiricism, mathematics and mechanics [Tarnas 1991]. Obstetrics has followed the same paradigmatic upheavals that mark the history of scientific method, where generations of scientists see their work radically altered when new plausible methods of scientific research come into being. A change in paradigm is marked by sharp epistemological breaks and discontinuities, that occur not as a result of the accumulation of knowledge, but at a point when there is a fundamental reorientation of the scientific outlook of an age, or when in an historical situation, the older approaches no longer suffice to solve convincingly the problems which the scientific community has posed for itself. The revision of paradigms does not occur merely as a result of anomalies in the data but because of a deeper crisis that involves a change in 'world view' inseparable from a broader crisis of social reality [Kuhn 1970]. For Kuhn, scientific truth is resolved into consensus of the scientific community - a community of 'experts bound together by rigorously defined questions and highly technical methods' [Kuhn 1970 p167]. Within the discipline of medicine, knowledge is defined as facts that can be empirically verified by the biomedical method [Malterud 2001]. This verification of knowledge through deterministic, scientific method in accord with the evolution of Western scientific thought is the unique feature that sets obstetrics apart from midwifery.

Midwifery knowledge, on the other hand, derived from the experience of a companion to the woman giving birth. As Jean Donnison claims in her treatise on the evolution of the profession of midwife, the "office of midwife is very ancient, and certainly older than recorded time...furthermore childbirth was universally regarded as a female 'mystery' of which women alone had special knowledge and understanding" [Donnison 1988 p11]. Up until the seventeenth century women were almost exclusively attended by other women – wives and widows – the origins of whose midwifery knowledge existed in the practices around domestic daily life, and survived mainly through oral tradition [Donnison 1988; Hobby 1999].

THE DERIVATION OF 'MIDWIFE' AND 'OBSTETRICIAN'

The origins of our titles gives further insight into the evolution of the professions. For example the midwife is known variously as the 'sage femme' or 'wise woman' in French; the 'jormudder' or 'earth mother' in the Scandinavian countries; and 'with woman', as the Old English name 'mid wyf' suggests. It wasn't until the 1600s in England that 'man-midwife' was added to our vocabulary to describe a male birth attendant. [Donnison 1988], and two hundred years later, in the 1820 's, the word 'obstetrics' was introduced into the English language to describe the "branch of medical practice which deals with parturition, and its antecedents and sequels" [Shorter Oxford English Dictionary, 1969].

Hippocrates, Aristotle and Soranus each wrote about the skilled work of the midwife. But even in the translation of their works, the word for midwife "obstrices" (Hippocrates) and "maia" [Aristotle, Hist. An. Bk1] is more a reflection of the translator's experience of midwifery, as opposed to a clear vision of who the midwife may have been^{20, 21}. "Obstrices" was the Latin word for someone who 'stood before a woman giving birth': and "μαία" was the old Greek word for both the sea and the midwife.

EARLY FOUNDATIONS OF WESTERN SCIENTIFIC KNOWLEDGE

"Science tries to provide an explanation of nature – the world we live in - at the most fundamental level. It aims to find explanations for an enormous variety of phenomena – the movement of all objects; the nature of light and sound...the fundamental constitution of matter – in terms of as few principles as possible. ...In this endeavor mathematics plays a fundamental role for expressing scientific ideas in quantitative terms."

Lewis Wolpert, *The Unnatural Nature of Science* 1993 p2.

Our journey begins with the earliest known records of western scientific thought. The very beginnings of ²²western science are unknown, but in the 6th Century BC, a Greek mathematician, Thales of Miletos, articulated for the first time the possibility that the world might be explained by means other than myths. He postulated in fact that the earth might be a large disc floating on an ocean of water, and then set about to scientifically prove it!

²⁰ In the 1996 translations of Hist. An the translator interchanges the word nurse and midwife HSTA.587a20-587a24 and HSTA.587a25-587a28. Compare this to earlier translations, Ross WD & Smith JA (1908-54), Oxford, for example, where midwife was used exclusively in translation for "μαία"

²¹ From the seventeenth century, the adverb 'maieutic' was used to describe not the function of the midwife attending a physical birth, but the 'Socratic process' of drawing out into consciousness a previously latent philosophic concept. [Edmonds 2000], thus demonstrating the world view of a dichotomous divide between mind and body. Describing such a process as a 'maieutic art' persisted until the late nineteenth century, and is still recognised in the English language, albeit as an as an archaic word today.

²² In this case the term 'western science' is used to differentiate the history of science through ancient Greece and Rome and in to Europe. It follows the progression of scientific thinking from Pythagoras onwards. It differs from the development of 'eastern' scientific thought that originated in Egypt, China, and the East.

[Wertheim 1997; Wolpert 1993]. This turning away from belief in the Olympian deities, and a quest for a naturalistic explanation of the world as a rational system, unhindered by supernatural powers, was perhaps the beginning of a movement that would later be known as “science”. It was however, Thales’ student, Pythagoras, born in 560 BC, whose famous dictum, “All is number”, planted the visionary seed upon which the science of physics grew [Wertheim 1997]. The great civilisations of Egypt and Babylon and China were already familiar with many mathematical principles as evidenced in their building and engineering feats. It was the Greeks however, who lifted mathematical principles out of their practical application and on to a theoretical pedestal.

Their propositions were refined during the following centuries by thinkers who were all deeply inspired by the idea that nature was governed by eternal mathematical laws. The difference the Greeks displayed to all previous great civilisations was their belief that there were laws controlling nature and that these laws were discoverable [Wolpert 1993]. In short, there was an underlying fundamental principle that could be applied to nature and described in mathematical terms. This was the beginning of western scientific thought with its foundation on the essential understanding of the separation between man and nature; divergent from the thinking of the great Eastern civilisations that continued to regard man, nature and the cycle of time as intimately and inextricably linked to one another [Sheldrake 1998].

The evolution of Western scientific thought is characterised, however, by momentous epochs of great darkness, discovery and rediscovery. The search for rational means with which to describe the universe for example, in Aristotelian terms, witnessed the simultaneous rejection of the Pythagorean principles that had previously charted the ‘harmonies of the spheres’ in mathematical ratios [Wertheim 1997]. Although the mathematical knowledge of the Pythagorean School was not lost, it took until the sixteenth century and the triumph of Copernicus’ heliocentric model of the cosmos to move scientific thinkers from the Aristotelian position of geocentric thinking into the next momentous scientific epoch. By replacing the Aristotelian view of the world with a new model, one where the motions of celestial bodies were viewed from the vantage point of the sun, rather than the earth’, Copernicus was able to establish the inherent symmetry of the heliocentric system in empirical terms. [Wertheim 1997]. It was left to Kepler, however, at the dawn of the seventeenth century, with his publication, *New Astronomy*, in 1607, to chart the new physics of the heavens. For thousands of years astronomy had been guided by the perfection of the circle, until Kepler, through his application of empiricism, and the discovery of the elliptical nature of trajectories, provided the next momentous milestone in western scientific thought. “Kepler’s discovery of elliptical orbits heralded the emergence of modern cosmology because, instead of imposing a pre conceived idea about the way the heavens *ought* to be, he had let himself discover the way they actually were. He had allowed the data to speak for themselves. Thus the ellipse represented the triumph of empiricism over dogmatism, of commitment to mathematical accuracy over submission to ancient authority” [Wertheim 1997 p74]. The basic picture of uniform circular motion had prevailed in the minds of scholars because it was considered the most perfect and

natural and “therefore the only one which celestial mechanics should use.....they had drawn a magic circle around themselves, and were searching inside the circle for something that simply wasn’t there. Kepler’s genius was to break the circle..... the repetition of old theories has the power to obstruct and prevent the emergence of new ideas. (Ekeland, 1990.)

The seventeenth century was remarkable for the discoveries in astronomy, dynamics, and scientific instruments. In 1628 Harvey discovered and published his findings on the circulation of blood, believing it revealed the microcosmic reflection of the Earth’s circulatory systems and the cosmos’ planetary motion [Tarnas 1991]. This period of Western history was influenced by the rise of Protestantism and its rejection of any pre-Christian pagan association with “mother nature”. It was the time when scientists began to believe that through organised empirical research they would discover the ‘secrets’ of nature and thereby have ‘dominion and power over her’ [Sheldrake and Fox 1997]. It saw the publication of Francis Bacon’s first aphorism in his first book, *Novum Organum*, in which he declared “Human knowledge and human power meet in one; for where the cause is not known, the effect cannot be produced ” [cited in Blake et al 1989 p 52]. The path was clear for the mechanistic revolution in scientific thought that was led by Rene Descartes in 1619, whose ‘fundamental certainty’ was the existence of ‘himself and his thoughts’, from which the ‘external world’ could be ‘inferred’ [Russell 1993].

From the revival of ancient Greek mathematics and science during the high Middle Ages (1100-1400 AD), up until the time of Descartes, Western thought, including Western Christian thinking had considered the Platonist view of the soul as the animating principle within the body. All living things were alive because they were inhabited by a soul, *anima mundi*, the ‘formative principle’. Descartes postulated that the body was inanimate and merely a machine that was governed by universal mathematical laws. His famous epithet - *Cogito ergo sum* - ‘I think therefore I exist’ - led Western scientific thinkers to equate their identity with the mind, instead of the whole organism.[Capra 1998 p35].

It followed that Cartesian dualism, the separation of mind and body became a dominant theory in Western culture, and in particular it remains one of the strongest underlying influences in Western medicine [Bunckle 1992, Capra 1998, Dew 2001]. This construct of ‘separation’, and the notion that the body obeys the laws of mechanics, and can be managed to perform functions in the sense that a machine can be engineered to function correctly, are still notoriously intractable concepts within obstetrics [Davis-Floyd and Davis 1996; Martin E 1987; Duden 1993; Kitzinger 1999]. The following description is an example of the mechanistic thinking that had emerged as scientific truth. The ‘heart, previously thought to be the seat of emotions was merely a pump, and the body, like the rest of the world, a machine’ [Donnison 1988 p32]. As Sheila Kitzinger points out, the language of obstetrics remains mechanistic in its widespread use of metaphors from architecture and engineering. The woman’s body may be described as if she is a construction site, with a ‘pelvic floor’ and a ‘pubic arch’ [Kitzinger 1999]. When her rhythm of labour is described as ‘failure to progress’

due to an 'incompetent cervix' or to 'in co-ordinate contractions', one is mindful of the faltering machine.

Although mathematics, the language of science, was well established by the seventeenth century, it was the codification of scientific method that provided the foundations for modern scientific behaviour. In Book 111 of his treatise, *Philosophiae naturalis Principia Mathematica* published in 1686, Isaac Newton set down the three golden rules for good scientific practice [Newton cited in Bursztajn et al 1990]. Firstly it was believed that for every observable effect there would be a limited set of causes and these alone would determine the observed effect. Secondly there must be a 'crucial experiment' that can test once and for all this deterministic causal relationship between a cause and its effect. Thirdly, scientific knowledge must be absolutely reliable and this can only be achieved when the objective or scientific knowledge exists independently of the observer [cited in Bursztajn et al 1990].

Science based on Newtonian method forms the bedrock of modern medical thinking even today with its 'rational' and 'causal' approach to problem solving. The rules of classical determinism that express all things in a linear filiation from cause to effect, suggesting that knowing the cause sufficiently well will enable us to predict the effect, was well adapted to the physical sciences. The reflection of this causal approach is still evident whenever medicine claims to be an exact science, that is to say, where the laws in medicine are based on certainty and absolute determinism, rather than probability.

THE IMPACT OF WESTERN SCIENTIFIC THOUGHT ON MIDWIFERY

The impact of Western scientific thinking cannot be underestimated in its effect on the invisibility of the midwife. As the new obstetric knowledge of the 18th century emerged from medical schools for man midwives, so the authority of the female midwife diminished. The language and logic of midwifery fundamentally differed from the rational critical debate of Enlightenment arguments, and from the economic and industrial requirements of the burgeoning industrial societies of England and Europe [Cody 1999]. Reproduction had attained a scientific identity and was no longer treated as a domestic concern, hastening the displacement of the midwife [Cody 1999].

Although she was not a passive victim of historical events, and adapted a practice that was diverse and responsive to the changing traditions, the nineteenth century in particular marked a change and decline in the practice of the midwife, that was slow, subtle and complex in its effect [Marland 1993]. The mechanistic philosophy of medical practice gained authority in the 19th Century, having displaced most previously held beliefs as superstition and fantasy. This rise in supremacy of mechanistic scientific thought in medicine, combined with the exclusion of women from education in the scientific method, gradually diminished the role of the midwife from her previously held position within communities dominated by social norms and traditions around helping women in the birth process.

During the years 1400 to 1800 the work of midwives varied greatly. Most were trained through apprenticeships both formal and informal. Many were recognised within their

communities for skills other than childbirth attendant. These included administering emergency baptisms and being an expert witness in cases of illegitimacy or infanticide. Many were subjected to changing fortunes at the mercy of struggles between State and Church, as in Italy and Spain; or the decline of ecclesiastic licensing and the concomitant rise of medical supervision, as in England; or the fortunes of revolutionary France [Marland 1993].

The essence of the problem, according to scientist Margaret Wertheim, is that over the last four centuries Western culture has evolved conceptions of “science” and “femininity” as polar opposites. “science has come to mean objectivity, reason, dispassion, and power, femininity has come to mean everything that power is not: subjectivity, feeling, passion and impotence” [Wertheim 1997 p247]. These dichotomies represent an extension of the Aristotelian position that the natural order dictates the male as ‘ruler’ and the female as ‘ruled’. The natural oppositions with their strong symbolic associations are evident from the time of Pythagoras in Western thought, presenting as right, light, east, up and sky on the one hand and left, darkness, west, earth and down on the other. For the ancient Greeks the conception of the earth as female (or a mother), and of the sky as a generating male, is based on the ‘obvious analogy between the growth of plants and sexual reproduction’ (Lloyd 1991 p 37). The deification of physics from Pythagoras to Einstein, and the continued male-female heaven-earth dichotomy, according to Wertheim are still embedded strongly in the Western subconscious and continue to ensure the exclusion of women from scientific knowing [Wertheim 1997].

Because of the invisibility of women, classified as “other” in relation to men throughout recorded western history [Tarnas 1991], the acclaimed historian, Jean Donnison writes, the historical accounts of midwifery and midwives are generally those of a “male occupational group describing a body of women assumed to be intellectually and morally inferior by reason of their sex, and with whom they were in competition for their livelihood” [Donnison 1988 p 9]. Most midwifery was regarded as a skill rather than a trade, and so like farming and child rearing, was passed on to succeeding generations without formal instruction. Many women who attended their neighbours and kin, never generated a record as ‘midwife’. Where recorded accounts exist, midwives remain a ‘mute group and most of the evidence on them emanates from hostile contemporary accounts’ (Harley 1993 p27).

After the middle of the eighteenth century the rise of man-midwifery from the ranks of surgeon apothecary, had the most momentous effect on the practice of midwifery. Historians such as Adrian Wilson claim that the transition of childbirth from a female-dominated event to a medicalized one with male professional attendants, was the result not of female passivity, but of conscious choices made by women. Wilson, in his treatise ‘The Making of Man-Midwifery’, claims that with the creation of a new upper class female culture of “literacy and leisure,” the demand for the politically well connected man-midwife caused a break with tradition from the traditionally female midwife birth attendant [Wilson 1995]. The fashionable

trend of the lower social classes to emulate the wealthy in their conspicuous consumption of the new medical men led to the steady demise of the role of the midwife [Wilson 1995].

In his reply to this observation, the medical historian, Irvine Loudon claims “ the advance in scientific knowledge was, independently from the demands of women, an important element in the onset and rapid growth of man-midwifery” (Loudon 1996 p 512). The concomitant rise in the scientific understanding of pregnancy and childbirth with the rise of the anatomists; an increased demand from women as a result of changes in female culture; and success of men-midwives at all levels in persuading women to accept attendance by a medical practitioner instead of a midwife were the separate but interdependent factors that changed the course of midwifery [Loudon 1996].

“Without the solid basis of new and widespread knowledge about childbirth and its complications, few medical men would have chosen, or been able to embrace, this new branch of medical practice. Without the knowledge and ability of medical men to act “in lieu of the midwife,” the demands of women for attendance by a man-midwife could not have been met. And without the willingness of an increasing number of women to be delivered by medical men, man-midwifery could not have advanced so rapidly ”

Irvine Loudon, Review Essay: *The Making of Man-Midwifery* 1996 p514

In the past one hundred years these factors were reinforced by the collusion of the early Feminists and the midwifery Profession itself, aspiring to higher social standing than was afforded by the midwife specialising in the domestic realm of midwifery. Exclusion and control continue to be the two major constraints faced by midwives and women at the beginning of the 21st Century [Kirkham 2000, Sandall 2000]. Mavis Kirkham writes about the process of exclusion in terms of an earlier period when women were excluded as primary carers or “women supporting childbearing friends and witnessing birth”, and the way midwives are currently excluded as “subordinate carers” through professional control and management of childbearing [Kirkham 2000 p78].

In her critical analysis of the sociology of professions, Anne Witz describes the division of labour, as the focus of the struggle between midwives and obstetricians since the seventeenth century. The division that was constructed around ‘assistance’ or ‘intervention’ of course corresponded with the ‘construction of a division in the very process of labour itself into ‘normal’ and ‘abnormal’ conditions that required either the ‘assistance’ of a midwife or the ‘intervention’, usually with the aid of instruments, of a medical man. The medical journals of the time further reinforced these divisions. Both The *British Medical Journal* of March 1890, and the *Lancet* in May 1890, called for midwives to be limited in their duties and restricted in their actions outside of the simple duties of ‘natural’ cases of labour. [Witz 1992].

It is claimed that the precedent for the division occurred in the mid 17th century when Peter Chamberlain the Elder (1560-1631), a Huguenot refugee, first introduced his secret instruments into the birthing rooms of the wealthy and aristocratic society of London. The

instruments were traditionally covered in leather to prevent the clinking sound of their presence, well hidden from sight underneath the drape that covered both the woman giving birth and the obstetrician applying his tools of trade. The obstetrical forceps remained a closely guarded family secret for four generations of Chamberlens, and today remain the sole province of obstetricians who apply them to speed up the progress of birth.

Overall the most potent force influencing the future of midwives from the time of Descartes and Newton was the belief in the 'new philosophy' that advocated 'rational and experimental inquiry as the highway to 'scientific truth" [Donnison 1988]. This built on the previously held truths and dictums of the ancient Greeks who believed, for example that 'rationality was essentially a male quality' (Aristotle); 'medicine should only be revealed to holy men and not made known to the profane until they are initiated into the mysteries of knowledge (Hippocratic treatise) [Lloyd 1989 p334]; woman as 'less perfect than the man' (Galen) [ibid. p325].

In her study of the midwives of seventeenth century, London, Doreen Evenden asserts that not only is there evidence of a high rate of positive outcomes in birth governed by midwives at this time, the loss of prominence for female practice accompanied the social changes that involve the subordination of women. She establishes that accompanying the diminution of church authority; the growing prominence of medicine and empiricism eventually eroded the well established and high quality female practice of midwifery [Evenden 2000].

An interesting feature of this history of the obstetrical substitution of midwifery is, as Ann Oakley points out, *the discreditation of midwifery as unscientific rather than the proof of scientific rigour within the specialty of obstetrics* [Oakley 1993, p68, my emphasis]. In other words, the achievements of male obstetrics over those of female midwifery are rarely argued empirically, but always a priori, from the double premise of male and medical superiority [Oakley 1980].

THE MIDWIFE AND MOTHER IN WESTERN ART

The surviving works of Western religious art are another source through which we can construct the everyday practices around childbirth, and the role of the midwife in western culture. In their depiction of the Divine Birth of Christ, western artists included in their backdrops the scenes from contemporary domestic life. In religious art until the seventeenth century, the mother giving birth to the infant was invariably surrounded by a host of women. These women were known as the 'Godsibs' - a medieval term meaning - "sister in God" [Kitzinger 1991]. Throughout Europe they had the religious function of being witnesses at the baptism. The term implies that they were not only practical helpers and comforters but had a spiritual responsibility for shepherding the baby through the birth and into the community of faith. This gathering of women was no doubt resented by the men of the house and in male usage the words 'god sib' gradually changed to 'gossip' [Kitzinger 1991] with its attendant derogatory connotations.

In the following birth scenes believed to have been composed several hundred years apart, the mother is depicted in the company of women and midwives.



Pietro Lorenzetti – *Naissance de la verge* – 1342
Musée de l'oeuvre de la cathédrale, Sienne.



Vittore Carpaccio – *La Natività di Maria* - 1500

From the time of the early middle ages when the 'pagan masses' of the late Roman Empire converted to Christianity, up until the time of the reformation, the 'mother' was depicted in art as the nurturing, all embracing sensual symbol of spiritual beauty and divine love [Tarnas 1991]. The natural breastfeeding function of the mother was depicted in life-like detail in the Madonna's of Andrea di Bartolo 1507 (Le Louvre), and Andrea di Francesco 1518 (Le Louvre) where she was the symbol of the feminine nurturing matriarch presiding over nature and rebirth, and depicted holding her child to the breast. Where the Renaissance had accommodated both classical culture and Christianity in one expansive vision, the centuries that followed saw the demise of the mother/nurture figure of the Madonna, as she was progressively, symbolically severed from her earthly connections. In tandem with the rise of logical method, empiricism, rational thought and the dualism of mind and body, the Madonna 'lost' her earthly connection with the body and nature. She was often no longer attended by angels and Godsibs at the birth, and although in Catholicism she remained a symbol of the birth of Christ, in Protestantism her connection with birth and earthly nature is faded out almost completely.

The dichotomy between male-female and heaven-earth is strongly apparent, and persists today, in Western societies that still regard women as grounded in the physical, the personal and the domestic [Wertheim 1997].

THE AUTHORITY OF SCIENCE

In the latter part of the twentieth century, midwives, confronted by the all embracing certainty and authority of medicine, tended to retreat to the opposite end of a theoretical spectrum. In research, midwives have found that the dominant cultural ideology of medicine has influenced the way evidence is defined and used [Stewart 2001]. As the anthropologist Barbara Jordan found in her well known research into how knowledge systems attain 'legitimacy', "the power of authoritative knowledge is not that it is correct but that it counts" [Jordan, 1997 p58].

For many, the theoretical underpinnings of feminism, with its critical analysis of conventional intellectual and cultural assumptions, has prescribed a less-dichotomised, feminist re-examination of how meanings are created and how evidence is selectively interpreted. In contrast to the medical world view, the body is not regarded as a series of parts to be treated separately [Dew 2001]; neither is the foetus constructed through diagnostic technologies and ultrasound as an entity separate to its mother and the nurturing family. The midwives' end of the spectrum values connectedness in contrast to the 'technologies of separation' [Davis-Floyd and Davis 1996] and the intuitive, experiential knowledge over scientific rationalism.

Midwives have paid dearly for questioning the authority of obstetrics [Kirkham 1999], and opposing the medical model [Kitzinger 2000]. The survival of midwives in contemporary western societies is now more threatened than ever before in history. Many still lack the skills to challenge the dominance of the medical way of thinking; a situation exacerbated in

particular because of their exclusion from the study of science and mathematics until the latter half of the 20th century.

MOVING INTO THE TWENTIETH CENTURY BEYOND THE OBSERVER

“Even though the initial conditions are known, the outcome cannot be fully predicted and the only way to it is to actually carry out the experiment. Better still, if one performs the same experiment twice with the same initial conditions one may get two different outcomes”

Ivar Ekeland, *Mathematics and the Unexpected* 1990 p49

In the fields of political and social theory, and in economics and much of modern science, the principles of subjective interpretation and indeterminate causality have been strongly challenged. Mechanistic thought, which applied the laws of determinism to human affairs for three centuries, is contested in the Twenty First century by studies of biological systems characterised by the ‘sovereignty of chance, luck, and contingency’ [Burztajn et al 1990 p 56].

Einstein’s famous epithet, “Gott wurfelt nicht” suggests that because ‘God does **not** play dice’, there would always be a possibility that in the future when scientists had a deeper theoretical understanding and more sophisticated computing methods, the hidden determinism for apparently random phenomena would be easily understood [Ekeland 1990]. “What Einstein resisted and what quantum physicists such as Neils Bohr and Werner Heisenberg accepted, was that chance and cause were not mutually exclusive categories [Burztajn et al 1990 p 29].

The theories of probability claim that causal relationships cannot be known with certainty. Here, small causes can have a great effect, and the same effects may not have the same causes [Burztajn et al 1990]. In other words, although we can make reliable quantitative measurements and analyse the results using sound mathematical techniques, do we know that this scientific evaluation is a true representation of the real world?

According to Ekeland it was Poincare who fired the first shot at deterministic quantitative analysis by introducing qualitative methods into mathematics in the form of topology, with his mathematical treatise published between 1892 and 1899. [Ekeland 1990]. He found himself needing to ‘change instruments’; to change from quantitative methods that he claimed were accurate but limited in scope, to qualitative methods with their greater range but less precision [Ekeland 1990 p35]. He showed that even in the Newtonian model, where we may find a well determined association between time and position, because the necessary computations cannot be performed, it cannot be exactly reproduced. Poincare’s contribution to a new understanding of science rests on his theoretical proof that mathematical predictions have no practical relevance, that is, there are models that are exact but incapable of prediction, and models that predict the impossible with certainty! [Ekeland 1990].

The Newtonian scientific method, relying solely on the observation of cause and effect, has in essence reduced the modern scientist to a mere spectator. However, Einstein’s

revolutionary theoretical work challenged the accepted scientific method. Where Newton had declared “absolute space in its own nature, without relation to anything external, remains always similar and immovable. Absolute, true, and mathematical time, of itself and from its own nature flows equably without relation to anything external” [Greene 2000 p377]. Einstein’s special and general theories of relativity did away with the concept of “an absolute and universal notion of space and time” [Greene 2000 p 377].

CONFLICTING RESEARCH METHODS?

There is no doubt that the lack of recognition of qualitative research is an area of contention between the midwife and the obstetrician. For the quantitative experimental scientist there is a belief that social science research does not fulfil the role of science because of its peculiarity of complexity in subject matter, and so the difficulty in disentangling the causal relationships. “There is little possibility for example of doing experiments equivalent to those in physics, say, in which it is characteristic to try to vary just one variable at a time, keeping others constant, and so observe its effect on a system” [Wolpert 1993 p125].

Critics of medical science, however, claim that the traditional quantitative research methods represent a confined access to clinical knowing. The ‘medical research tradition lacks strategies for the study of interpretive action, its dynamics and its consequences’ [Malterud 2001 p397]. Feminist critics claim that the outcome of rational tests for truth is certainty, and certainty not only confers a status to scientific method and the bio medical model, but it constitutes the knowers of science as male. More importantly it excludes women because they are typically incapable of scientific endeavour [Bunckle 1992].

The lack of recognition of qualitative methods amongst medical researchers is articulated by Catherine Pope and Nicholas Mays where they claim in their chapter on qualitative methods in health research; “ that because these methods have traditionally been employed in the social sciences, they may be unfamiliar to health care professionals and researchers with biomedical or natural science backgrounds. Indeed, qualitative methods may seem alien alongside the experimental and quantitative methods used in clinical, biological and epidemiological research. Misunderstandings about the nature of qualitative methods and their uses have meant that qualitative research is often labelled “unscientific”. A frequent criticism is that qualitative data are necessarily subjective (and, therefore, biased) and that such research is difficult to replicate and amounts to little more than anecdote, personal impression or conjecture “ [Pope and Mays 2000 p 9].

Feminist scholars on the other hand believe that positioning the experience of birth under research as an entity in its own right without any reference to the woman who is experiencing it, reinforces the position of medical knowing [Huntington and Gilmour 2001]. By ‘objectifying’ the experience, the woman’s embodied knowledge of the experience is not heard and, therefore, not accepted as central [Belenky et al 1986]. Situating medical knowledge in the primary position, as many texts do, supports its position of dominance. Medicine is allowed to speak, when the person is silenced. Shifting this knowledge to a

supporting role and allowing the person to 'speak' first changes the visual representation of legitimacy and, significantly, power in the illness experience [Huntington and Gilmour 2001].

There are other feminist critiques of the assumptions about scientific knowledge that challenge the neutrality of science by demonstrating how scientific knowledge reflects the forces that generate it [Harding 1987]. Feminist standpoint theory [Harding 1987], for example, is exemplified in woman centred midwifery, where women become the subjects and the authors of knowledge, and knowledge is determined by the position of the knower. The woman's perspective will allow a fuller, more inclusive view, and will produce less alienated insights into the area under research because the women are not separate and detached from their subject matter.

Post modernism challenges the assertion of universal truths in scientific knowledge, through the counter claim that all meaning is constructed, rather than reflecting some independent reality. In medicine, post modernism challenges the objectivity that science has claimed is its defining characteristic, as spurious and unsupportable, and although many different theories are encompassed by the term "postmodernism", a suspicion of science is at the core of such theories' [Muir Gray 1999 p1550].

Scientist, Evelyn Fox Keller claims, "a healthy science is one that allows for the productive survival of diverse conceptions of mind and nature, and of correspondingly diverse strategies.it is not the taming of nature that is sought , but the taming of hegemony.....to know the history of science is to recognise the mortality of any claim to universal truth" [Fox Keller 1995 p 178].

Feminist scholars such as Ann Oakley claim that it is possible to bridge the methodological divide when we recognise that all research, regardless of the paradigm within which the methodology sits, involves an imaginative leap from observation to synthesis, hypothesis and generalisation [Oakley 2000]. Yet others claim that new analytic tools are needed for the new millennium – a "departure into new realms" in fact [Warren 2000]. As Professor Joe Kincheloe claimed in the Egon Guba Lecture in 2001, we have few models to show us how interdisciplinary collaboration might work. However, once we understand the limitations of objective science and its universal knowledge,

" the inseparability of knower and known and the complexity and heterogeneity of all human experience... we must operate in the ruins of the temple, in a postapocalyptic social, cultural, psychological, and educational science where certainty and stability have long departed for parts unknown" [Kincheloe 2001 p681].

THE SPACE BETWEEN THE TWO WORLDS

Ironically the gap between gender constructed experiential knowledge on the one hand, and scientific mechanistic knowledge on the other, has provided the space for the opposing worldviews of midwifery and obstetrics to recapitulate. The space within which this renaissance may occur is bound by the laws of the 'new' physics which recognises relatedness, a connectedness and the dynamic nature of all matter [Capra 1984]. And

suggests that if we give up trying to predict an exact and reproducible outcome for every individual cause, it will enable us to begin to understand patterns that may be predicted through statistical methods that recognise a 'probabilistic pattern' [Ekeland 1990]. This shift in understanding would have profound implications for maternity services.

COMING TOGETHER

“ So I will turn to another speculum – statistical analysis, coupled with freedom and justice oriented policy formation — to find a sharper focus for describing what feminists must mean by reproductive freedom, in particular, and technoscientific liberty in general”

Donna Haraway *The Virtual Speculum in the New World Order* 1999 p70-1

Part of the 'revised' and 'disrupted' agenda for women's health is the recognition of a critical need to understand 'technoscience' in order to make interventions effective, safe and efficacious [Haraway 1999, Clark and Oleson 1999, Oakley 2000]. This form of feminist empiricism [Harding 1987] does not so much challenge the nature of scientific knowledge, but challenges epidemiology and the tools of empiricism to address issues that do not exclude, and are more relevant to women.

This challenge is echoed by feminists such as Marcia Inhorn and Lisa Whittle [Inhorn and Whittle 2001] who call on epidemiology, which they describe as 'a methodologically rigorous discipline that mediates between bio medicine and public health' to address several antifeminist biases. They raise in particular, issues of definition and knowledge production in women's health; the biological essentialisation of women as producers and the decontextualisation and depoliticisation of women's health risks [Inhorn and Whittle 2001].

At the strongly experimental end of the 'seeking to know' continuum, the randomised clinical trial allows the effect of any measurable concept to be manipulated and quantified. Although many midwives reject this heavily scientific focus for the acquisition of midwifery knowledge, and there are serious methodological questions here for midwives seeking to measure midwifery interventions²³, it has the rewarding capability of producing results that may fly in the face of previously held unsubstantiated beliefs for all concerned.

The anti-authoritarian nature of research [Chalmers 1983, Kirkham 2000] gives midwives the opportunity to challenge and question ritual and medical intervention as well as evaluate and improve practices and ultimately to move 'beyond dogma and into creative uncertainty' [McCandlish 2001].

Consider again our home birth safety question. The safety of homebirth may have been successfully resolved through research soundly based within the framework of a randomised comparison between women bearing children at home or in hospital. Sadly,

²³ S Tracy. A Measure of Midwife. Letter in response to Professor JM Bland, *BMJ* 2000; 321(7274) 1470 <http://bmj.com/cgi/eletters/321/7274/1470#11450>

however, the chance was missed, (and awarded Archie Cochrane's 'wooden spoon' in recognition of lost opportunities) [Cochrane 1971]. Consequently, today we have very few ways of deducing the merits or harm of homebirth, other than sifting through a conglomeration of bias and expert opinion. Our hope lies now in the emerging small, but increasingly valuable research evaluations of isolated home birth models. [Guilliland 2000; Sandall et al 2001; Sutton et al 2002].

The proliferation of electronic access to research combined with the initiatives of foundations such as the Cochrane Collaboration, and more recently the Campbell Collaboration have provided obstetricians, midwives and women the opportunity to be informed in a radically new way with respect to safety and best practice.

As obstetricians move from the comfortable medical world view of 'certainty' towards the understanding of birth as neither predictable nor certain, midwives are also moving from a strongly held position of experiential knowing and intuition towards this same uncertainty. The bridge we are all looking for, and the matrix that may cement the relationship between midwives and obstetricians is 'probability'. Probability provides an alternative to deterministic reductionism through its embrace of chance and uncertainty.

PROBABILITY HOLDS THE TORCH

“ the dominant issues in health care right now consist of, firstly, understanding the extent of uncertainty and, secondly, relating this to the quality and costs of care. Then, since medical care is simultaneously emerging from an era of paternalism and medical domination, all decision making now has explicitly and increasingly to take account of two important concepts. These are the role of supplier induced demand and, secondly how to accommodate consumer preferences into decisions.”

Klim McPherson *The Cochrane Lecture 1994*

What is probability? What lies behind the numbers?

From as early as the sixteenth century, the notion of probability was linked closely with the concept of 'likelihood'. It was used to describe events that could be believed to be true based on all the known facts. This was quite a separate notion to 'chance', which was more closely aligned with misfortune and unpredictability, having derived from the Latin *cadentia* meaning 'falling'. It meant simply the way luck or opportunity might fall. [Shorter Oxford English Dictionary 1969].

In its most general sense, probability theory is the mathematical theory underlying probability arguments, and most theories of induction, with a mathematical basis [Lacey 1993]. It includes several specific variations, but the most common frequency theory defines probability in terms of "the ratio of times something happens to times it might happen" [Lacey 1993 p 189]. The mathematic derivation of our current usage of the term 'probability', extends back to the early eighteenth century when it was first defined as "a measurable quantity: the

amount of antecedent likelihood of a particular event, as measured by the relative frequency of occurrence of events of the same kind in the whole course of experience” [Shorter Oxford English Dictionary 1969].

The rule that scientists should seek to attach probabilities to their hypotheses to prove them *true*, or *confirm* them, (my emphasis) was disputed by Popper. He argued that this was impossible [Popper 1972], and that scientists should seek the most easily falsifiable hypothesis, otherwise known as the “null hypothesis” and measure the probability with which this might be rejected. Probability in this instance becomes a measure of the certainty with which we understand a statement or hypothesis to be false rather than true. [Lacey 1993, Popper 1972].

Although the science of probability was well known among French mathematicians such as Pascal, Fermat, Laplace and Poisson [Goodman 1999, Stigler 1999], it was strictly ignored from the clinical sciences and had little relevance to clinical medicine until the early nineteenth century. The French Academy of Sciences at that time were moved to issue a statement declaring that medicine could not entertain the idea of ‘average man’. It was felt that to strip the patient of all individuality, to consider him only as a ‘fraction of the species’ would detract from the role of medicine to treat the individual [Goodman 1999].

According to Stephen Stigler, in his history of statistical concepts and methods, physicians of the 17th Century believed that the complexities of medicine were best addressed using traditional methods of observation with a skilled eye, and a sensitive touch. In fact the earliest pioneers of the use of probability in medicine, such as the mechanist, Archibald Pitcairn were roundly satirised for advocating the use of probability in understanding the chances of cure for certain conditions [Stigler 1999].

Nevertheless, the publication in 1662 of John Graunt’s famous ‘Natural and Political Observations Made upon the Bills of Mortality in London’ had set the precedent in thinking that “there was an order in human affairs that was manifested in stable frequencies of seemingly unique events, even in the absence of understandable mechanisms” [Goodman 1999].

Within the Royal Statistical Society in London, Adolphe Quetelet, the Belgium mathematician and the mentor of Florence Nightingale, presented as early as 1846 his work on probability as it applied to medicine. From the notes that Nightingale made in 1872 next to a translation of his *Physique Sociale* (published in 1869), we learn that she understood even then, “*All sciences of Observation depend upon Statistical methods – without these, are blind empiricism. Make your facts comparable before deducing causes. Incomplete, pell-mell observations arranged so as to support some theory: insufficient number of observations: this is what one sees*” [Diamond and Stone 1981 p204].

In her preface to the work by Harold Bursztajn and his colleagues, on the need for a better understanding of medical decision making under uncertainty, Hilary Putman, Professor of Mathematical logic at Harvard University (1990), points to the need for ‘probabilistic as opposed to deterministic models for decision making’ [Putnam 1990]. She warns however,

that what is wrong with scientism is 'not that it neglects probabilities but that it neglects simple humanity; and an overemphasis on the ins and outs of probability can be as dehumanising as the ideal of 'certainty' and 'objectivity.' [Putnam 1990]. The Probabilistic Paradigm applied to medicine, and articulated by Professor Bursztajn and his colleagues [Bursztajn et al 1990], involves three criteria described as follows. The first is to recognise that a person's condition may have more than one cause and it may not be possible to separate out the effects of each 'cause'. Secondly, evidence that results from any form of research experiment must be seen in terms of a possibility rather than a certainty as it applies to the person being treated. Thirdly, data that applies to any intervention is interpreted as a shared experience recognising not only the 'scientific' evidence, but also the person's own experience and personal needs [Bursztajn et al 1990].

So, the paradigm 'shift' that is looming involves abandoning the thinking and practice of reductionism, where causes are believed to be linear, objective and quantifiable, and replacing these with measures of multifactorial influences expressed in terms of probabilities. In short, knowledge, including midwifery and obstetric knowledge that was once thought to be exact or absolute, is now perceived as 'probabilistic', even, 'provisional'.

Part of the essential framework underlying the critical appraisal of evidence in the evidence based practice movement includes calculating the effectiveness of all aspects of care e.g. the importance of diagnostic tests, interventions, and the effects they have on people, with the use of mathematical tools that measure uncertainty. Having asked the appropriate question and tracked down the best evidence, the practitioner appraises the evidence for its closeness to the truth and its usefulness, before evaluating the effect, and then continuing the cycle [Sackett et al 1998]. This exercise itself sharpens the discriminatory powers of a practitioner and raises questions about previously held 'beliefs'. In addition a greater recognition of uncertainty and mutually recognised anxieties may facilitate stronger co-operation and better use of finite resources.

For obstetricians, midwives and women beginning to wobble under the pressure of ever increasing information and technology, instead of struggling against uncertainty, we might be better advised to develop skills for dealing with it.

Returning to our original example, if home birth is seen as a dynamic physiological possibility rather than a safe and sure alternative, people may trust one another more readily when the unreasonable expectation of certainty is removed.

Contrary to this evidence based approach, the continued use of interventions that have been shown to be ineffective in certain situations, for example the continuous electronic monitoring of all labours [Mires et al 2001], is typically seen, not as a way of estimating probabilities, but a way of continually trying to achieve certainty. Uncertainty produces anxiety – mortality looms when limits of power and knowledge are revealed. In a labour ward an obstetrician may do anything to avoid being exposed as uncertain or in error in his own eyes and in the eyes of the woman, her family and midwifery staff who have been taught to expect 'scientific accuracy'. Unhappily, more often than not, in our practice, we reject the element of

chance or probability and prefer to rely on the “theory of errors”. For example, if a scientific experiment produces a result that is not expected or explainable, the problem is very often put down to the fact that women are imperfect, the body is imperfect, the machine used to measure the particular outcome is not big or strong or sophisticated enough. The unrealistic expectation is that certainty and perfection will be achieved eventually.

THE QUEST FOR CERTAINTY IS COSTLY

The passion for certainty keeps costs high as the quest to obtain an elusive diagnosis requires the acquisition of all available technology. (This influences costs not only in terms of the scarce health dollar, but also in terms of women’s and babies’ health and well being ²⁴.) The cycle is completed when women under influence of the media and the medical profession demand a perfect product without the threat of uncertainty or risk. This causes obstetricians and midwives to over intervene and protect themselves against malpractice in which courts apply medicine’s own standards of certainty [Mohr 2000]. By those standards a doctor must do everything possible to be as certain as possible before acting.

A study published towards the end of 2001 in the journal of *Behavioural Medicine*, surveyed the attitudes of medical students and physicians toward clinical uncertainty and medical error. To obtain estimates of tolerance of uncertainty an instrument was developed based on previously published work in this area [Benbassat 2001]. It consisted of a Stress From Uncertainty scale and a Reluctance to Disclose Uncertainty scale [Benbassat 2001]. The authors drew a predictive model that showed a correlation between the various emotional dimensions of attitudes toward medical error (fear of litigation, reluctance to disclose uncertainty, and stress from uncertainty); between the various functional dimensions of attitudes toward medical error (tendency toward defensive practice, support for self-regulation, self-disclosure of error); and between the emotional dimensions and their functional consequences. They concluded that interventions seeking to reduce physicians' fear of litigation (or fear of any other type of censure) and to increase their tolerance of uncertainty may also reduce their tendency toward defensive practice [Benbassat et al 2001].

A new paradigm deems certainty is unattainable not only in fact but also in principle.

CERTAINTY IS A DELUSION – ONLY UNCERTAINTY IS DEFINITE!

‘Misunderstandings about the nature of science and of scientific method - its scope and its limitations - contribute to misconceptions about the accuracy of clinical prediction. Past experience, however objective, is fallible, and initial data, however extensive, are insufficient to predict outcomes in complex biological systems

Robert Logan, *Uncertainty in Clinical Practice* The Lancet 1996 p397

²⁴ See also 'costs' in relation to morbidity for women in terms of high levels of obstetric intervention, Part's 2,3,4 of this professional doctorate.

The Twentieth Century witnessed one of the most turbulent epochs in scientific thinking, and the repercussions have spread only slowly into the realms of the biological sciences and medicine [Ceruti 1994].

It began with the rejection of Newton's theory which, according to Sir Karl Popper, had been arguably the "first really successful scientific theory in human history; and it was tremendously successful.....Here was a theory which explained precisely not only the movements of all the stars, but also, just as precisely, the movements of bodies on earth, such as falling apples, or projectiles, or pendulum clocks. And it even explained the tides.....Most open-minded men, and especially most scientists, thought that in the end it would explain everything, including not only electricity and magnetism, but also clouds, and even living organisms. Thus physical determinism.....became the ruling faith among enlightened men: and everybody who did not embrace this new faith was held to be an obscurantist or a reactionary" [Popper 1972, p 211].

The earliest advances and development of mathematical and statistical probability are attributed to Pierre de Laplace (Stigler 1975). In his publications *Theorie Analytique des Probabilites* published between 1812 and 1820, he proved and explored further, the Central Limit Theorem introducing amongst other theories, the quantification of uncertainty in observational data [Stigler 1975].

But the true demise of causality, according to modern scientific writers, can be traced back to Ludwig Wittgenstein in 1923, and his famous proposition, " We cannot infer the events of the future from those of the present. Belief in the causal nexus is superstition" [Ceruti 1994 Intro]. This proposition was followed closely by Werner Heisenberg's Uncertainty Principle in 1927 [Heisenberg 1962, Popper 1972].

Heisenberg recognised that the act of observing a system is an intervention that alters the system in ways that cannot be inferred from the results of the observation [Heisenberg 1962; Popper 1972; Jones 1982; Ceruti 1994; Greene 2000]. In other words, the Uncertainty Principle measures the extent to which the scientist influences the properties of the observed objects through the process of measurement. Scientists were no longer the 'detached observers', and there could no longer be a world regarded as a group of systems working within a machine model, rather the universe would now be seen as a unity with an interrelatedness that would change scientific thought for ever. In fact, according to Professor Greene in his treatise on the quest for a universal theory, when Heisenberg discovered the uncertainty principle, 'physics turned a sharp corner, never to retrace its steps ' [Greene 2000 p 118]. The Uncertainty Principle unseated the classic laws of determinism, as articulated by Laplace, that rested on the ability of scientists to be able to predict an outcome based on the 'precise positions and velocities of the constituents of the universe' [Greene 2000]. According to Heisenberg "what one deduces from an observation is a probability function, a mathematical expression that combines statements about possibilities or tendencies with statements about our knowledge of facts. So we cannot completely objectify the results of an

observation, we cannot describe what “happens” between this observation and the next” [Heisenberg 1962, p38).

With the Theory of Relativity rested the notion that observing a subject is as much part of the system as the observed object i.e. there are no strict separations between the objective and subjective aspects of knowledge and reality [Ceruti 1994]. When one cannot observe without thereby affecting what has been observed, the experiment itself does not confer absolute confirmation or rejection of the hypothesis [Bursztajn et al 1990]. From a theoretical point of view the final major assault on the scientific thinking of the past centuries came to pass with the discovery of the two foundational pillars of modern physics, the Theory of Quantum Mechanics and the Theory of General Relativity.

The story doesn't end here though, according to Greene, ‘the two theories underlying the tremendous progress of physics during the last hundred years... are mutually exclusive’ [Greene 2000 p 3]. And more recently the New Scientist reported the ‘discovery’ by an Australian astronomer John Webb that questions again the very foundation of modern physics by proposing that the ‘Alpha Constant’ may not in fact be ‘constant’. The report continues, “So if Webb’s data and the theorists prognosis hold up, there’s only one possible outcome: we can wave good-bye to our “understanding” of the Universe” [Brooks 2002 p 31].

CONCLUSION

“Thus we have reached a point from which we can see science as a magnificent adventure of the human spirit. It is the invention of ever new theories, and the indefatigable examination of their power to throw light on experience. The principles of scientific progress are simple. They demand that we give up the ancient idea that we may attain certainty....with the propositions and theories of science: the aim of the scientist is not to discover absolute certainty, but to discover better and better theories (or to invent more and more powerful searchlights) capable of being more and more severe tests (and thereby leading us to, and illuminating for us, ever new experiences). But this means that theories must be falsifiable: it is through their falsification that science progresses”.

Karl Popper, *Objective Knowledge* 1972 p 361

Over the past twenty years a fundamental change in thinking has begun to emerge within the organisation of maternity care. For obstetrics it began with questioning of the scientific veracity of the foundations for practice [Cochrane 1971, Chalmers et al 1989]. For women and midwives the movement was spearheaded by both midwifery and non-midwifery activists in the UK [Oakley 1980, Kitzinger 1980, Association of Radical Midwives 1986, Kirkham 1986, Tew 1989, Flint 1989, Page 1991, Leap 1990]; in Canada [Kaufman 1988, Tyson 1991]; in the USA [Gaskin 1977, Katz-Rothman 1985, Davis-Floyd 1992, Goer 1995]; in New Zealand [Donley 1986, Clark 1990, Guilliland and Pairman 1995]; in Australia [Barclay 1985, Robertson A 1990, Brodie 1994, Rowley et al 1995, Lecky-Thompson 1995, Lane

1995, Waldenstrom 1998, NMAP 2002]; in Scandinavia [Houd 1988]; and in the Netherlands [Smulders & Limburg 1988].

In her book 'Experiments in Knowing', Oakley suggests that being aware and acknowledging 'error' and establishing procedures to limit this will in turn enhance our ways of knowing. "Chance only becomes useful as a way of understanding the universe once this is seen as non-determined" [Oakley 2000 p141].

The challenge is to find systematic knowledge about safety and care in childbirth that will replace the tired beliefs and dogmas of current obstetric and midwifery practice. Tensions still exist between midwives on one hand and obstetrics on the other, over the way scientific research is conducted (Oakley 2000) and the recognition of a hierarchy of values evident in the way research is funded, published and implemented.

The western scientific tradition itself is not immune to criticism and change. Scientists such as Fritjof Capra claim that the supremacy of the mind-body divide and the authority of rational analytic science are at a 'turning point' (Capra 1983). The editor of the British Medical Journal wrote on the 13th April 2002,

"Any consideration of the limits of medicine has to begin a quarter of a century ago with Ivan Illich, who has so far produced the most radical critique of modern or industrialized medicine. His argument is in some ways simple. Death, pain, and sickness are part of being human. All cultures have developed means to help people cope with all three. Indeed, health can even be defined as being successful in coping with these realities. Modern medicine has unfortunately destroyed these cultural and individual capacities, launching instead an inhuman attempt to defeat death, pain, and sickness. It has sapped the will of the people to suffer reality."

Moynihan and Smith *BMJ* 2002 p 859

Feminist scientists such as Evelyn Fox Keller and Margaret Wertheim claim that women will see and interpret things differently in a scientific sense simply because of our different enculturation [Wertheim 1997].

Even mathematics, may be unseated from its pedestal of objectivity through the embrace of chance and uncertainty.

What appears to be emerging is a common understanding of the need to move from uncontrolled 'experimentation' in obstetric care to a practice that acknowledges women as the centre of care and research. A realisation that acknowledging uncertainty in the way things are practiced opens the way to discovery and a new vision. The new movement has claimed the mantle of 'evidence based practice'²⁵, and in its endeavour to minimise error, both

²⁵ These concepts will be addressed further in this portfolio in the final Part 10, an essay titled "Evidence based Everything"

systematic and random, two major constructs become pivotal; the use of comparison groups, and the derivation of a random sample. Integral to the new movement is the mathematical 'mistress' of probability applying reliable measures of uncertainty through the application of statistical analysis in the guise of confidence intervals, degrees of significance, likelihood, odds and risk ratios.

Although much of the 'old' thinking persists in both the research and practice of midwifery and obstetrics, the proposed move away from dichotomous and reductionist thinking will not only de-polarize the disciplines. It is hoped that the new scientific paradigm constructed around 'creative uncertainty' may give us the means with which obstetrics and midwifery reach a common understanding of risk and safety. According to Oakley, once uncertainty and the play of chance are acknowledged, obstetric and midwifery knowledge can never be the same again (Oakley 2000). Both women and babies and the professions of midwifery and obstetrics will be the beneficiaries of a new understanding of risk and uncertainty.

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PART 2: CHILDBIRTH IN AUSTRALIA: MEASURING THE CURRENT STATE OF PLAY

AN OVERVIEW OF THE AUSTRALIAN MATERNITY SYSTEM BASED ON A SUBMISSION TO THE SENATE INQUIRY INTO CHILDBIRTH PROCEDURES, 1999

CONTEXT

Part 2 of this portfolio consists of a brief overview of the current Australian maternity system that informed the written submission I presented on behalf of the research team from The Australian Midwifery Action Project (AMAP)²⁶. Many of the statements and positions put forward in the following paper, including raw data from Commonwealth and State data collections, provided the preliminary information on which my later studies were based.

One of the cornerstones of healthcare improvement is creating meaningful information and measurement from these collections. True comparisons from accurate data can be used to better understand the nature of the system and to gauge whether changes have been effective. Measurement that is used appropriately is crucial for a range of purposes such as quality improvement, accountability, regulation and changing services to improve outcomes. The challenge is always to balance progress or 'goodness' in public policy and public choice between competing views of the world -- each justified by how we measure and understand the quality of the service delivered. Simply developing state of the art tables to demonstrate efficiency and accountability are not enough. Women need to see comparisons and relate their own contextual understanding in making their choices about care. The problem, of course, is that measurement itself, like evidence, does *not* in fact improve outcomes. Measurement will only serve to demonstrate where improvements can be made, through informing and identifying where the problems lie. In addition, both measurement and evidence can be denied and manipulated.

I believe the Senate Inquiry marked a milestone in the debate about the management of childbirth in Australia. Although it was chaired and led by members of the Opposition, Senator Rosemary Crowley, Australian Labour Party (ALP), it was the first time that the rising levels of obstetric intervention including the rising caesarean section rate, had been placed on the national agenda²⁷. It provided a platform for both women and midwives to be heard

²⁶ The Inquiry fulfilled two main purposes for the AMAP project. Firstly it provided us with an opportunity to publish our literature review and preliminary findings on barriers to the provision of safe, efficient and economic midwifery care within maternity services in Australia. Secondly, the Senate Inquiry into Childbirth Procedures, and the subsequent Inquiry held into Public Hospital Funding, were public platforms where AMAP could engage with policy makers and the profession nationally to form links for future collaborative strategies. The published submission from the AMAP team is available from the Commonwealth Government, Submissions Volume 2, No 45.

²⁷ Unfortunately the Government response to the Inquiry was not dynamic, and consequently very few changes have been implemented to date. See Government response to the Senate Community Affairs References Committee, Report on Childbirth Procedures. Commonwealth Department of Health and Aged Care, August 2000.
http://www.aph.gov.au/senate/committee/clac_cte/response/index.htm

alongside the conventional policy informers such as the colleges of obstetrics and medicine. The issues raised by the first five terms of reference in particular, are critical to the notion of measuring current maternity services. So far no detailed analysis using population health data sets had been undertaken to ascertain the levels of intervention or the rates of morbidity especially amongst women who were considered 'low risk' or otherwise without medical and obstetric complications in pregnancy. There were serious gaps in the data with no analysis beyond a simple reporting of the numbers involved. These gaps in the evidence determined the need for further research to better inform any policy change in this area of maternity services, and during the next two years I was able to undertake some of this work²⁸.

The Inquiry was called by the Commonwealth Senate of Australia in July 1999, when it referred the matter of childbirth procedures to the Senate Community Affairs References Committee for inquiry and report by 30 December 1999. Written submissions were invited and the closing date for the receipt of submissions was the 6th August 1999. The Inquiry received one hundred and ninety written submissions²⁹ and heard oral submissions³⁰ from a further one hundred and sixteen individuals representing over fifty organisations in Australia. The Senate Inquiry was called to demonstrate national leadership in addressing a concern that almost none of the recommendations that followed a series of State and national reports that reviewed childbirth services had been acted upon³¹.

The reasons for the Inquiry were stated clearly in the following statement, reprinted from the Overview and Recommendations³².

“Evidence to the Committee indicated that Australian women value safety during birth for their babies and themselves above all other considerations. For this reason the vast majority choose to birth in hospitals. But while women acknowledge the contribution of the medical profession to Australia’s low mortality rates they are generally concerned by the extent to which childbirth has been medicalised. This has led to a significant increase in the level of intervention and consequent morbidity, and in the disempowerment of the women giving birth.

While recognising that the medical approach may be justified for women considered at risk, they believe it inappropriate for the majority of women. While mortality rates are fairly uniform across the country, with the notable exception of the indigenous population, levels of intervention and morbidity for mothers and babies are variable.

²⁸ See Parts 3 and 4 - Measuring Obstetric Interventions, and Measuring the Cost of Obstetric Interventions.

²⁹ See <http://www.aph.gov.au/senate/committee/history/index.htm#Community>

³⁰ See <http://www.aph.gov.au/senate/committee/history/index.htm#Community>

³¹ New South Wales (Shearman Report, 1989), in Victoria (Having a Baby in Victoria, 1990), in Western Australia (Select Committee on Intervention in Childbirth, the Turnbull Report, 1995) and the National Health and Medical Research Council (Options for Effective Care in Childbirth, 1996)

This is particularly evident in relation to Caesarean section, the rate of which is high by world standards, but it also extends to other forms of intervention. Intervention rates are highest among women with private insurance, women giving birth in major tertiary hospitals and women attended by specialist obstetricians. They also vary by State, with South Australia currently having the highest rate of Caesarean section. The evidence suggests that the higher rates may be partly accounted for by the greater proportion of older women among the privately insured and by the concentration of women at high risk in tertiary hospitals. But these factors do not fully explain the differences in intervention rates.”

In her public speeches that followed the publication of the Findings of the Senate Inquiry, *Rocking the Cradle*³³, Senator Rosemary Crowley, the Chair of the Senate Inquiry, made several damning attacks on the lack of services available to Australian women. She was quoted as saying that birth centres were very scarce, but “where birth centres are available, women have as much chance of getting into one as winning the lottery”.³⁴ The Inquiry heard that intervention rates were higher amongst women with private health insurance, those giving birth in tertiary hospitals, and those attended by specialist obstetricians. The Inquiry also heard that these differences were not fully explained by the greater proportion of older and high risk women in those groups. (At the time of the Inquiry there was very little research based evidence on which to make these assumptions³⁵).

During the next two years, 2000 and 2001, I undertook research into areas that were clearly identified as areas of concern, by this Senate Inquiry, and these studies comprise Parts 3 - 7 of this portfolio. The Senate Inquiry into childbirth procedures, and the publication of *Rocking the Cradle*, provided the AMAP research team with very valuable signposts to areas where future research was needed. It gained such a comprehensive overview of the national state of maternity services from the point of view of a whole cross section of the community, as well as the professions of obstetrics and midwifery, that the richness of the raw data provides an extraordinary insight into the way birth is managed currently in Australia.

³² op cit

³³ Commonwealth of Australia (1999) Senate Community Affairs References Committee. *Rocking the Cradle: A Report into Childbirth Procedures* Canberra. Commonwealth of Australia 1999- 8 December 1999
<http://www.aph.gov.au/senate/committee/history/index.htm#Community>

³⁴ See the opening address NSW Midwives Association Conference, Wollongong, NSW, 2000

³⁵ This was the impetus for Part 3 and Part 4 of this portfolio, and for the supplementary paper No 1

TERMS OF REFERENCE

The submission I made to the **Senate Inquiry into Childbirth Procedures**, addressed the following terms of reference³⁶:

- (a) the range and provision of antenatal care services to ascertain whether interventions can be minimised through the development of best practice in antenatal screening standards;
- (b) the variation in childbirth practices between different hospitals and different states particularly with respect to the level of interventions such as caesarean birth, episiotomy and epidural anaesthetics;
- (c) the variation in such procedures between public and private patients;
- (d) any variations in clinical outcomes associated with the variation in intervention rates, including peri-natal and maternal mortality and morbidity indicators;
- (e) the best practices for safe and effective births being demonstrated in particular locations and models of care and the desirability of more general application;
- (f) early discharge programs, to ensure their appropriateness;
- (g) the adequacy of access, choice, models of care and clinical outcomes for rural and remote Australians, for Aboriginal and Torres Strait Islander women and for women of non-English speaking backgrounds;
- (i) the adequacy of information provided to expectant mothers and their families in relation to the choices for safe practice available to them; and

The following paper examines each of the terms of reference in turn and provides a brief summary of research that informs the key issues. The discussion under each term of reference is my own analysis of the relevant research in each area and was considered along with the other written submissions that informed the Inquiry.

(a): To address the range and provision of antenatal care services to ascertain whether interventions can be minimised through the development of best practice in antenatal screening standards.

The largest cost factor in the maternity services budget in Australia is the budget for antenatal screening. It is estimated that the cost of obstetric ultrasound for 1997/98 was \$39 million, in comparison to \$54 million for all other obstetric care that year (Beech 1998). Routine ultrasound in early pregnancy appears to enable better gestational age assessment, earlier

³⁶ Two further TOR were included in the Inquiry, however, these were not addressed in the submission I presented: (h) whether best practice guidelines are desirable, and, if so, how they should be developed and implemented; (j) the impact of the new Medicare rebate provided for complex births, including the use of the term 'qualified and unqualified neonates' for funding purposes, and the impact that this has had on improved patient care and reduction of average gap payments.

detection of multiple pregnancies and earlier detection of clinically unsuspected fetal malformation at a time when termination of pregnancy is possible. However the benefits for other substantive outcomes are less clear (Neilson 1999). Given that ultrasound has never been proven either safe or effective in reducing infant mortality or morbidity (Pearson 1994), this is a questionable health cost to the nation (Beech 1998).

Whilst routine antenatal tests are highly valued by women (Searle 1996, Steer 1993), there is the danger that they may raise the potential for women to consider their pregnancy to be abnormal and develop a reliance on technology and expertise to ensure a safe pregnancy. This heightened perception of risk as a dominant feature of the pregnancy may well be a determinant for the use of other perinatal interventions (Searle 1996). Lupton argues that risk is '....not a pre given objective reality which exists 'out there' waiting to be measured' (Lupton 1995). Similarly the WHO describes risk in childbirth as a dynamic concept needing to be constantly re-assessed (WHO 1996).

In the 1980's Marion Hall, a Scottish obstetrician, questioned 'which causes of death are likely to be preventable by antenatal care? (Hall 1981). The question echoed a decade later by a London obstetrician, Professor Philip Steer, "why has such a pattern of largely ineffective ritual persisted in antenatal care ? (Steer 1993), is as relevant today as it was then. This is not the domain of obstetrics alone. Midwives also question routine antenatal practices and education classes, Nolan (1997)observed that "teaching approaches often promote dependency amongst clients rather than nurturing the decision making skills required by a consumer driven maternity service", and earlier, Gilkinson (1991) warned that 'classes under institutional control mean that women learn what the institution wants them to know'. Continuing on the theme of outdated rituals, Professor Steer lamented in 1993, that "current moves to demedicalise and decentralise childbirth potentially providing more continuity of care, are necessitating radical changes in the organisation of maternity care. They should be seen as an opportunity to discard outdated rituals rather than simply to transfer them from doctors to midwives (Steer 1993).

Midwives also question the number and frequency of antenatal visits necessary for low risk healthy women and these concerns have been supported and reinforced by recent evidence emerging from several large studies relating to the long term effects of reducing antenatal visits (Clement et al 1999). The midwifery model of care, which has as its focus the care of a woman through her entire pregnancy, birth and postpartum episode, achieves a relationship where both the woman and the midwife are able to address specific needs and interventions which may strongly benefit the mother and her baby. For example, the midwife may be able to direct more of her energies into a smoking cessation program for a young pregnant woman, or a breastfeeding awareness program. These interventions are too often under funded and overshadowed by highly expensive antenatal screening procedures carried out in tertiary centres.

I recommend the Inquiry should look very closely at the level of public spending in antenatal screening and assess the evidence for its effectiveness.

(b): To address the variation in childbirth practices between different hospitals (and different states) particularly with respect to the level of interventions such as caesarean section birth, episiotomy and epidural anaesthetic.

(c and d): To address the variation in such procedures between public and private patients and any variations in clinical outcomes associated with the variation in intervention rates, including perinatal and maternal mortality and morbidity indicators

The issues raised by these three terms of reference are critical to the notion of measuring current maternity services. From the state-wide data collections it is obvious that in the area of obstetric interventions and decision making in childbirth practices, there are factors which are non uniform and provider related (King 1993, Lumley 1989). These factors have an important impact on the clinical outcome for women during childbirth. The effect of private and public hospital status on the variations in obstetric outcome is demonstrated for all interventions including caesarean birth, episiotomy and epidural anaesthetic. I have summarised the available research under key headings and the raw data is presented in the following tables.

Victoria

The 1990 Ministerial review on Birthing services in Victoria made reference to the fact that “all forms of assisted delivery were commoner in the private than in the public patients so that while one in five public patients had some form of assisted delivery more than one in three private patients did so” (DOH, Victoria 1990) See Table 1.

TABLE 1. ASSISTED DELIVERY IN PUBLIC AND PRIVATE PATIENTS VICTORIAN DATA 1989

	Forceps %	Vacuum Extraction %	Elective caesarean %	Emergency caesarean %	total %
Public	11.7	4.4	6.5	5.6	25.4
Private	12.4	2.5	13.6	7.1	35.6

Source: Reprinted from Consumer Survey, 1989 in “Having a Baby in Victoria” Health Department Victoria 1990.

New South Wales

The NSW data confirms the findings from Victoria. Using published data from the Midwives Data Collection NSW 1997 (NSW, DOH 1998), it was possible to compare the most recent data on all private hospital patients with public hospital patients for all the interventions listed. The New South Wales Mothers and Babies 1997 Health Bulletin Supplement was reviewed. See Table 2. (NB raw data only) A conservative estimate shows women who received private obstetric care in private hospitals in NSW were possibly twice as likely to have obstetric intervention as women who were cared for in public hospitals. Note this data

does not tell us what happened to women who were privately insured but gave birth in a public hospital.³⁷

TABLE 2. THE RISK OF OBSTETRIC INTERVENTION BY PRIVATE AND PUBLIC HOSPITAL STATUS FOR ALL WOMEN IN NSW, 1997

Obstetric Interventions	Private n = 14070 (%)	Public n = 72690 (%)	Relative Risk	95% Confidence Interval
Elective CS	1994 (14%)	6622 (9.1%)	1.5	1.48 to 1.63
Episiotomy	3184 (22%)	10591 (17%)	1.5	1.48 to 1.59
Epidural	5511 (39.1%)	15515 (21%)	1.8	1.79 to 1.88

Sources: Raw data from New South Wales Mothers and Babies, 1997, New South Wales Health Department 1998

A recent Australian study, also using NSW population figures, concluded that private insurance may be a risk factor for obstetric intervention. This study identified that New South Wales private hospital patients experienced twice the rate of instrumental delivery (forceps or vacuum) compared to NSW public hospital patients; and even after controlling for the relationship between rates of instrumental delivery and rates of episiotomy, there remained a 6% to 8% difference in episiotomy rates for private hospital patients compared to public hospital patients (Shorten & Shorten 1999).

Australian National Figures

National data on intervention rates confirms and supports the NSW and Victorian data. Table 3 shows the variation among the States and Territories in the rates and types of obstetric intervention in Australia 1995 as presented in the national report of mothers and babies' health. The latest AIHW report of Australia's Mothers and Babies claims that for singleton births of 2500gm and over, mothers who had private health insurance had a caesarean section rate of 23.6%, 54% higher than the rate of 15.3% for those who were not insured (AIHW 1998).

³⁷ Further research was initiated in this area after the Senate Inquiry and published in 2000. See Part 5

TABLE 3. TYPE OF DELIVERY, SHOWING THE VARIATION IN THE PERCENTAGE RATES OF OPERATIVE INTERVENTION AMONG THE STATES AND TERRITORIES, 1995

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Total births (number)	86,263	62,732	47,864	25,090	19,310	6,682	4,830	3,607
(per cent)								
spontaneous vertex	71.0	67.5	68.8	64.6	63.5	70.0	63.5	72.3
forceps	7.1	10.9	5.7	5.5	9.2	8.8	9.0	7.8
vacuum extraction	3.4	1.5	3.8	9.2	3.4	1.0	6.4	1.2
vaginal breech	1.1	1.0	0.8	0.6	0.7	0.9	0.7	0.7
caesarean section	17.5	19.1	20.8	20.2	23.2	18.8	20.3	19.3

Source: AIHW National Perinatal Statistics Unit 1997, in 'Australia's Health' 1998

A study published in 1990, observed that in Queensland also, there is a possible association between obstetric intervention and the economic imperative (King 1993, Cary 1990).

As the pressure on health care funding continues to rise, there will be increasing interest in understanding the costs associated with specific episodes of treatment and in trying to evaluate the overall cost-effectiveness of health policies and programs (AIHW 1998). Although there is data on the different cost of birth outcomes depending on the level of surgical/obstetric intervention, there is little data on the cost of interventions as they are introduced during labour³⁸.

Given that the cost of elective caesarean delivery increases this spending by an estimated \$2,500 (Shorten et al 1998) per person cost, there is a real need to ascertain and then address the question of intervention rates for women in childbirth on a national level.

For at least a decade it has been accepted that the rates of caesarean section are rising and show very few signs of abating (Read 1990, Hillan 1992, Savage 1993, Brown 1998). The rising caesarean section rate continues to generate much debate (Wilkinson et al 1998) with a recent editorial in *Birth* claiming there was no agreement about safety, evidence or an appropriate caesarean delivery rate. "The experts disagree on all these issues. Although they claim that the safety of mother and baby is their primary concern, in fact, they often have different agendas depending on whether they represent the medical establishment managed care, medical-legal concerns, cost containment, turf protection or something else" (Young 1999 p68).

Fear of litigation is widely held to have played a key part in the increase in caesarean section rates in the USA and the UK (Young 1999), but in countries like Canada and Australia where litigation is not nearly so widespread as in the USA, the rate is nearly as high and well over the that for most European countries (Macfarlane & Chamberlain 1993).

³⁸ See Section 4 – Costing the Cascade of Obstetric Interventions

Fear of perineal damage from vaginal delivery, and of subsequent stress incontinence and anal sphincter damage (Al Mufti et al 1996) is one reason given for elective caesarean section (Steer 1998). The intention to avoid perineal damage, however, does not explain the often corresponding rise in caesarean section and instrumental delivery rates in the previous studies. In a new twist to the debate Professor Philip Steer asserts that in the competition for survival between foetus and mother, women will seek caesarean section because they fear damage to their vagina and to their foetus without there being any medical indication (Steer 1998).

The balance between benefit and harm is pivotal in the debate about obstetric intervention at birth. Although epidural analgesia is associated with more effective pain relief than non-epidural methods it is also associated with adverse effects, including longer first and second stages of labour, increased oxytocin use, malrotation, instrumental deliveries and caesarean section particularly for dystocia (Howell 1999). Issues of long term morbidity such as high levels of urinary incontinence and back ache in the year after birth remain to be excluded as potentially related to increasing use of epidural.

Given the potential lifelong complications due to perineal trauma and the shortage of evidence concerning the long term physical and psychological sequelae for women having either elective caesarean births, or epidural anaesthetic, there is a need to determine all likely risk factors predisposing women to operative or instrumental intervention during childbirth. Recent work from Creedy (1999) suggests the psychological harm experienced by women has been underestimated in number and severity to this point.

Episiotomy is overused. In 1989, researchers in Sweden reported that episiotomy had a negative effect on the women's wellbeing, was overused, and needed to be reconsidered (Rockner et al 1991). In a recent study published in 1999, the same researchers found although there was a reduction in the incidence of episiotomy in Sweden from 33.7% to 24.5%, there was wide variation between hospitals (4% - 50%); and that episiotomy was more common with vacuum extraction and epidural anaesthesia (Rockner et al 1999). Similar studies have not yet been undertaken in Australia.

Whilst it is acknowledged that there are advantages of specialist care by obstetricians and neonatologists for a certain small group of women in our population who experience problems in childbirth, I wish to present the available evidence for midwifery care for low risk, uncompromised women. Midwifery models of care were supported by recent reviews of birthing services in New South Wales, Victoria, and Western Australia. In these models, the midwife is the primary care provider for women with uncomplicated pregnancy and childbirth, in collaboration with the medical team and with ready access to consultation and transfer if complications arise. These models of care are also supported by the Australian National Health and Medical Research Council reports on services provided by midwives (NH&MRC 1996, 1998).

Midwifery care is associated with lower operative delivery rates. Several recent studies have shown that obstetric intervention rates are linked to the type of care given during

childbirth. The effect of the caregiver can not be overlooked in the debate around operative delivery. The questioning by midwives as to the scientific basis for routine episiotomy at birth has had a positive effect on the reduction of episiotomies (Rockner et al 1999, Sleep et al 1984, Sleep et al 1987). Similarly, women cared for by midwives have lower rates of epidural anaesthetic and caesarean section (Macfarlane et al 1993, Hofmeyer 1999 Leitch et al 1994, Turnbull 1996). As shown in Table 4, midwifery care in childbirth differs in management in achieving lower episiotomy and caesarean section rates with comparable outcomes to obstetric tertiary level care (Flint 1989, Rowley 1995, Turnbull 1996, Harvey 1996, McCourt et al 1996, Waldenstrom 1998, Hueston et al 1993, Kenny et al 1994, Guilliland et 1998) Continuity of midwifery care is associated with lower intervention rates, with no statistically significant differences observed in maternal and fetal outcomes (Waldenstrom and Turnbull 1998).

TABLE 4. INTERVENTION RATES IN CHILDBIRTH: OUTCOMES AFFECTING THE MOTHER IN STUDIES OF MIDWIFERY MODELS OF CARE COMPARED TO ROUTINE OBSTETRIC CARE: CLASSIFIED AS LOWER, HIGHER OR THE SAME. WHERE STATISTICAL SIGNIFICANCE WAS REACHED IN THE STUDY, THE OUTCOME IS CLASSIFIED (S) FOR SIGNIFICANTLY.

OUTCOME	FLINT	ROWLEY	TURNBULL	HARVEY	McCOURT	KENNY
Date	1989	1995	1996	1996	1996	1994
Antenatal admit	lower	lower				
induction	lower	lower	(s) lower	lower	lower	lower
ARM	lower			(s) lower	the same	lower
augmentation	(s) lower	higher	higher	lower	the same	higher
1 st Stage >6 hrs	higher	the same	the same		the same	the same
epidural	(s) lower	the same	lower	lower	(s) lower	lower
analgesia	(s) lower	(s) lower	lower	(s) lower	(s) lower	higher
op.vag delivery	lower	lower	lower	lower	lower	(s) lower
caesarean	higher	lower	higher	(s) lower	the same	(s) higher
episiotomy	(s) lower	lower	lower	(s) lower	(s) lower	the same
vaginal tears	(s) higher	higher	lower		higher	
intact perineum	the same		higher		higher	
antenatal				(s) lower		
continuous FHR			(s) lower		lower	
intermittent FHR			(s) higher		higher	

Source: MA thesis unpublished : Sally Tracy 1997, updated for this Inquiry.

NB. This is not a meta analysis, rather a visual comparison of findings from published sources.

It could be argued that maternal mortality in healthy women in Australia is so low irrespective of method of delivery that attention should be focussed on morbidity.³⁹

Caesarean section is a major operative procedure and consequently many complications are encountered that are never seen in vaginal deliveries. Most authors (see for example early work such as that by Farrell et al 1980, Nielsen & Hokegard 1983) agree that women who undergo an elective Caesarean section, as opposed to an emergency operation, have a reduced risk of developing infectious complications in the postoperative period, and the variation in rates may differ by as much as a factor of five (Nielsen & Hokegard 1983). Nevertheless, elective caesarean section does carry a significant maternal morbidity (Table 5).

In a study by Hillan et al (1995), specific variables used to assess the postoperative morbidity associated with caesarean section were: febrile morbidity; postnatal blood transfusion; antibiotic therapy; urinary catheterisation; wound infection; urinary tract infection; intrauterine infection; and chest infection. Only 9.5% of the women in the study had no recorded postnatal complications during this time, with 302 (49%) of women sustaining three or more problems.

TABLE 5. ELECTIVE VERSUS EMERGENCY CAESAREAN SECTION: POSTNATAL MATERNAL MORBIDITY. 1995

Complication	elective caesarean n = 220 (%)	Emergency caesarean n = 399 (%)	
pyrexia	106 (48.2)	251 (62.9)	p< 0.001
blood transfusion	3 (1.4)	18 (4.5)	p< 0.05
antibiotic therapy	35 (15.9)	130 (32.6)	p< 0.001

Source: Hillan et al 1995. Postoperative morbidity following caesarean delivery. Glasgow

In an Australian study of maternal morbidity following childbirth, Brown and Lumley (1998) found that compared with spontaneous vaginal births, women having forceps or ventouse extraction had increased odds for perineal pain, sexual problems, and urinary incontinence. These differences remained significant after adjusting for infant birth weight, length of labour and degree of perineal trauma.

A recent meta-analysis by Olsen (1997) showed that the total number of complications, the frequency of fetal distress, the frequency of neonatal respiratory problems and the frequency of birth trauma were significantly and consistently lower in births attended by midwives. Parity and maternal morbidity before the pregnancy was controlled for in all the comparisons. The following potential confounders were controlled in one or more studies: maternal age, maternal height, marriage, length of education, socio-economic conditions,

³⁹ This statement may need to be amended in view of the release of the Maternal Mortality Report for 1994-96 NHMRC - *Report on Maternal Deaths in Australia 1994-96*, which showed a marked increases for the triennium in the number of direct maternal deaths from 27 to 46. NHMRC Cat. No. 0145246 AIHW Cat. No. PER 13 Commonwealth of Australia 2001. <http://www.nhmrc.gov.au/publications/pdf/wh32.pdf> (November 2001)

smoking, number of prenatal visits, previous stillbirths, previous infant death and maternal morbidity occurring during pregnancy.

Findings regarding lower rates morbidity are supported by randomised clinical trials of midwifery care for women in childbirth (Flint et al 1989, Rowley et al 1995, Harvey et al 1996). One study concluded that midwife-managed care for healthy women, integrated within existing services, is clinically effective and enhances women's satisfaction with maternity care (Turnbull et al 1996).

The largest study undertaken in the USA, including all singleton, vaginal births at 35 - 43 weeks gestation delivered either by physicians or certified nurse midwives in the United States in 1991, found that after controlling for social and medical risk factors, the risk of experiencing an infant death was 19% lower for certified nurse midwife attended births than for physician attended births, the risk of neonatal mortality was 33% lower, and the risk of delivering a low birth weight infant 31% lower. Mean birth weight was 37 grams heavier for the certified nurse midwife attended birth than for physician attended births. The findings discussed in light of differences between certified nurse midwives and physicians in prenatal care and labour and delivery care practices found that midwives provide a safe and viable alternative to maternity care in the United States, particularly for low to moderate risk women (MacDorman MF & Singh GK. 1998).

The potential harm to a mother and baby from operative delivery may not always be justified especially when fetal distress may be misdiagnosed. Even with a correct diagnosis it is not clear whether an operative or conservative approach is better.

There have been no contemporary trials of operative versus conservative management of suspected fetal distress. In settings without modern obstetric facilities, a policy of operative delivery in the event of meconium-stained liquor or fetal heart rate changes has not been shown to reduce perinatal mortality (Hofmeyr et al 1999).

Studies have been undertaken to observe the morbidity of neonates where deliveries directed by the obstetricians showed higher complication and intervention rates with no differences in neonatal neurological outcome between groups attended by midwives, general practitioners or obstetricians (Berghs et al 1995).

(e): To addresses the best practices for safe and effective births being demonstrated in particular locations and models of care and the desirability of more general application.

As summarised in Table 4, there is now overwhelming evidence, to add to that provided by NHMRC (1996 & 1998) and WHO (1996), that medically dominated models of maternity care for low risk women are not financially and socially sustainable. They do not represent 'Best Practice' and they do not necessarily produce better health outcomes, when compared to less costly and more woman centred, primary health care models provided by midwives.

Recommendations from a number of different reports produced by organisations of standing such as the World Health Organisation (1996), UK Department of Health (1993) and National Health & Medical Research Council (1996), are leading to some change and restructuring of maternity services in Australia. These are designed to increase continuity of midwifery care and improve outcomes, however this change is relatively isolated and is often occurring within structures that work against improvements such as cost shifting between state and commonwealth governments and territorial disputes between professionals.

Several Australian government reports have recommended changes and reorientation of maternity services to ensure increased continuity of care, greater utilisation of midwifery skills and redirection of maternity services towards the community (Department of Health NSW 1989; Health Department of Victoria 1990). Since these reports were released the work of two NH&MRC committees have confirmed the safety and benefits of midwife led care for healthy women (NHMRC 1996; 1998). These recommendations are consistent with moves internationally where increased costs, women's declining satisfaction with maternity services, and considerably increased morbidity attached to intervention rates, are forcing a 'rethink' of medically dominated systems of birthing. Based on evidence provided by the *Cochrane Collaboration Database of Systematic Reviews* (Hodnett, 1996) and the World Health Organisation (WHO, 1996), it is becoming increasingly recognised that health services need to develop midwifery continuity of care models for low risk women to run alongside and collaborate with obstetric and neonatal services for women and their infants 'at risk'. This evidence highlights:

- women's greater satisfaction with one-to-one continuity of midwifery care
- equivalent or improved clinical outcomes, including reduced morbidity
- the potential to reorganise and improve the efficiency of maternity services
- the potential to reduce indirect costs attached to excessive intervention rates.

A meta-analysis of the safety of home birth (Olsen 1997) showed that fewer medical interventions occurred in the home birth group: induction of labour, augmentation, episiotomy, operative vaginal birth and Caesarean section. Furthermore there was a lower frequency of low Apgar scores and severe lacerations in the home birth group (Olsen 1997). New Zealand and the United Kingdom see home birth as a viable, safe and publicly funded option for over stretched and under resourced hospitals. It does not compromise safety when satisfactory referral guidelines are adhered to and meets the needs of many women.

A variety of services in specific locations offer varying degrees of continuity of midwifery care. Fewer than 2% of women giving birth in Australia each year are able to access one of these services.

The John Hunter Hospital in Newcastle, NSW

Continuity of care provided by midwives was demonstrated to be as safe as routine obstetric care through a randomised, controlled study with 814 women. It also reduced the need for medical interventions including induction of labour, analgesia use and need for neonatal

resuscitation. Women receiving team care were significantly more satisfied with their experience and there was a significant reduction in cost (Rowley et al, 1995)⁴⁰.

Westmead Hospital in Sydney

A randomised controlled trial with 446 women who received care from a team of midwives demonstrated improved outcomes for the study group compared to standard medical care, including: reduced incidence of manipulative delivery (6% compared to 14%) and episiotomy (10% compared to 26%); significantly higher levels of satisfaction with care through all stages of pregnancy; reduced length of hospital stay and a reduction in the overall costs of care (Kenny et al, 1994).

St George Hospital, Sydney - STOMP

The St George Outreach Maternity Program (STOMP), being studied and evaluated under an NH&MRC grant, involves six midwives who provide continuity of midwifery care for a total of 300 women per year. In the program, women are offered the choice of continuity of care by midwives in one of either two community based clinics. An obstetrician attends these clinics and sees women on an 'as needed' basis, according to the midwives assessment. During labour, women are cared for by one of the six midwives in the team, give birth in the hospital and then choose early discharge or a short hospital stay. The midwife provides postnatal care either in the ward or at home for a period of 5 – 7 days. Preliminary unpublished data from this large randomised controlled trial, suggests improved clinical outcomes and equivalent maternal and neonatal morbidity rates associated with the STOMP model (Personal communication, Caroline Homer). There appear to be significant cost savings even on very preliminary data from interim analyses). This model of care has been progressively integrated into the mainstream services and there are plans to extend the model further.⁴¹

Canberra in 1995

The Commonwealth Government's Phase Two Alternative Birthing Services Program (ABSP) funded the Community Midwives Pilot Project. This enabled the pilot of an innovative midwife led, community based 'caseload model' of care for 'low risk' women. This small pilot study involving 73 women and their families, determined that the project provided 'quality maternity

⁴⁰ This service was stopped abruptly in 2000 ostensibly because the health authority could no longer afford the program. The more cynical amongst us note that the same year the health authority purchased obstetric technological equipment costing the same amount as the years wages of the midwives on the program.

⁴¹ The results from this program showed significant reduction in the rates of caesarean section and significant savings. Published results are found in:

Homer CSE, ,Davis GK, Brodie P, Sheehan A, Barclay LM, Wills J, Chapman G. Collaboration in maternity care: a randomised controlled trial comparing community-based continuity of care with standard hospital care. *British Journal of Obstetrics & Gynaecology* 2001; 108:16-22.

Homer Caroline S, Matha Deborah V, Jordan Lesley G, Wills Jo, Davis Gregory K . Community -based continuity of midwifery care versus standard hospital care: a cost analysis. *Australian Health Review* 2001; 24(1):85-93.

care outcomes and good value for money', and predicted "greater economies of scale as the volume of women seeking this type of care increased" (Hambly, 1997, p27)⁴².

Fremantle, WA

The Community Based Midwifery Program (also Alternative Birth Services Program funded) was introduced as a pilot project offering low risk women continuity of care from a primary midwife, and choice of either home or hospital birth. Originally ten self-employed, fully accredited midwives were contracted to the project and paid \$1800 per client. The evaluation, involving 120 women reported that community based midwifery-led care is safe, satisfying and provides a viable model of maternity care, whether the birth is at home or in hospital and was associated with low rates of obstetric intervention and high levels of maternal satisfaction. This project cost on average \$1,605 per case in contrast to the average cost of an uncomplicated delivery of \$1,905 as reported by Commonwealth Department of Human Services and Health in 1995 (Thiele & Thorougood, 1997). In 1999, the service had their ABSP funding extended to 2001⁴³.

In Australia, improved outcomes for women 'at risk' of poor outcomes has been achieved through one-to-one continuous midwifery care provided to woman in the northern suburbs of Adelaide. Although the Northern Women's Community Midwifery Programme can only assist a small number of women each year, the outcomes for adolescent mothers have been excellent compared to similar women who receive conventional care⁴⁴.

(f): To address the issues around early discharge programs to ensure their appropriateness.

Practices surrounding early discharge in maternity have evolved in an ad hoc fashion across Australia, mainly due to pressure for beds in already crowded postnatal wards and every increasing efforts to reduce hospital length of stay.

The NSW Obstetric Services Taskforce (Department of Health NSW, 1989) made recommendations that postnatal care for all women should be available up until Day 7. This is still well short of care provided in other Western countries such as New Zealand (care at home up to six weeks) and England where care is provided in the woman's home up until day 10 or 14, and access to a midwife is available up until day 28. This recommendation was later supported by NHMRC (1996) which also highlighted women's preference for an average length of stay following uncomplicated childbirth to be of about five days duration.

⁴² Such an increase has occurred, and currently the revised model consisting of 6 midwives is providing caseload care to around 230 'low to moderate risk' women per year, with a further 300 women receiving care from a team of 8 midwives (Personal communication, Vernon,2002).

⁴³ The Health Department of WA provided additional funding to secure the program for a further two years enabling it to double it's intake of clients to 150 women per year. This program has been fully supported by the WA Govt. since 2001 and is becoming the prototype for similar moves to introduce community birth programs in other states and territories. See <http://www.communitymidwifery.iinet.net.au/>

⁴⁴ Church A, Nixon A (2002) An evaluation of the Northern Women's Community Midwifery Program, Adelaide IN PROGRESS

Importantly, resource savings associated with reduced length of stay have not been transferred to community based postnatal care. In a recent survey conducted by NSW Health, as part of a strategic planning exercise, it was found that, of the 101 public facilities providing maternity care, only 72 reported availability of early discharge / community midwifery programs (NSW Health Department, 1999). Furthermore, criteria for client selection for these programs is not consistent and appears to be based on availability of resources rather than on women's needs for home based midwifery care. There have been concerns raised concerning the quality of postnatal care and the effect that different forms of care, including the early discharge programs available, may have on health outcomes (Cooke & Barclay 1999; NSW Health Department, 1999).

In 1991, 20.2% of women were discharged less than four days following childbirth. By 1996, this had risen to 40.3% (Day, et al 1999). There is an absence of comprehensive evaluation on the effect of reduced length of stay on the health outcomes of women, babies and families particularly longer term outcomes such as adjustment to parenthood, breastfeeding and postnatal depression. Early discharge with midwifery care provided in the home has been associated with more positive feelings compared with those who were discharged early without access to such a service (Brown & Lumley, 1997). In contrast, unsupported early discharge, namely that which occurs without any follow up care in the home has been associated with postnatal depression (Hickey & Boyce 1998). More research needs to be conducted into postnatal care and the effect that different models of care have on longer term outcomes.

(g): To address the adequacy of access, choice, models of care, and clinical outcomes for rural and remote Australians, for Aboriginal and Torres Strait Islander women, and for women of non-English speaking backgrounds.

In 1997 Aboriginal perinatal mortality in NSW was 20 per 1,000 live births compared with 9.6 in the non-Aboriginal population (NSW Health Department 1998a). In 1997 the rate of low birth weight in Aboriginal babies was 12%. This is almost double the rate for NSW overall which was 6.1% (NSW Health Department 1998a). Almost 38% of Aboriginal women present after 20 weeks gestation for their first antenatal visit, compared with 15% in NSW overall (NSW Health Department 1998a). These findings may be associated with many service providers' lack of understanding regarding the special needs of Aboriginal women and mainstream maternal health services being often inappropriate, inadequate and inaccessible for many Aboriginal women (National Aboriginal Health Strategy 1989, Najman et al. 1994, NSW Health Department 1994, de Costa and Child 1996, O'Connor and Bush 1996, Plunkett et al. 1996). As a result many Aboriginal women receive inadequate care during pregnancy, have decreased access to appropriate models of care and suffer poorer outcomes.

The reproductive health status of many Aboriginal women is poor. This is associated with poor nutrition, infectious diseases, high blood pressure, genitourinary disorders, and gestational diabetes as well as the behavioural risk factors of smoking, alcohol intake and

substance abuse. When examining the disparity between Aboriginal and non-Aboriginal perinatal mortality rates, these social, economic and cultural determinants of health must be considered.⁴⁵ Between 1988-90 Aboriginal mothers accounted for only 3% of confinements in Australia but almost 30% of maternal deaths (National Health and Medical Research Council 1996).

The following two Aboriginal maternal health programs have demonstrated improved outcomes and are worthy of more general application and expansion to other areas:

'STRONG WOMEN, STRONG BABIES, STRONG CULTURE'

This program has a nutritional and educational focus and is based in nine Top End communities of the Northern Territory. The program was developed by, and for Aboriginal women, and uses the skills of respected Aboriginal women. Strong women workers educate women about pregnancy and women's health and form the link between the antenatal clinics and the Aboriginal community.

Women participated in antenatal care earlier; low birth weight dropped from 20% to 11% over 5 years; preterm birth rate dropped from 16% to 14% and there was a decline in rates of sexually transmitted diseases. Concurrent decreases in prematurity and low birth weight in all Top End communities made it difficult to determine the true measurable effect of these decreases, however it is likely that the program had an effect. The program's success is attributed to the 'right Aboriginal people' selected to work on the program, Aboriginal control and empowerment and the program addressing an area of concern for many Aboriginal people (University of Queensland 1998).

DARUK ABORIGINAL ANTENATAL MODEL

Daruk Aboriginal Medical Service (AMS) is situated in Mt Druitt, Sydney. A full-time midwife and Aboriginal health worker provide shared care with an AMS GP and the Nepean Hospital obstetric team. The program provides antenatal care, birth support, transport, home visits, education and women's health screening and has a particular focus on providing social and family support. It is well known and cited as an example of 'Best Practice' in maternity care for Aboriginal And Torres Strait Islander Women in an urban area.

The program evaluation compared outcomes for Aboriginal women who accessed the Daruk service with those of Aboriginal women who accessed mainstream antenatal care at Nepean and Blacktown Hospitals. Thirty six percent (36%) of Daruk women had their first antenatal visit in the first trimester of pregnancy compared with 21% at Nepean and 25% at Blacktown. Despite Daruk women having a higher burden of antenatal risk factors than Aboriginal women at Blacktown and Nepean Hospitals, there was no concurrent increase in perinatal morbidity or mortality. The program was evaluated within a hierarchy of outcomes which showed that it had been most effective at the levels of creating a culture of antenatal care, developing an effective partnership with a mainstream service, and managing pregnancy complications. (Daruk AMS 1998).

⁴⁵ In 2002 the situation has probably worsened rather than improved. See Stanley 2002.

(j): To address the adequacy of information provided to expectant mothers and their families in relation to the choices for safe practice available to them.

Information about intervention rates at different hospitals, and from different care providers, as well as information about the range of choices for care, is not readily available to Australian women. Until this occurs, women's capacity to make informed choices about many aspects of theirs and their baby's care will be severely and unnecessarily restricted.

Turnbull et al (1998) in South Australia, reported that over one third of women felt they had not been involved in the decision to have a caesarean section. Many of the women involved in the study expressed a degree of dissatisfaction with their decision, or that they may not have been given sufficient information on which to base a decision (Turnbull 1998).

In an as yet, unpublished recently completed doctoral thesis from Griffith University, Brisbane, there is compelling evidence to link the level of obstetric intervention experienced by women and the perception of inadequate care during childbirth, with higher levels of 'post traumatic stress disorder' (Creedy, 1999).

These findings in association with the large volume of evidence now available regarding the unacceptable high rates of intervention during childbirth should prompt a serious investigation into the adequacy of information provided to expectant women in relation to the choices for safe practices and the consequences of any obstetric intervention.

CONCLUSION

While public sector Australian maternity care continues to reflect the vested interests of the dominant professional groups, marketeers of technology, and the philosophies of acute hospital treatment for the ill, it will be unable meet the needs of the community, or be provided in a manner that is cost effective and safe. The acute hospital model of care for pregnancy and birth increases the rates of avoidable interventions and leads to higher levels of morbidity and possibly rising levels of mortality. Greater emphasis and awareness must be given to the cost effectiveness and efficacy of primary care offered by midwives.

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PART 3: MEASURING OBSTETRIC INTERVENTIONS IN AUSTRALIA

ROBERTS C L, TRACY S, PEAT B. RATES FOR OBSTETRIC INTERVENTION AMONG PRIVATE AND PUBLIC PATIENTS IN AUSTRALIA: POPULATION BASED DESCRIPTIVE STUDY. *BMJ*. 2000; 321 : 137-141

CONTEXT

In all industrialised countries the levels of obstetric intervention during childbirth, including caesarean section, have risen dramatically since the 1960's without a concomitant dramatic fall in rates of maternal and neonatal morbidity⁴⁶. In developed countries, obstetric management and medical intervention have become routine without evidence of effectiveness⁴⁷. The measure of obstetric intervention in birth is recognised as one of the key indicators of the health, economic and social costs of maternity services.

The 1999 Australian Senate Inquiry into Childbirth Procedures⁴⁸ in Australia heard that high caesarean rates in the private sector were probably due to large numbers of high-risk women taking out private health insurance for pregnancy care.⁴⁹ (Rocking the Cradle, 1999). There was very little data to support this assertion, and in addition, two previous Australian studies had reported an association between obstetric interventions and medical insurance status, regardless of clinical indications.⁵⁰

The unanswered questions that arose from the Senate Inquiry were:

- Are there a high proportion of 'high risk' women who procure the services of a private obstetrician;
- Are the rising intervention rates due to the fact that women are much older when having their first babies?
- Conversely, is the rise in intervention rates more clearly associated with the nature of the caregiver rather than the clinical need of the childbearing woman?

⁴⁶ Hodnett et al 2002 *JAMA* 2002;288:1373-1381

⁴⁷ Johanson R, Newburn M, Macfarlane A Has the medicalization of childbirth gone too far? *BMJ* 2002;324:892-5

⁴⁸ See Part 2 of this portfolio

⁴⁹ Commonwealth of Australia (1999) Senate Community Affairs References Committee. Rocking the Cradle: A Report into Childbirth Procedures Canberra. Commonwealth of Australia 1999- 8 December 1999 <http://www.aph.gov.au/senate/committee/history/index.htm#Community>

⁵⁰ Cary A. (1990) Intervention rates in spontaneous term labour in low risk nulliparous women. *Aust & NZ J Obstet and Gynaecol* 30: 46-51

Shorten A, Shorten B (1999) Episiotomy in NSW hospitals 1993-1996: Towards understanding variations between public and private hospitals *Australian Health Review*. 22(1): 19-32.

King JF. Obstetric Intervention and the economic imperative. *Br J of Obstet & Gynaecol*. 1993; 100:303-306

It is imperative that we have good information on questions such as these if we are to advocate for midwives to have a stronger role in the maternity system; and if we are to call for women to have the option of midwifery care as well as private obstetric care.

So far the randomised controlled trials of continuity of midwifery care⁵¹, and of community midwifery care⁵², show less intervention, less cost and more satisfaction for both women and midwives evaluated by the research – with no change to perinatal outcomes. However, there is still a lack of research to assess the questions raised by the Senate Inquiry about the rising rates of obstetric intervention in childbirth.

The following study sought to address this gap in the research. It was undertaken in collaboration with researchers from the Centre for Perinatal Research in Sydney, who have access to an excellent database; the New South Wales Midwives Data Collection. We examined the outcomes of all the births in New South Wales, 171,000 births for the years, 1996 and 1997. Our intention had been to then examine our findings using the same criteria for other years – to look at the trends that were happening in the State. However, we found that several of the critical data fields had been discontinued from the Midwives Data Collection database. For the next two years we were not able to ascertain who had care from a private obstetrician, and who had care in the public system. Due to public pressure from midwives groups, these data fields will be re-instated in the future. Consequently, The Supplementary Paper 1 was undertaken to look at the trends in intervention for the years preceding the study, 1990-1997, rather than for the decade, 1990-2000.

The results have been presented both nationally and internationally at the European Congress of Perinatal Medicine in Oporto, 2000; at the Bi-annual Conference on Health and Risk held in Oxford, UK, 2000 and at the International Midwifery Conference held in Bournemouth, UK, 2000. The results of the study were also presented to a wide audience of women and midwives to six Australian cities in 2001 during the 'Future Birth' tour, sponsored by Birth International.

Professor James King wrote in his editorial on the 15th July, "Private patients who were classed as low risk and who were having their first baby had significantly higher rates of caesarean section before and during labour (16.4% v 10%). The authors also point out that in addition to this higher rate of caesarean delivery, this group of private patients also had double the rates of forceps procedures and vacuum extractions than public patients (34% v 17%). Private patients were also more likely to have had labour induced or augmented with oxytocin (49% v 35%), twice as likely to have had an epidural anaesthetic (51% v 25%), and more likely to have had an episiotomy (47% v 29%). The authors do not report on perinatal

⁵¹ Rowley et al Continuity of care by a midwife team versus routine care during pregnancy and birth: a randomised trial. *Med J Aust*. 1995; 163(9): 289-293

⁵² Homer C et al Collaboration in maternity care: a randomised controlled trial comparing community-based continuity of care with standard hospital care. *British Journal of Obstetrics and Gynaecology*, 108,16-22, 2001.

outcomes, but they assume that in these low risk populations there are no differences in perinatal mortality or morbidity associated with these practices"⁵³.

The results of this paper challenge orthodox wisdom and the commonly held view that higher rates of intervention in private hospitals reflect higher risk women seeking private obstetric care. Furthermore the study suggests there is serious need for policy makers to reconsider lower intervention models of care.

BACKGROUND

Australian maternity care has features of the British and American systems; all women are covered by national health insurance which provides free maternity care for public women in public hospitals but about one-third take out private medical insurance or pay for private obstetric care (private patients). Private women receive antenatal care from their chosen obstetrician in private rooms and give birth either at a private or public hospital. Public women attend antenatal clinics at public hospitals where care is provided by rostered midwives, residents, registrars and staff obstetricians. According to research undertaken in Victoria in 1994, Australian women choose their maternity care depending on their knowledge of what is available, whether or not they can meet the costs of private insurance or private care, and their proximity to services.⁵⁴ The national insurance system in Australia, known as Medicare, does not fund midwives to give care for women in childbirth. It is only available to the medical profession.

Current research shows that Australia has in fact a two-tiered health system. The first tier includes heavily subsidised health services that are accessible to the rich and poor alike, and the second, the less heavily subsidised services which are consequently less accessible to the poor. People on low incomes are considerably less likely to use specialist medical practitioner services when compared to those on higher incomes. Several studies have shown that those on the top income quintile are 64% more likely to visit a medical specialist than those in the bottom income quintile⁵⁵. More than 66% of all specialists in obstetrics work in private practice. The remaining specialist medical practitioner services are provided free of charge through outpatient clinics at public hospitals⁵⁶.

There is no doubt that it is considered a 'status symbol' to be able to afford a private obstetrician for pregnancy and birth in Australia. Continuity of midwifery care, on the other hand, is neither encouraged nor funded as a mainstream service in Australia at present and midwives on the whole remain invisible.

⁵³ King James. Editorial. Obstetric interventions among private and public patients. High rates of operative interventions in private patients need analysis. *BMJ* 2000;321:125-6

⁵⁴ Brown S. Lumley J. (1994) Satisfaction with care in labor and birth: a survey of 790 Australian women. *Birth: Issues in Perinatal Care & Education*, 21(1):4-13

⁵⁵ Schofield D (1999) Ancillary and Specialist Health Services. *Australian J of Social Issues* ;34(1):79-95

⁵⁶ *ibid*

According to the latest Australian National Perinatal Statistics, more than a fifth of all babies are surgically removed from their mothers via caesarean section (21.9%); and obstetricians using either vacuum or forceps deliver another 11.1%⁵⁷.

Women should have equal access to quality maternity services, and information on the outcomes associated with private and public care should be publicly available and widely accessible, and may possibly influence those choices.

In 2000 I undertook two studies as part of a multidisciplinary team of researchers. The first study was a population based descriptive study to determine the obstetric intervention rates for private and public women in Australia and was published in the British medical journal in July,2000; 321 : 137-141⁵⁸

Due to the critical response to the first paper, and the suggestion that our findings were not a true indication of the current trends in intervention, we undertook the second study to determine the trends in intervention rates associated with epidural anaesthetic from 1990 to 1997. The second paper appeared in the Australian Journal of Obstetrics and Gynaecology 2002;42:2:176-181, and is presented here as Supplementary Paper 1 at the end of this portfolio.

⁵⁷ AIHW (2001) National Perinatal Statistics Unit Sydney. AIHW cat.no. PER 19

⁵⁸ <http://bmj.com/cgi/content/abstract/321/7254/137>

Rates for obstetric intervention among private and public patients in Australia: population based descriptive study

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Abstract

Objective To compare the risk profile of women receiving public and private obstetric care and to compare the rates of obstetric intervention among women at low risk in these groups.

Design Population based descriptive study.

Setting New South Wales, Australia.

Subjects All 171 157 women having a live baby during 1996 and 1997.

Interventions Epidural, augmentation or induction of labour, episiotomy, and births by forceps, vacuum, or caesarean section.

Main outcome measures Risk profile of public and private patients, intervention rates, and the accumulation of interventions by both patient and hospital classification (public or private).

Results Overall, the frequency of women classified as low risk was similar (48%) among those choosing private obstetric care and those receiving standard care in a public hospital. Among low risk women, rates of obstetric intervention were highest in private patients in private hospitals, lowest in public patients, and generally intermediate for private patients in public hospitals. Among primiparas at low risk, 34% of private patients in private hospitals had a forceps or vacuum delivery compared with 17% of public patients. For multiparas the rates were 8% and 3% respectively. Private patients were significantly more likely to have interventions before birth (epidural, induction or augmentation) but this alone did not account for the increased interventions at birth, particularly the high rates of instrumental births.

Conclusions Public patients have a lower chance of an instrumental delivery. Women should have equal access to quality maternity services, but information on the outcomes associated with the various models of care may influence their choices.

Introduction

Caesarean sections have been widely scrutinised, without consideration of other obstetric interventions.¹⁻⁴ A recent Australian parliamentary inquiry, with a mandate to explore the differences between public and private care, heard repeated submissions that high caesarean rates in the private sector are probably because large numbers of women at high risk take out private health insurance for pregnancy care.⁴ However, there

are no data to support this assertion and neither is there information about other obstetric interventions associated with medical insurance status. International comparisons show Australia to have among the highest rates for obstetric intervention; in 1996, 20% of women had caesarean sections and 11% had instrumental births.^{5,6}

Australian maternity care has features of British and American systems; all women are covered by national health insurance, which provides free maternity care for patients in public hospitals (public patients), but about one third take out private medical insurance or pay for private obstetric care (private patients). For private patients, antenatal care is provided in private rooms by an obstetrician chosen by the woman, and delivery may be at either a private or a public hospital. Public patients receive antenatal care and birth care at public hospitals, and care is provided by rostered midwives, residents, registrars, and staff obstetricians. Women choose their care depending on their knowledge of what is available, whether or not they can meet the costs of private insurance or private care, and their proximity to services.⁷

We aimed to compare the risk profiles of women receiving public and private obstetric care and to compare the rates of obstetric intervention among women at low risk in these groups giving birth in New South Wales, Australia.

Subjects and methods

The study population comprised women delivering a live infant in New South Wales from 1 January 1996 to 31 December 1997. Data were obtained from the NSW Midwives Data Collection, a population based surveillance system covering all births in New South Wales, which relies on midwives to record information on each birth.^{8,9} We compared maternal demographic and clinical factors among public and private patients. Maternal factors available for analysis were age, parity, medical conditions (any or none reported, including pre-existing diabetes mellitus and essential hypertension), and obstetric complications (any or none reported, including antepartum haemorrhage, pregnancy induced hypertension, gestational diabetes, and rupture of membranes before labour). Type of labour was classified as spontaneous, augmented, induced, or none (caesarean section before labour). Augmented and induced labours were those where drugs were

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used to augment or induce labour. Other factors for management of labour were type of delivery (vaginal, vacuum, forceps, or caesarean section), epidural, episiotomy, and third degree tear. Infant factors available for analysis were presentation, multiple birth, gestational age, birth weight, birthweight percentile,¹⁰ and Apgar score at five minutes.

We considered women to be at low risk of poor pregnancy outcome if they were aged 20-34 years with no medical or obstetric complications and a singleton of normal size (10th-90th birthweight percentile) presenting in the cephalic position and born at term (37-41 weeks' gestation). Primiparas (first birth at 20 weeks or more of gestation) were examined separately from multiparas (previous births) because of the significant impact of the care and outcome of previous pregnancies on care in multiparous pregnancies.

We examined the rates of obstetric interventions among women at low risk for three patient and hospital groups: private patients giving birth in private hospitals, private patients giving birth in public hospitals, and public patients giving birth in public hospitals. We examined a prespecified cascade effect of obstetric interventions by grouping them in chronological sequence—those interventions that occur during labour but before birth (epidural and induction or augmentation of labour) followed by those that occur at the time of birth (episiotomy and type of delivery). Induction and augmentation are grouped together for simplicity of presentation as the outcomes were similar after these interventions and because the intervention is similar for women and only differs in whether it occurs before or after labour has begun.

Analysis

Associations between patient and hospital group and maternal, infant, and clinical factors were examined by contingency table analyses. Because of the large number of births and statistical comparisons made, the significance level for all statistical testing was set at $P < 0.01$. As the age distribution differed among private and public women at low risk, we calculated age adjusted intervention rates by direct standardisation, with the pooled low risk population as the standard. The probabilities of interventions are presented as age adjusted rates per 100 women for each of four subgroups of labour management before birth. The absolute probability of each end point can be obtained by multiplying the end point probability for the subgroup by the probability for the entire subgroup. Analyses were conducted with SAS through the New South Wales health department's Health Outcomes Information and Statistical Toolkit (HOIST) data warehouse system.

Results

Of 171 157 livebirths, we excluded 95 without a public or private classification recorded and 356 home births. Of the remaining 170 706 women, 31.6% (53 947 women) were private patients and 68.4% (116 759) were public patients. Private patients were more likely to be older, have lower parity, be without medical or obstetric complications, and have non-cephalic presenting infants and twin pregnancies, and their infants were likely to be heavier (table 1). Although these

Table 1 Frequency (%) of maternal and infant characteristics

Pregnancy and infant characteristics†	Patient classification	
	Private (n=53 947)*	Public (n=116 759)*
Maternal age (years)		
<20	0.5	7.1
20-34	77.6	80.9
≥35	21.9	12.1
Parity		
0	41.3	39.8
1-3	57.0	55.8
≥4	1.8	4.4
Pre-existing medical condition		
Yes	1.5	2.1
None reported	98.5	97.9
Obstetric complication		
Yes	12.8	16.0
None reported	87.2	84.0
Hospital type		
Private	53.0	2.0
Public	47.0	98.0
Presentation		
Cephalic	94.3	95.2
Breech	4.4	3.8
Other	0.6	0.7
Plurality		
Singleton	98.3	98.9
Twins	1.7	1.1
Birthweight or gestational age percentile		
0.0-9.9	7.8	11.6
10.0-24.9	13.2	15.9
25.0-75.0	51.1	49.4
75.1-90.0	16.3	13.8
90.1-100	11.7	9.2
Birth weight (g)		
<2500	4.1	5.4
2500-4499	94.1	92.8
≥4500	1.8	1.7
Gestational age (weeks)		
<37	5.5	5.9
37-41	92.8	91.2
≥42	1.7	2.9
Low risk women		
Primiparas	21.0	17.4
Multiparas	28.2	30.7

*Percentages may not add up to 100 because of missing data.

†Distribution of these factors significantly ($P < 0.001$) different between private and public patients using χ^2 tests.

differences were highly significant ($P < 0.001$), the absolute magnitudes of many were small (table 1). Just under half of the women had pregnancies that were classified as low risk. Over half of private patients gave birth in private hospitals and this was true for both primiparas (58%) and multiparas (55%) at low risk. Among low risk primiparas, private patients in private hospitals were significantly more likely to have obstetric interventions compared with public patients and were less likely to have spontaneous onset of labour or a non-instrumental vaginal birth (table 2). For all interventions, the rates for private patients in public hospitals fell between those of private patients in private hospitals and public patients.

Table 3 shows the cascade effect of obstetric interventions among low risk primiparas. There was increasing intervention in the management of birth as interventions in labour accumulated (epidural, induction or augmentation). This is shown by an increasing gradient of intervention down the columns of the table

for all patient and hospital groups. Within each category for management of labour, however, there is also a gradient across the rows of the table, with lower instrumental delivery rates among public patients. Thus private patients were more likely to have interventions initiated during labour and were also more likely to have operative intervention at the time of birth. Notably, of all private primiparas at low risk in private hospitals only 18 per 100 women achieved a vaginal birth without any intervention compared with 28 per 100 private patients in public hospitals and 39 per 100 public patients. Among private patients with an epidural, the most likely birth outcome was an instrumental delivery with an episiotomy. Among similar public patients, the most likely outcome was a non-instrumental vaginal birth without episiotomy.

Intervention rates were generally lower among low risk multiparas, with the exception of caesarean sections before labour, which are likely to be due to repeat caesareans (table 4). As with primiparas, intervention rates for multiparas are highest among private patients in private hospitals and lowest in public patients, with intermediate rates for private patients in public hospitals (table 4). Among low risk multiparas, 39 per 100 private patients in private hospitals had a vaginal birth without any intervention compared with 51 per 100 private patients in public hospitals and 67 per 100 public patients (table 5). The patterns of increased intervention at birth associated with intervention during labour that were apparent for primiparas in private hospitals were also seen for multiparas (table 5). There were two exceptions. Firstly, among the relatively few multiparas with epidurals there were noticeably higher rates of caesarean section after labour in public patients in association with lower rates of instrumental deliveries, whereas the reverse was observed among private patients. Secondly, the use of augmentation or induction without epidural did not noticeably increase the probability of an instrumental birth.

Discussion

Study limitations

Overall, the proportions of women in public and private care who were classified as low risk were similar. Among low risk women, regardless of parity, private patients had higher age adjusted rates of instrumental delivery, especially after epidural. Our observation that epidurals begin a cascade of obstetric interventions leading to a low probability of a non-operative birth is consistent with trial evidence of this association.¹¹ Although much attention has been drawn to increases in rates of caesarean sections,¹⁻⁵ we found that in low risk primiparas high rates of operative vaginal births (including episiotomies, forceps, and vacuum deliveries) drive the overall intervention rates, not caesarean sections.

Our study does not have details on birth outcomes, such as duration of labour and neonatal death, nor the reasons for intervention, but its strength lies in the size and validity of the population database used.⁹ The results, however, may not pertain to other populations with differing rates of private care, models of care, or maternal preference and knowledge of different types of care. Furthermore, a cross sectional study cannot establish cause and effect, although most components

Table 2 Birth characteristics and outcomes among primiparas at low risk. Values are percentages

Birth characteristics and outcomes	Private patients		Public patients (all hospitals) (n=20 354)
	Private hospitals (n=6548)	Public hospitals (n=4798)	
Maternal age (years)*:			
20-24	10.6	16.3	40.6
25-29	48.9	47.0	40.0
30-34	40.6	36.7	19.3
Type of labour*:			
Spontaneous	47.0	54.1	63.8
Augmented	23.1	21.8	19.7
Induced	25.7	21.1	15.7
No labour	4.1	2.9	1.4
Delivery*:			
Vaginal	49.7	60.0	72.6
Forceps	22.5	15.0	10.5
Vacuum	11.4	11.1	6.8
Caesarean section before labour	4.1	2.9	1.5
Caesarean section after labour	12.3	10.9	8.5
Epidural*	50.8	35.2	25.1
Episiotomy*†	46.6	39.8	28.6
Third degree tear*†	1.4	1.8	2.3
Apgar score <7 at 5 minutes*	1.3	1.0	1.8

*Distribution of these factors significantly different (P<0.001) among three groups with χ^2 tests.
†Among vaginal births.

Table 3 Age adjusted rates per 100 women for obstetric intervention among primiparas at low risk

Labour management before birth	Management at birth	Private patients		Public patients (all hospitals) (n=20 354)
		Private hospitals (n=6548)	Public hospitals (n=4798)	
No epidural, no induction*	No episiotomy			
	Vaginal birth	55.5	63.5	71.4
	Forceps or vacuum	3.9	4.4	3.1
	Episiotomy			
	Vaginal birth	21.3	18.8	14.6
	Forceps or vacuum	15.9	10.1	7.9
	Caesarean section after labour	3.4	3.3	3.1
	Subgroup rate	32.5	44.0	54.0
No epidural, induction*	No episiotomy			
	Vaginal birth	45.7	45.1	56.4
	Forceps or vacuum	6.0	5.1	4.3
	Episiotomy			
	Vaginal birth	22.3	22.7	16.8
	Forceps or vacuum	16.7	16.8	14.3
	Caesarean section after labour	9.3	10.4	8.2
	Subgroup rate	17.8	20.6	9.1
Epidural, no induction*	No episiotomy			
	Vaginal birth	27.8	31.7	37.8
	Forceps or vacuum	15.7	15.3	8.3
	Episiotomy			
	Vaginal birth	7.2	7.5	9.5
	Forceps or vacuum	33.8	29.6	27.4
	Caesarean section after labour	15.6	16.5	17.0
	Subgroup rate	15.2	11.0	19.0
Epidural, induction*	No episiotomy			
	Vaginal birth	24.5	26.2	34.1
	Forceps or vacuum	14.7	12.4	9.5
	Episiotomy			
	Vaginal birth	9.0	9.4	6.7
	Forceps or vacuum	32.3	29.7	24.4
	Caesarean section after labour	19.5	22.3	25.3
	Subgroup rate	31.0	21.7	16.3
	Rate for caesarean section before labour	3.4	2.7	1.6

*Induction includes both induction and augmentation of labour with oxytocics or other measures (for example, Foley's catheter) with or without artificial rupture of membranes, but does not include augmentation or induction with artificial rupture of membranes alone.

Table 4 Birth characteristics and outcomes among multiparas at low risk. Values are percentages

Birth characteristics and outcome	Private patients		Public patients (all hospitals) (n=35 825)
	Private hospitals (n=8439)	Public hospitals (n=6775)	
Maternal age (years)*:			
20-24	3.5	5.3	22.7
25-29	34.5	36.2	41.7
30-34	61.9	58.5	35.6
Type of labour*:			
Spontaneous	55.3	64.3	76.8
Augmented	7.2	6.6	4.8
Induced	22.9	18.9	12.9
No labour	14.5	10.2	6.5
Delivery*:			
Vaginal	74.3	80.8	88.0
Forceps	4.2	2.4	1.3
Vacuum	3.4	3.1	1.3
Caesarean section before labour	14.5	10.2	6.5
Caesarean section after labour	3.5	3.3	2.9
Epidural*	31.3	16.8	9.2
Episiotomy†	19.2	14.6	7.0
Third degree tear†	0.2	0.3	0.9
Apgar score <7 at 5 minutes*	0.8	0.6	0.9

*Distribution of these factors significantly ($P<0.001$) different among three groups with χ^2 tests.

†Among vaginal births.

Table 5 Age adjusted rates per 100 women for obstetric intervention among multiparas at low risk

Labour management before birth	Management at birth	Private patients		Public patients (all hospitals) (n=35 825)
		Private hospitals (n=8439)	Public hospitals (n=6775)	
No epidural, no induction*	No episiotomy			
	Vaginal birth	82.5	85.8	92.0
	Forceps or vacuum	1.6	1.9	0.8
	Episiotomy			
	Vaginal birth	11.9	9.5	4.9
No epidural, induction*	Forceps or vacuum	1.3	1.3	0.7
	Caesarean section after labour	2.7	1.5	1.6
	Subgroup rate	47.6	59.8	72.4
	No episiotomy			
	Vaginal birth	79.3	80.0	87.9
Epidural, no induction*	Forceps or vacuum	1.5	2.1	1.3
	Episiotomy			
	Vaginal birth	15.5	14.2	6.3
	Forceps or vacuum	1.9	1.6	1.5
	Caesarean section after labour	1.8	2.1	3.0
Epidural, induction*	Subgroup rate	19.9	20.1	14.9
	No episiotomy			
	Vaginal birth	51.4	52.9	61.0
	Forceps or vacuum	10.4	15.8	5.2
	Episiotomy			
Rate for caesarean section before labour	Vaginal birth	11.5	7.9	3.8
	Forceps or vacuum	11.2	9.7	8.2
	Caesarean section after labour	15.4	13.7	21.8
	Subgroup rate	8.1	5.9	3.4
	No episiotomy			
Rate for caesarean section before labour	Vaginal birth	55.2	64.4	62.3
	Forceps or vacuum	13.7	7.1	9.2
	Episiotomy			
	Vaginal birth	14.0	11.6	5.3
	Forceps or vacuum	8.9	8.9	8.0
Caesarean section after labour	8.2	8.0	15.2	
Subgroup rate	11.2	5.1	3.0	
Rate for caesarean section before labour	13.0	9.1	6.3	

*Induction includes both induction and augmentation of labour with oxytocics or other measures (for example, Foley's catheter) with or without artificial rupture of membranes, but does not include augmentation or induction with artificial rupture of membranes alone.

of the intervention cascade have been examined in randomised trials and systematic reviews.¹¹⁻¹⁶

Instrumental births

High rates of instrumental deliveries are not associated with improved perinatal outcomes but are associated with increased risks for mothers.^{5 17} Although forceps and vacuum deliveries are associated with some adverse neonatal outcomes, long term follow up of infants suggests no adverse physical, cognitive, or visual impairment.^{12 18} For women, however, instrumental deliveries are associated with an increased risk of vaginal or perineal trauma and damage to the anal sphincter resulting in urinary incontinence and bowel and sexual problems.^{12 19 20} Population estimates for these outcomes at 6-7 months postpartum for women who have had instrumental births are 54% for perineal pain, 18% for urinary incontinence, 19% for bowel problems, 36% for haemorrhoids, and 39% for sexual problems.¹⁹ Studies with sufficiently long follow up, including the need for surgical repair later in life, are required to properly evaluate the association between instrumental deliveries and such outcomes.

Private and public obstetric care

Whereas a rate of intervention that is appropriate or reasonable is unknown, there are no obvious clinical reasons for intervention rates to be higher in private than in public patients. The women with low risk pregnancies in our study may include a few women with additional risk factors, but their numbers are likely to be small, with little influence on the overall results. Again, most research pertains to caesarean sections, but high rates in the private sector have been linked to fear of litigation, financial reward, time pressures, and widespread use of electronic fetal monitoring and epidurals.^{2 21 22} Fisher et al found that, in addition to private insurance, women who are well educated, assured, and have mature personalities are at increased risk of obstetric intervention.²¹ Whereas this may be due to fear of malpractice if these women are perceived as potential litigants,²¹ it is not clear how or why the personality of a patient influences the use of interventions. If women pay more they may expect more.²² Certainly they will expect their private obstetrician to attend the birth and may expect greater access to some interventions—for example, epidural anaesthesia, caesarean section. Although there was no direct financial incentive for instrumental birth in Australia, there might be gains in efficiencies if intervention is less disruptive to the schedule of an obstetrician.²² Practical factors such as ensuring women deliver at times when labour wards and operating theatres are well staffed may be more important in private hospitals. The intermediate intervention rates for private patients in public hospitals, where care is augmented by salaried doctors, supports the hypotheses that time and practical factors contribute to variation in intervention rates.

Satisfaction with maternity care is associated with involvement in decision making and provision of adequate information about the relative harms and benefits of procedures before they are carried out.^{1 2 23 24} Women want involvement in decision making about their obstetric care, and obstetric emergencies do not necessarily deny women this involvement.^{1 2 23} Women who choose their obstetric care based

What is already known on this topic

Rates of caesarean section vary internationally, prompting debate on what rate is appropriate for quality maternity care

Little attention has been paid to other obstetric interventions such as epidurals, episiotomies, and instrumental births

Instrumental births can have long term adverse consequences

What this study adds

In Australia, where 31% of women choose private obstetric care, women with high risk pregnancies did not disproportionately seek private care

Among women at low risk of poor pregnancy outcome, rates of obstetric intervention were highest for private patients in private hospitals, lowest in public patients, and intermediate in private patients in public hospitals

Higher rates of obstetric intervention in the private sector were due to instrumental deliveries rather than to caesarean sections

on perceived access to pain relief may not be aware of the possible consequences of such a choice. There is evidence that support from caregivers reduces the need for analgesia in women in labour, as may movement of the woman and choice of position.¹³⁻²⁵ More emphasis on efficacious interventions may reduce the need for epidurals thereby reducing the potential for a cascade of obstetric interventions. The impact of labour interventions that reduce a woman's freedom to walk around should not be underestimated; women value this freedom, and it may be beneficial in reducing labour pains.²⁴⁻²⁵ Further, early augmentation of nulliparous women with mild delays in the progress of labour does not seem to provide a benefit over a more conservative form of management.¹⁴ Whereas information alone will not alter the rates of operative births,¹ intervention rates associated with various care options could be used in a dialogue between women with their chosen carer about their likely birthing experience. The impact of such a strategy should be properly evaluated before implementation.

In conclusion, private patients had higher rates of intervention at birth than did public patients. In women with low risk pregnancies most of this difference was due to higher rates of instrumental deliveries rather than caesarean sections. Women should have equal access to quality maternity services, but information on the outcomes associated with the various models of care may influence their choices.

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Contributors: CLR designed the study protocol, analysed the data, and participated in writing the paper; she will act as guarantor for the paper. ST initiated the research and participated in the study design, interpretation of the data, and writing of the paper. BP discussed core ideas, participated in the design of the study, data analysis, and interpretation of the findings, and contributed to the paper. Charles Algert provided advice on data analysis and

presentation of the results and commented on the manuscript. David Henderson-Smart commented on the manuscript. Tim Churches and Devon Indig maintain the New South Wales health department's Health Outcomes Information and Statistical Toolkit data warehouse system.

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Endpiece

Still a chance

If people could be persuaded to read and write, not just to eat and make love, there was still a chance that they might come to reason.

T H White, *The Once and Future King*.
London: Voyager, 1996.

PART 4: MEASURING THE COST OF OBSTETRIC INTERVENTIONS

COSTING THE CASCADE: ESTIMATING THE COST OF INCREASED OBSTETRIC INTERVENTION IN CHILDBIRTH USING POPULATION DATA.

CONTEXT

The challenge for women and midwives proposing system reform in the maternity services in Australia is the identification, measurement and evaluation of the current use of resources to make appropriate evaluations and recommendations for changes in the current economic use of these resources. There is no comprehensive database from which researchers can draw. In addition to this, there are several levels of data sources from both state and Commonwealth administrative and clinical databases. Maternity services are offered in both public and private hospitals with a fee for service funding arrangement for obstetricians, anaesthetists, paediatricians and GP obstetricians. It is not possible to make a complete economic evaluation from any single database even though a measure of cost is possibly the most effective way to establish an argument for reform. My aim was to provide measures that would allow service managers to deploy resources more efficiently to achieve the best care.

The following paper applies a cost model to data from the previous paper in Part 3⁵⁹, the reference study for the key parameters of the model presented here. The evaluation of resources is based on the use of data from the state-wide cost data base in New South Wales, with data collected during the years 1996-97. It is unique in that it projects the incremental cost increase that can be accounted for through the introduction of obstetric interventions during labour and before birth for women who are otherwise not at risk. Much of the work already undertaken in this area has concentrated on costing birth outcomes, such as the cost of caesarean sections. If midwives are going to argue in terms of cost effectiveness they must be able to demonstrate that the service they offer will prevent the costly interventions many women have come to expect in the hospital system. The current paper was prompted by the attempts of midwifery service managers to measure the costs of the increasing levels of intervention for otherwise healthy young women. Many of these managers are typically unable to be clear about the costs of their services because of the lack of transparent and reliable data on costing. The modelling was undertaken to estimate where savings could be made within a finite public system budget. These projections indicate where savings can be made to support the introduction of innovative models of care such as increasing the level of one-to-one midwifery care.

⁵⁹ Roberts CL, Tracy S, Peat B. Rates for obstetric intervention among private and public patients in Australia: population based descriptive study. *BMJ* 2000; 321 137-141
<http://bmj.com/cgi/content/abstract/321/7254/137>

The paper was accepted for publication on the 18th October and is currently in press with the *BJOG* which has a readership of obstetric and midwifery clinicians, managers and policy makers. The results of this study were presented internationally at the XVIII European Congress of Perinatal Medicine, Oslo, Norway 2002, and the New Zealand College of Midwives Conference in Dunedin, 2002.

ABSTRACT

Objective: To estimate the cost of “the cascade” of obstetric interventions introduced during labour for low risk women.

Design: A cost formula derived from population data.

Setting: New South Wales, Australia

Population: All 171,157 women having a live baby during 1996 and 1997.

Methods: Four groups of interventions that occur during labour were identified. A cost model was constructed using the known age adjusted rates for low risk women having one of three birth outcomes following these pre-specified interventions. Costs were based on state-wide averages for the cost of labour and birth in hospital.

Outcome Measures: The outcome measure is an ‘average cost unit per woman’ for low risk women, predicted by the level of intervention during labour. Obstetric care is classified as either private obstetric care in a private or public hospital, or routine public hospital care.

Results: The relative cost of birth increased by up to 50% for low risk primiparous women and up to 36% for low risk multiparous women as labour interventions accumulated. An epidural was associated with a sharp increase in cost of up to 32% for some primiparous low risk women, and up to 36% for some multiparous low risk women. Private obstetric care increased the overall relative cost by 9% for primiparous low risk women and 4% for multiparous low risk women.

Conclusions: The initiation of a cascade of obstetric interventions during labour for low risk women is costly to the health system. Private obstetric care adds further to the cost of care for low risk women.

INTRODUCTION

A study published in the BMJ in July, 2000¹, demonstrated both the effect of a cascade of intervention during labour on the birth outcome for low risk women in childbirth, and the added effect of having private obstetric care. The research showed that the introduction of an epidural and induction or augmentation of labour for both primiparous and multiparous low risk women increased the rates of instrumental birth with an episiotomy, or caesarean section after labour. These findings are consistent with the available evidence in this field.²⁻⁵

The growing level of intervention in birth for otherwise low risk healthy women is a source of concern in Australia, and worldwide.^{6,7} There is evidence that epidurals may increase the probability of an assisted surgical birth^{3,4} and that intervention in labour⁸ and less continuity of midwifery care⁹ may lead to higher rates of interventions in birth.^{9 - 11} The recently published report from an Expert Advisory Group on Caesarean Section in Scotland¹¹ recommends that “all women should have the benefit of one-to-one midwifery care in labour. It claims such support “reduces the rate of obstetric interventions including Caesarean section”.¹¹

In order to fund increased one-to-one midwifery care, savings have to be identified within existing maternity services. Although several papers have shown the economic costs of alternative modes of delivery^{12 - 14}, there is little evidence of the savings to be made from

lowering the intervention rates that precede these different modes of birth in otherwise low risk healthy women. Having previously identified the age-adjusted rates of different modes of birth for an entire population of low risk women during 1996 and 1997¹, we applied data¹⁵ collected on the average costs of care for the same population at the same time. A model was developed to demonstrate the incremental costs associated with interventions that occur during labour. The cost model was derived from data published in the original population study,¹ on the age-adjusted rates of each birth outcome that followed a particular group of interventions in labour, and average cost data supplied by the New South Wales Health Department.¹⁵ The aim was to determine the effect of labour interventions on the outcome of the birth and to estimate the economic impact of these interventions. This study will provide a better understanding of the costs of the cascade of interventions needed to identify the potential savings from lowering intervention rates. It also predicts the added effect of promoting private obstetric care for low risk women, compared to care in the public health system.

METHODS

The method of constructing the cost model followed a number of steps that are summarised in Figure 1. The outline of the method is described here, and followed by a more detailed description of the key parameters of the model. The first step involved describing four treatment pathways or interventions that commonly occur in labour, and calculating how many low risk women have one of three identified birth outcomes as they are associated with each of these options. The known cost of these birth outcomes was expressed as a ratio of the cost compared to an uncomplicated vaginal birth. The four intervention subgroups were identified as: No intervention; Induction or augmentation (with oxytocics); Epidural only; Epidural and induction or augmentation (with oxytocics). The three birth outcomes we identified and the cost ratio assigned to them are as follows: spontaneous vaginal birth = 1; forceps or vacuum birth with episiotomy = 1.3; caesarean section after labour = 2.5. In the reference study the probabilities of the birth outcomes at the end of each treatment option in labour are presented as age-adjusted rates /100 women.¹ The numbers of births in each of these outcomes were obtained to allow a cost formula to be developed. See Table 1. The numbers of births at each birth outcome were multiplied by the cost ratio for each of these outcomes. See Table 2. We arrived at the 'average cost unit per woman' by adding the number of births at each endpoint multiplied by the cost ratio for each outcome, and dividing this number by the total number of births in each labour intervention group. See Tables 3 and 4.

KEY PARAMETERS OF THE MODEL

Methods for establishing the rates of obstetric intervention in labour and birth among private and public patients in Australia are described in full in the reference study.¹ In summary, data were obtained from a population database of the entire population of women who gave birth to a live baby in the state of New South Wales from January 1 1996 to December 31 1997. The database known as the NSW Midwives Data Collection (MDC) relies on midwives to

record information on every birth.¹⁶ A full description of the maternal and infant demographic and clinical factors we compared can be found in the reference study¹.

Women were considered 'low-risk' if they were between 20-34 years with no medical or obstetric complications and a single cephalic-presenting infant of normal size (10th-90th birth weight percentile) born at term (37-41 weeks gestation). Primiparous women (first birth \geq 20 weeks gestation) were examined separately from multiparous women (previous births) because of the known significance in impact of the care and outcome of previous pregnancies on care in future pregnancies.

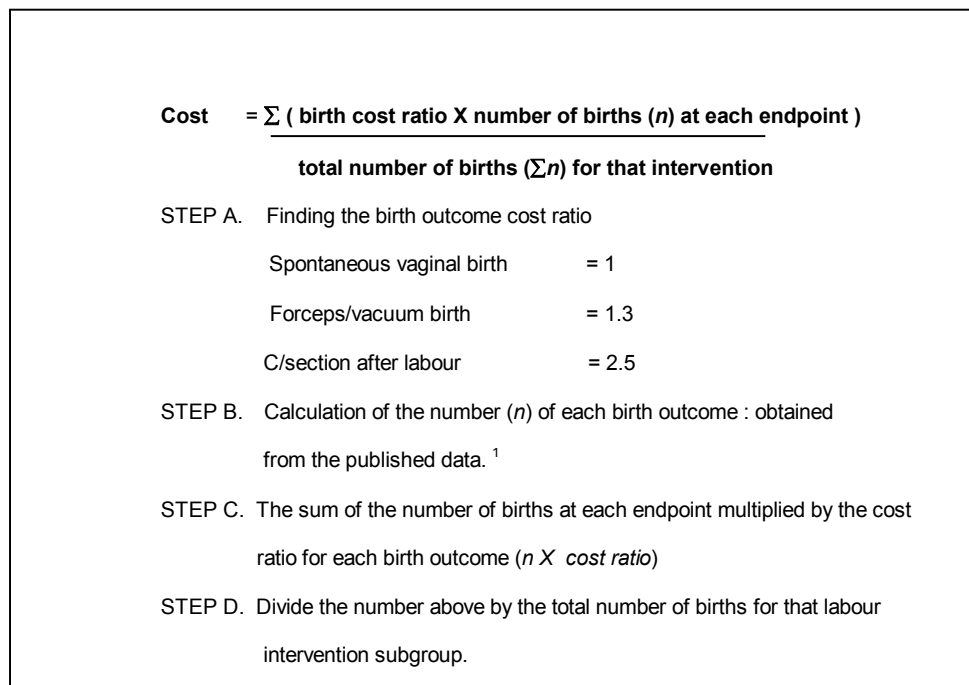
Age adjusted rates of obstetric intervention among low-risk women were identified according to a cascade of interventions introduced in chronological sequence during labour.¹ The birth outcome was recorded and women were further identified as having chosen a private obstetrician to care for them in a private hospital (Private/private), a private obstetrician caring for them in a public hospital (Public/private), or whether they gave birth in the public hospital under publicly funded obstetric care (Public/public).

CALCULATING RELATIVE COSTS

The New South Wales Health Department publishes Casemix costing data giving the average clinical cost for an 'episode of care in hospital' per person.¹⁵ The cost for a certain episode of care can be found by looking up the Australian Refined Diagnosis Related Group (AR-DRG) number based on the diagnosis and outcome of any hospital procedure. For example, the 'average cost per episode' for a straight forward vaginal birth in 1996/97 (AR-DRG 060D) was \$AUD1717.00 according to the NSW clinical costing estimates.¹⁵ For the purpose of the present study, this least complicated and least expensive mode of birth became the reference unit, 1. From the same clinical costing database, a birth ending in a forceps or vacuum extraction and an episiotomy (AR-DRG classification;060B), is averaged to cost \$AUD 2, 306.00,¹⁵ or one and a third times the cost of a straightforward vaginal birth. So the forceps or vacuum birth with an episiotomy was assigned a cost ratio of 1.3. All emergency caesarean section AR-DRG codes¹⁵ were averaged to obtain an average cost of \$AUD 4, 452.00, which relative to an uncomplicated vaginal birth was two and a half times as much. So emergency C/S or 'caesarean section after labour' was assigned a cost ratio of 2.5.

Having estimated a cost ratio for the following three birth outcomes – spontaneous vaginal without episiotomy; forceps/vacuum with episiotomy; and caesarean section after labour (emergency C/S), we proceeded to construct the model.

FIG 1. STEPS TAKEN TO DERIVE A COST FORMULA.



Tables 1 and 2 show how the published age adjusted rates for the interventions in labour and the subsequent method of birth were translated into a mathematical cost model. For the population described, the numbers of women in each endpoint experiencing a certain birth outcome were assigned a cost ratio. Costs were calculated for primiparous and multiparous women separately. The result was an ‘average cost unit per woman’ depending on the specific intervention she experienced during labour.

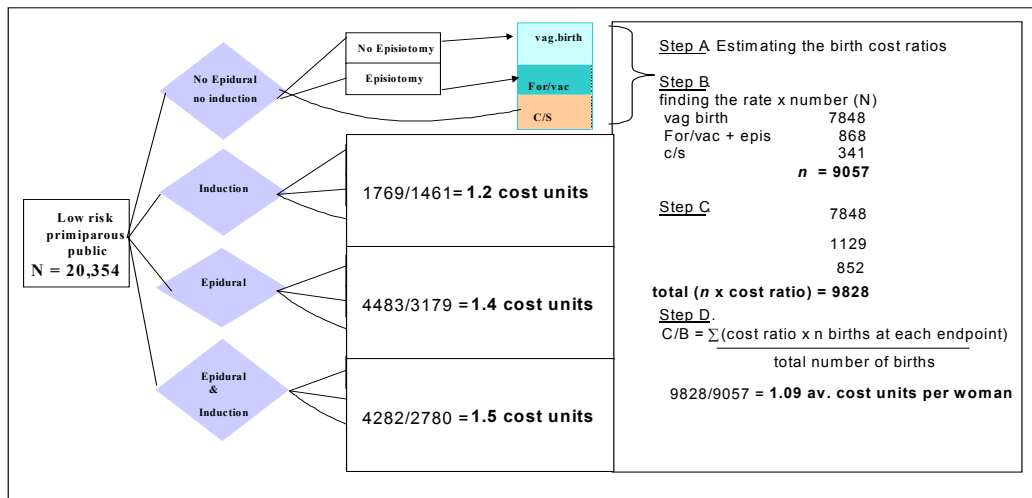
The cost impact of whether a woman received obstetric care from a private obstetrician in a private hospital, or a private obstetrician in a public hospital, or whether she received routine public hospital care was calculated. These results were then compared to give an over all estimate of the different costs of care for women depending on parity and classification of care as private or public.

Table1 and 2 here

RESULTS

Of the 171,157 women who had a live birth, the birth outcomes of 31,700 low risk primiparous women, and 51, 039 low risk multiparous women were considered. ¹

Fig 2 APPLYING THE COST MODEL TO LOW RISK PRIMIPAROUS WOMEN WHO GAVE BIRTH IN A PUBLIC HOSPITAL WITH ROUTINE HOSPITAL CARE, ACCORDING TO THE LEVEL OF INTERVENTION IN LABOUR.



Induction includes induction or augmentation

Source: Roberts C, Tracy S, Peat B. Rates for obstetric intervention among private and public patients in Australia: population based descriptive study. *BMJ* 2000; 321:137-41

Figure 2 is a diagrammatic representation of the cost model. It shows how a low risk primiparous woman who gave birth in the public health system without any intervention in labour cost 1.09 'average cost units' to the system. The average cost of low risk primiparous women who had labour induced or augmented attracted an 11% increase in cost at 1.2 'average cost units'. The cost increased sharply by 20% to 1.4 'average cost units' when an epidural was introduced. Finally, for women with the whole cascade of interventions, induction or augmentation plus an epidural, the average cost per woman increased a further 13% to 1.54 'average cost units'. For primiparous low risk women giving birth in the public system, the cost per woman increased from 1.09 cost units to 1.54 average cost units as the level of intervention increased in labour (Fig 2.)

See Table 3. The introduction of an epidural with induction or augmentation in primiparous low risk women led to very similar costs independent of the carer (1.51-1.54). Overall, the incremental rise in costs was slightly higher for primiparous women cared for by private obstetricians in either a public or private hospital and more strongly associated with the introduction of an induction or augmentation.

The association between the rise in average cost units and the introduction of an epidural for low risk multiparous women is shown in Table 4. A very different pattern emerged with small increased costs occurring with the addition of induction or augmentation and no epidural. A larger rise occurred (26-33%) with the introduction of an epidural without induction or

augmentation . Those multiparous women having induction or augmentation with an epidural had a reduction in costs compared to those with epidural and no induction between 9-13%. Although the cost fell when induction or augmentation were added on top of the epidural, the average cost units still remained at about 16-26% higher than the group who had no labour interventions.

Table 3 & Table 4 here

As the level of interventions increased during labour, the birth outcome was also affected and this in turn impacted on the cost within each intervention subgroup. Overall the cost increased by up to 45% for primiparous low risk women in the public system. As each intervention was added the cost increased incrementally but notably after an epidural the cost rose more sharply by

30-33 % for primiparous women, and by 28-36% for multiparous low risk women.

Table 5 here

Table 5. shows the overall increase in cost relative to whether women had public hospital routine care or private obstetric care in a private hospital or a public hospital. For low risk women the cost of giving birth with private obstetric care in a private hospital adds 9% more per person on the cost of care for primiparous women and 4% per person for multiparous women.

DISCUSSION

This study is limited to an estimation of the average cost of care for a low risk population of women. The cost data is derived from admission and discharge data for one episode of acute care related to the labour and birth, then averaged across the whole state. It does not give any estimate of antenatal costs or community based postnatal costs, or the secondary cost of readmission to hospital or the cost of neonatal admission to the Neonatal Intensive Care Unit. Nevertheless, this is the first study to date, that we are aware of, that details the increased costs associated with the use of epidural and /or the use of induction or augmentation in medically low risk births. This analysis provides information for midwifery managers attempting to introduce models of care that are known to reduce the levels of obstetric intervention in labour. Previous research has alerted service providers to the economic impact of alternative modes of birth.¹²⁻¹⁴

The results of the reference study¹ showed that women under private obstetric care in private hospitals were most likely to have a forceps or vacuum instrumental birth following an epidural rather than a Caesarean section after labour, whereas women who gave birth in the public hospital system had higher age-adjusted rates of caesarean section after an epidural. In this current study these cost differences are cancelled out following an epidural (see Tables 3 & 4) probably because there are higher numbers of women in the private obstetrician/private hospital group having an epidural followed by a less costly instrumental birth compared to fewer women in the public hospital group having an epidural followed by a more costly caesarean section.

The steep increase in cost due to the addition of an epidural is one that should prompt clinicians to explore alternative methods of birth support other than those currently offered in most Australian hospitals. A stronger emphasis on options involving less interventionist care such as continuity of midwifery care and one-to-one midwifery care should certainly be considered. One of the difficulties in promoting increased levels of continuity of midwifery care within the public health system is the perception that this will increase costs to the public purse. As Clarke et al reported in 1989, there is a perceived notion that the cost of a constant companion in labour increases the cost of maternity care.¹² But this does not consider the results of such a policy in achieving lower operative delivery rates and the reduced need for pain relief.

Epidural rates have increased dramatically over the past three decades, without a great deal of information on the comfort, flexibility, or costs and risks associated with the practice.^{17, 18} Non-pharmacological interventions such as support from a known caregiver, and one-to-one midwifery care have been shown to reduce the need for an epidural.¹⁹ A recent systematic review of pain and women's satisfaction with the experience of childbirth concluded that the support from caregivers and the involvement in decision making override many of the influences thought to affect the quality of a woman's birth experience.²⁰

This study should add to the growing evidence that shows savings can be made by reducing unnecessary levels of intervention by replacing costly tertiary level obstetric care with community based midwifery models of care for otherwise low risk women in childbirth.^{9-11,19,21,22}

The model may appeal to an international audience because one of the key parameters, the cost ratios between spontaneous vaginal birth and complicated vaginal birth and Caesarean section, do not differ significantly within the published literature so far. In the study undertaken by Clarke et al in 1989¹² where the costs of hospital care for childbirth were compared between the US Medicaid system and the UK system, the ratios were closely comparable with Australian figures. A straightforward vaginal delivery compared to firstly a complicated vaginal delivery and secondly a Caesarean section without complications was 1:1.36 and 1:2.41 respectively.¹² More recently the work published by Petrou et al in 2002¹⁴ where a net cost per woman per birth was obtained for the initial hospitalisation costs in a Scottish population, the ratios for spontaneous vaginal birth compared to instrumental vaginal delivery and caesarean section were 1: 1.37 and 1:2.0 respectively. The latest figures from the New NHS reference - 2001 figures demonstrate for normal compared to assisted, and normal compared to caesarean section birth a ratio to each other that is comparable with the ratios in the current study, 1:1.4 and 1: 2.7 respectively.²³ The birth outcome cost ratios also remain unchanged in the current costing figures from the New South Wales cost data¹⁵, and from the latest Australian national cost data for 1998-99.²⁴

Based on the combination of data from Roberts et al 2000¹ and the costing model described above, it is possible to make a hypothetical cost estimate of a reduction of 5% in epidural in the low risk population of the state of New South Wales. To calculate the effect of a reduction

of 5% in epidural rates we have assumed that there would be a corresponding increase in the non-epidural, non-induced, non-augmented group. The resulting shift in cost units from the intervention group to the non-intervention group shows a reduction in cost of 1,027 cost units. Where the reference cost unit is \$AUD1717.00, this would reduce the total cost in this population for low risk women by \$AUD 1,763,794.00, representing a 1.3% reduction in the total costs calculated. Note that this does not take into account the offset costs related to the mechanisms employed to reduce the epidural rates. However, from the two randomised controlled trials of models of midwifery care in New South Wales that were able to influence a change in intervention rates, the cost for the experimental model of care was reported as lower than routine care.^{21, 22}

It is also possible to make an estimation at an individual maternity unit level, using the cost units for routine public care found in Table 3. In the following hypothetical example a population of low risk primiparous women give birth in a public hospital unit. A baseline epidural rate is reduced from 50% to 40% by the 'continuity of care' model. There is a shift of 5% of the 'epidural with no induction or augmentation' group, and 5% of the 'epidural with induction or augmentation' group to the 'no epidural/no induction or augmentation' group. This increases the rate in that group by 10%. There is an overall saving of 2.99% of the budget based on the cost model presented. Similarly, a 20% reduction in epidural rates in a similar low risk group of primiparous women in a public hospital setting would reduce the total budget by 6.16%.

Although the current study found the overall cost of private episodes of care are increased by 9% for primiparous women and 4% for multiparous women in this costing exercise based strictly on birth outcome, it does not take into account the average length of stay these women undertake for prolonged postnatal care. The most recent data shows that women in New South Wales stay an average of 3.4 days in hospital in the public system and an average of 4.9 days in the private system.²⁵ Further more the rate of stay for seven days or more is three times greater for women with private status at 17.3 % compared to 5.6% for those with public status.²⁵ No attempt has been made in this paper to incorporate these additional costs. The Australian Government recently introduced a new private health insurance package 'The Lifetime Health Cover Policy' especially designed as an affordable option for younger people.²⁶ This followed a previous policy incentive for a 30% rebate on private health insurance premiums.²⁷ Many policy makers, however, fear these initiatives were introduced in an 'evidence-free' policy zone and may have been driven by powerful interest groups and the current political environment.²⁷ Critics of the private health insurance rebate suggest that the money would have been more appropriately spent supplementing the universal public health insurance system Medicare,²⁸ or injecting scarce resources into the public hospital system.²⁷⁻³⁰ In addition there are several published reports from clinicians claiming that increases in the level of private insurance tend to increase health costs because of differences in treatment patterns.³¹⁻³³

The Australian Commonwealth Government private health insurance rebate scheme ²⁹ has according to some analysts cost the government \$2 dollars for every \$1 dollar it set out to save. ³⁰ There are claims that the private health insurance rebate is costing \$1.37 billion more than the \$1.38 billion relief it would deliver to the public sector. ³⁰

CONCLUSION

Australian women have several serious issues to contend with at the moment. Obstetric Intervention rates are rising dramatically and rates are noticeably higher for low risk women who access private obstetric care in private hospitals.^{1, 32,34,35} Simultaneously the Commonwealth government is actively promoting private medical care for childbearing women, with both rebates and tax incentives, with little regard for the impact of private obstetric care on length of hospital stay and other health service utilisation. In addition, women are faced with fewer opportunities to access less interventionist care as maternity services are 'rationalized' from midwifery oriented birth units to tertiary level hospitals; and funding initiatives for community centred care are systematically ignored.⁶

This study may shed some light on the areas where savings may be made if changes are to occur within current levels of public hospital funding. For low risk women in particular, the cost of the cascade of interventions in childbirth opens a debate between safety and quality of care and its relationship to changes in health service financing.

Table 1. The number of low risk primiparous and multiparous women experiencing either a vaginal birth without an episiotomy, an instrumental birth with an episiotomy or a caesarean section following labour interventions. Calculated from published age-adjusted rates of these outcomes. ¹ (Step B, Figure 1.)

Before labour Intervention sub-groups	Private Obstetrician				Public Hospital Care	
	Private Hospital		Public Hospital		Primips N = 20,354	Multips N = 35,825
	Primips N = 6,548	Multips N = 8,439	Primips N = 4,798	Multips N = 6,775		
** rate x N = <i>n</i>	** rate x N = <i>n</i>	** rate x N = <i>n</i>	** rate x N = <i>n</i>	** rate x N = <i>n</i>	** rate x N = <i>n</i>	
NO Epidural / NO Induction*						
Vaginal birth/ no episiotomy	1181	3314	1341	3476	7848	23862
Instrumental birth with episiotomy	338	52	213	53	868	182
C/S after labour	72	108	70	61	341	415
Sub total	1592	3475	1623	3590	9057	24459
NO Epidural / With Induction*						
Vaginal birth/ no episiotomy	533	1332	446	1089	1045	4692
Instrumental birth with episiotomy	195	32	166	22	265	80
C/S after labour	108	30	103	29	152	160
Sub Total	836	1394	715	1140	1461	4932
Epidural / NO induction*						
Vaginal birth / no episiotomy	277	351	167	211	1462	743
Instrumental birth with episiotomy	336	77	156	39	1060	100
C/S after labour	155	105	87	55	657	266
Sub Total	768	533	411	305	3179	1108
Epidural / With Induction*						
Vaginal birth / no episiotomy	497	522	273	223	1131	670
Instrumental birth with episiotomy	656	84	309	31	810	86
C/S after labour	396	78	232	28	839	163
Sub Total	1549	683	814	281	2780	919
<i>Excluded from calculations</i>	<i>1575</i>	<i>1239</i>	<i>1112</i>	<i>843</i>	<i>3562</i>	<i>2150</i>
TOTAL (n)	4745	6085	3563	5315	16477	31418

* Induction includes both induction and augmentation of labour with oxytocics or other measure (for example Foley's catheter) with or without artificial rupture of membranes, but does not include augmentation or induction with artificial rupture of membranes alone.

** rate = age adjusted rates from the reference study ¹

Source: Roberts C, Tracy S, Peat B. Rates for obstetric intervention among private and public patients in Australia: population based descriptive study. *BMJ* 2000; 321:137-41

Table 2. The sum of the number of births at each endpoint multiplied by the cost ratio for each birth outcome. Cost ratios are either 1= spontaneous vaginal birth; 1.3 = Instrumental birth with forceps or vacuum and an episiotomy; 2.5 = caesarean section after labour has begun (C/S) (Step C, Figure 1.)

Before labour Intervention sub-groups	Private Obstetrician				Public Hospital Care	
	<i>Private Hospital</i>		<i>Public Hospital</i>			
	Primips N = 6,548 <i>n x cost ratio*</i>	Multips N = 8,439 <i>n x cost ratio*</i>	Primips N = 4,798 <i>n x cost ratio*</i>	Multips N = 6,775 <i>n x cost ratio*</i>	Primips N = 20,354 <i>n x cost ratio*</i>	Multips N = 35,825 <i>n x cost ratio*</i>
NO Epidural / NO Induction						
Vaginal birth/ no episiotomy	1181	3314	1341	3476	7848	23862
Instrumental birth with episiotomy	440	68	277	68	1129	236
C/S after labour	181	271	174	152	852	1037
Sub total	1802	3653	1792	3697	9828	25136
NO Epidural / With Induction						
Vaginal birth/ no episiotomy	533	1332	446	1089	1045	4692
Instrumental birth with episiotomy	253	41	216	28	344	104
C/S after labour	271	76	257	71	380	400
Sub Total	1057	1449	919	1189	1769	5196
Epidural / NO induction						
Vaginal birth / no episiotomy	277	351	167	211	1462	743
Instrumental birth with episiotomy	437	100	203	50	1378	130
C/S after labour	388	263	218	137	1644	664
Sub Total	1102	714	588	399	4483	1537
Epidural / With induction						
Vaginal birth / no episiotomy	497	522	273	223	1131	670
Instrumental birth with episiotomy	852	109	402	40	1052	112
C/S after labour	990	194	580	69	2098	408
Sub Total	2339	825	1255	332	4282	1190
TOTAL (n x cost ratio)	6300	6641	4554	5616	20362	33059

* Outcome cost ratios are as follows: spontaneous vaginal birth = 1; forceps/vacuum birth with an episiotomy = 1.3; Caesarean section (C/S) after labour = 2.5

Table 3. The incremental costs of intervention during labour in *average cost units per women* for low risk primiparous women showing the effect of obstetric care according to classification from private to public obstetric care in either private or public hospitals. (Step D, Figure 1.)

Labour Intervention sub groups	Private Obstetrician				Public Hospital Care	
	<i>Private Hospital</i>		<i>Public Hospital</i>		<i>Public Hospital</i>	
	$\Sigma(n \times \text{cost ratio}) / \Sigma(n)$		$\Sigma(n \times \text{cost ratio}) / \Sigma(n)$		$\Sigma(n \times \text{cost ratio}) / \Sigma(n)$	
	cost units		cost units		cost units	
No Epidural / No Induction*	1802/1592	1.13	1792/1623	1.10	9828/9057	1.09
No epidural / Induction*	1057/836	1.26	919/715	1.29	1769/1461	1.21
Epidural / No induction*	1102/768	1.43	588/411	1.43	4483/3179	1.41
Epidural / Induction*	2339/1549	1.51	1255/814	1.54	4282/2780	1.54

* Induction includes induction or augmentation

Table 4. The incremental costs of intervention during labour in *average cost units per women* for low risk multiparous women showing the effect of obstetric care according to classification from private to public obstetric care in either public or private hospitals.

Labour Intervention sub groups	Private Obstetrician		Public Hospital Care			
	<i>Private Hospital</i>	<i>Public Hospital</i>	<i>Public Hospital</i>			
	$\Sigma(n \times \text{cost ratio}) / \Sigma(n)$	$\Sigma(n \times \text{cost ratio}) / \Sigma(n)$	$\Sigma(n \times \text{cost ratio}) / \Sigma(n)$			
	cost units	cost units	cost units	cost units	cost units	
No Epidural / No Induction*	3653/3475	1.05	3697/3590	1.02	25136/24459	1.02
No epidural / Induction*	1449/1349	1.07	1189/1140	1.04	5196/4932	1.05
Epidural / No induction*	714/533	1.33	399/305	1.30	1537/1108	1.38
Epidural / Induction*	825/683	1.20	332/281	1.18	1190/919	1.29

* Induction includes induction or augmentation

Table 5. A comparison of the overall difference in cost between private obstetric care and routine public care in both private and public hospitals for all low risk primiparous and multiparous women.

Status of care		
Private or Public	<i>cost / Total number of births (n)</i>	Average Cost units
Primiparous low risk		
Public Hospital / public care	16477/20362	1.24
Public Hospital / private care	3563/4554	1.28
Private Hospital / private care	6300/4745	1.33
Multiparous low risk		
Public Hospital / public care	31418/33059	1.05
Public Hospital / private care	5315/5616	1.06
Private Hospital / private care	6085/6641	1.09

Source: Roberts C, Tracy S, Peat B. Rates for obstetric intervention among private and public patients in Australia: population based descriptive study. *BMJ* 2000;321:137-41

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PART 5: MEASURING THE AUSTRALIAN MIDWIFERY WORKFORCE

**TRACY S, BARCLAY L, BRODIE P. CONTEMPORARY ISSUES IN THE WORKFORCE AND
EDUCATION OF AUSTRALIAN MIDWIVES. *AUSTRALIAN HEALTH REVIEW* 2000;23(4):78-88.**

CONTEXT

The following descriptive study was undertaken as part of the AMAP research project to identify the contemporary issues in the workforce and education of Australian midwives. The urgency of the situation was revealed with the findings of the Australian Medical Workforce Advisory Committee (AMWAC) Supply and Requirements from 1997-2008 Report, 1998. The authors of this report found that no comprehensive data was available on the workforce of practising midwives in Australia (AMWAC 1998)⁶⁰. Where data was available it demonstrated the shortage of midwives, and the older age group of practitioners within states and territories, and nationally. This lack of information was confirmed by the Directors of Nursing from Women's Hospitals Australasia, with whom the AMAP team corresponded over the life of the project.

Data is currently collected from three major sources, the Australian Institute of Health and Welfare through national labour force surveys, registration authorities for each state and territory, and the state health departments. None of these sources has a consistent 'working' definition of the practicing midwife, and one of the most glaring shortcomings is the widely used self identification of the midwife as 'a nurse working in midwifery', which includes those without midwifery qualifications.

The following paper provides a window on the contemporary issues facing midwifery in Australia. It identifies some of the gaps in the data, inconsistencies in educational and legislative frameworks in states and territories, 'unknowns' in terms of numbers employed, numbers having left the workforce, the age profile of employed midwives and satisfaction with their scope of practice. A crude model was developed to demonstrate the sheer magnitude of the problem in relation to retention, attrition and the number of students being educated to fill workforce vacancies. The paper was published in the Australian Health Review, the journal of the Australian Healthcare Association (AHA), in 2000.

It should be noted that in 2002, following three years of extensive consultation with all the relevant authorities, the Australian Health Workforce Advisory Committee (AHWAC) commissioned the first national report on the workforce of midwives which will be released in 2003.

⁶⁰ AMWAC 1998, *The Obstetrics and Gynaecology Workforce in Australia Supply and Requirements 1997-2008*, Australian Medical Workforce Advisory Committee 1998.6, Sydney

Contemporary issues in the workforce and education of Australian midwives

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Abstract

This paper, which is based on the preliminary findings of the Australian Midwifery Action Project (AMAP), outlines the issues around the midwifery labour force and education in Australia. One of the most alarming features is the lack of comprehensive data on midwives. Where data is available it demonstrates the shortage of midwives and the lack of consistency in educational programs for midwives within states and nationally. It is difficult to form a national picture with published sources of data because there are differences in definition and a lack of relevant information. Strategies for educational reform are discussed in relation to improving the supply and preparation of midwives.

Australian population data

The practice of midwifery is integral to the care of women in childbirth. In Australia during 1998 there were 249,600 live births, the majority of which occurred within the hospital setting (ABS 1999). The crude birth rate has declined from 21.7 per 1,000 people in 1971 to 13.9 per 1,000 in 1996 (AIHW 1998). Since 1984 the infant mortality rate has almost halved from 9.24 deaths per 1,000 live births to 5.86 in 1994 for non-Indigenous mothers. However it remains nearly double that rate for Indigenous women (AIHW 1998).

Over the decade 1984-1994 the overall fertility rate remained stable at 2.1. The latest figures show this has dropped, however, to 1.76 for non-Indigenous women in 1998 (a figure slightly higher than some European countries), and remains at 2.2 for Indigenous women (AIHW 1998, ABS 1999). The population projections of the Australian Bureau of Statistics show that the fertility rate could fall to 1.75 in the years 2005-6, but should remain constant at that rate (ABS 1999).

Despite fertility being below replacement level, Australia's population is projected to grow through natural increase until at least 2041 because of the large numbers of women of childbearing age. This is an echo effect of the post war 'baby boom' caused through the grandchildren of the large number of people born in the 1950's and 60's having their children (ABS, 1996). Population projections demonstrate a continuing need for maternity care that is dependent on various levels of skill and expertise. Australia's high standards of maternity care assume the presence of qualified midwives who offer safety and support for women in childbirth and the puerperium in collaboration with medical colleagues, and increasingly as alternative providers (AMWAC 1998). The shortage of registered midwives will inevitably impact on the quality of care provided in maternity services.

An ageing midwifery labour force

The Australian Institute of Health and Welfare report, "Nursing Labour Force, 1993 and 1994" showed that the proportion of nurses aged less than 25 years had declined from 33.3% in 1981 to 6.0% in 1994 (AIHW

1995). This change in the structure of the workforce was largely due to 'nurse training moving from hospitals to universities and to increases in retention and labour force participation resulting from improved part-time employment opportunities' (Harding 1997p129). The latest figures show that the trend has persisted, and the average age of all employed nurses was 39.9 years (AIHW 1999).

Where data is available it shows that the midwifery workforce reflects this profile even more strongly. For example a recently published study by Watson et al found that nurses were five times more likely to be in their twenties than midwives - 26% compared to 5% (Watson et al 1999). The study of 240 practising midwives in Victoria found that at least half of those in full time employment were over 40 years (Watson et al 1999).

The midwifery labour force data that exists - AMWAC and other sources

The availability of data on the midwifery labour force is one of the most pressing issues. The capacity to draw meaningful conclusions is compromised because of the use of non-standardised terminology and the incompatibility of databases and data domains (NSW Health 2000). The Australian Medical Workforce Advisory Committee (AMWAC) recently published its study of the supply and requirements of the obstetric and gynaecology medical workforce in Australia (AMWAC 1998). It attempted, but had difficulty in providing baseline data on midwives for this study. All States and Territories who responded indicated that there was an under supply of midwives. However, Victoria, South Australia and Queensland were unable to respond at all (AMWAC 1998). As in other nursing workforce publications, the AMWAC study data does not differentiate between enrolled and registered nurses working in midwifery and obstetrics in Australia. In Australia, a midwife is a specialist in the field of midwifery, who has gained a general nursing qualification (about three years) and then post graduate qualifications to enable her to register as a certified midwife (one to three years - depending on what course she takes.) The data specific to the profile of midwives showed that in 1995, 99.0% of the midwifery workforce were female, 25% of midwives were aged between 35 - 39 years, 65.5% of midwives are aged over 35 years.

Data which was not specific to midwives showed that in 1995, 74.1% of nurses employed as clinicians in midwifery and obstetrics were based in capital cities, 23.9% were located in rural areas and 1.9% were in remote areas.

A more complete picture of the midwifery work force was derived from all available sources of published data, including the AMWAC Report 1998.

Table 1 illustrates the numbers and average ages of registered and practising midwives by State and Territory; the vacancies known to exist, and in some cases the students needed to maintain the workforce. It is drawn from several referenced sources and by combining available published data it provides a representational overview of the situation. It is not a quantitative measure of the current workforce and should be viewed only as a crude estimate.

Table 1. Available data to illustrate numbers and average ages of registered and practising midwives by State /Territory in Australia 1995-1999

	NSW	VIC	QLD	WA	SA	TAS	ACT	NT
#Births	86,263	62,732	47,864	25,090	19,310	6,682	4,830	3,607
Registered Midwives	φ10,400	***13,347	♣8,125	φ2,814	◆	*870	◆	◆
Practising Midwifery	φ3,044	†3,566	♣2,600	φ931	§1521	φ357	±343	φ167
Vacancies	φ90	◆	♣128	φ66	◆	◆	◆	φ37
Average Age	φ35-39	**40-49	♣41	φ42.7	§40	φ45	◆	◆
Students needed	φ320	◆	♣180-200	φ70	§109	◆	◆	◆

Sources: #AIHW 1998; ± AIHW 1999 Nursing Labour force 1998; φAMWAC Report 1998; ♣Qld Health 1998 Midwifery Workforce Planning for Queensland; **ACMI 1999 Reforming Midwifery; ***Nurses Board of Victoria Annual Report 1998; †Victoria Department of Human Services 1999 Nurse Labour force Projections Victoria 1998-2009; § Rawinski et al South Australian midwifery training Requirements 1997-2001; *ACMI (Tas) 2000; ◆ Data unavailable

The Australian College of Midwives Inc. estimate the actual number of registered midwives in Australia to be about 70,000 (ACMI 1999). This figure is taken from registers held by the state and territory Nurses Boards and does not reflect the actual or even potential midwifery workforce. For example the Nursing Labour Force document for 1998 cites 28,125 employed registered nurses who identified practice skills used in the past five years for longer than twelve months as 'midwifery skills' (AIHW 1999). The same document also reports the number of registered and enrolled nurses employed outside nursing to be 9,094 in the same year. The recently completed "NSW New Graduate Study" reports that 30% of newly qualified midwives did not seek midwifery related employment on graduation (NSW Health 2000). Historically and until recently, midwifery was commonly undertaken in Australia as a second certificate in nursing not necessarily with the intent to practice as a midwife (Barclay 1995).

The information held by the state Nurses registration boards pertaining to actual numbers of registered midwives and practising midwives is collected for the Australian Institute of Health and Welfare and is not freely or publicly available. The latest published data on the nursing labour force from the AIHW reported in 1999, includes a table with percentages of registered and enrolled nurses employed as 'clinicians' in Australia. The figures quoted for nurses clinically based in midwifery are 13,209, or 6.7% of the registered and enrolled nurse force (AIHW 1999). The difficulty with this data is that it is not possible to separate out those nurses who are enrolled nurses practising in the area of obstetrics and maternity nursing, those who are registered nurses practising obstetrics and those who are registered or certified midwives practising midwifery.

Calculating the numbers of midwives needed using a rudimentary model.

Currently there are 3,000 midwives who are members of the Australian College of Midwives Inc., and the College believes their membership to be approximately 30% of all practising midwives. This estimate suggests there could be possibly 9 - 10,000 midwives at present in Australia, a significant number of whom are employed on a part time basis, who report their main area of work as 'midwifery practice'.

A projection of the number of full time equivalent midwife positions needed in Australia is based on the known statistic of 249,600 live births (AIHW, 1999). Allowing for one full time midwife in practice per 40 births, the estimated number of full time practising midwives needed to provide services for these women alone would be around 6,500. A number of midwives are also employed where their midwifery knowledge and skills are necessary, in teaching, neonatology, gynaecology, women's health, early childhood services, family planning and research. In addition, a group will move into leadership through management positions.

We undertook a rudimentary modelling exercise, which built in attrition rates of 10% and part time employment based on 25% of the workforce. The attrition rate is lower than the 30% attrition rate found in "The New Graduate Midwives Survey" undertaken by the NSW Health Department (NSW Health 2000). The part-time estimate is also more conservative than figures from the nursing workforce data showing only 42.9% of registered nurses employed in midwifery, obstetrics and gynaecology were working full time (AIHW, 1999); or the AMWAC Report 1998 showing only 47.0% were working 35 hours or more; or a recent study of practising midwives in Victoria showing only 27% in full time work and 73% in part-time employment. (Watson et al 1999).

We based our calculations on the need for 8,558 midwives just for direct clinical midwifery care (excluding gynaecology and obstetric nursing). This figure agrees broadly with some of the other estimates that were made using New South Wales's specific data (NSW DOH, 1996). We estimate we are currently educating about five hundred and fifty (550) student midwives in Australia. This is based on estimates of 22 pre-registration programs with an average of 25 students in each course (AMAP figures 1999).

Using a conservative estimate of 10% of the current workforce needing to be educated annually to maintain a steady supply, and 10% more needed to cover attrition, and assuming 8,558 midwives are needed to fulfil the needs of clinical services, the number of students required in programs today would be around nine hundred and forty (940). Our conservative, 'best estimate' suggests we are currently educating 550 students, which is less than two-thirds of the number required. The recently released "New Graduate Midwives Survey" confirms that 'the pool of new graduate midwives supplying the midwifery workforce is considerably less than the predicted numbers required to adequately sustain the workforce' (NSW Health 2000 p 7).

There are further complications in basing estimates on student numbers because of the difficulty in separating out overseas students from those who intend to work in Australia. We cannot determine the actual number of overseas fee paying students in midwifery programs at present, although we know that 46.4% of students commencing post-basic nursing courses in 1998 were overseas students (AIHW, 1999).

Issues in rural Australia and in particular concerning Indigenous midwives

Rural and remote Australian women are suffering most as a result of shortages of midwives according to health service leaders and Government figures showing regional skill shortages (Serghi 1998). Where maternity services have been closed down it is socially disruptive, expensive and distressing for Anglo Australian women to travel great distances to larger centres. However, the results for Indigenous Australians show up even more starkly in statistics. Data on the health of Indigenous mothers and babies demonstrate a crisis in providing acceptable services for these people. Although there have been reductions in infant and maternal mortality among Indigenous people, the differential in birth outcomes between the Indigenous population and other Australians has not been eliminated. The proportion of low birthweight babies (under 2500 grams) born to Indigenous women has remained two to three times higher than for non-Indigenous women (ABS 1997, AIHW 1998). Similarly the stillbirth rate and the death rate for babies in the first 28 days of life are two to four times higher (AIHW 1998). In the Northern Territory the perinatal mortality rate for normal birthweight babies of Indigenous mothers is 20 times greater than that of babies of non-Indigenous mothers (Markey et al 1996). Other States also report alarming differences in perinatal mortality rates between Indigenous and non-Indigenous people (ABS 1997, Crowley 2000).

Three of the most recent reports on health and birthing services available to Indigenous women draw consistent conclusions and make similar recommendations (Kildea 1999, Hecker 2000, Standing Committee on Family and Community Affairs 1999). They include:

- an acute shortage of midwives and inadequate numbers of Indigenous people training to become health workers and health professionals. Although more than 40% of Indigenous people live in either rural or remote areas of Australia (AIHW 1998), 42.1% of nurses employed in these areas are enrolled nurses compared with 26.8% registered nurses. (AIHW, 1999).
- a lack of educational opportunity for Indigenous health workers and maternal and child health workers to be educated as midwives (Kildea, 1999, Hecker 2000).
- a need to build better links between Aboriginal women, support people and labouring women (Kildea 1999, Hecker 2000).

Nearly 30% of Indigenous mothers from remote communities have to travel away from their home location to give birth (Markey et al, 1996). This is not a problem in some places where cultural needs are fully met (Brodie 2000). However, for many women the loneliness of the separation from families, and the fear of strange surroundings are overwhelming. Many Aboriginal people fear that if they give birth somewhere other than on their homeland they may relinquish rights of traditional ownership (Kildea 1999).

The discussion paper from a recent Inquiry into Indigenous Health suggests that 'a vertically integrated system for the recruitment, education and training of rural and remote health professionals should be developed, based on the collaboration of governments and training institutions' (Standing Committee on Family and Community Affairs 1999 p20).

Similarly, a report on equity issues and universities' inclusion of Indigenous Peoples' rights and interests, funded by the Commonwealth government, recommended that 'universities need to accommodate Indigenous interests and rights across all facets of their operations-teaching, research, administration and community service. This requires more than cross-cultural awareness training, the incorporation of Indigenous perspectives in the curriculum or the employment of Indigenous educators. There is a need to create a space from where efforts can be made to reflect and entrench Indigenous values and protocols across all sectors of the university. No doubt this raises questions about making fundamental changes to the core values and ethos of the university so as to ensure that Indigenous knowledges and Indigenous ways of relating, seeing and doing are included and

given legitimacy. This is not only about inclusion, it is also about acknowledging the sovereignty of Indigenous peoples' (Anderson et al 1998 p4).

Both the cultural and financial barriers to the training and education of Indigenous midwives are significant. The cost, duration and geographic location of the present midwifery training programs disproportionately disadvantage Indigenous women.

The financial burden of postgraduate midwifery education: and the HECS

In 1996 the Higher Education Contribution Scheme (HECS) was altered and full fee charges were levied for the first time for postgraduate education. Midwifery is classified as a postgraduate qualification and therefore it now attracts full course fees. This places a considerable personal financial burden on nurses who wish to study midwifery, and affects both the recruitment and attrition rates of Australian students..

Disciplines were placed into differential HECS bands according to the cost of the course and on the average earning potential of graduates from those disciplines. Nursing was grouped with arts and education in HECS Band 1 with a \$3,300 contribution. Despite the relative high cost of nursing education it was placed in Band 1 because of its relatively low earning potential. 'Other characteristics of the HECS arrangements were retained. That is, HECS is deferrable and payable through the taxation system-no qualified student would be prevented from entering higher education because of an inability to pay at the time of enrolment' (Andrews 1997 p17). However, in a later report, "Does HECS Deter?", Andrews found that only 19-21% of students entering Band 1 (nursing, education) were from low socio-economic groups (Andrews, 1999).

A recent discussion paper produced by DETYA stated that although the participation of women in higher degrees had increased steadily over recent years, this was mainly within HECS funded courses. The gains made by women in the postgraduate sector are tenuous because of the trend to reduce such courses (DETYA, 1999).

Similarly, Andrews found that while the level of (mature age) applicants from those entering higher education did not appear to have been affected by the introduction of HECS in 1989, they may have been subsequently affected by the changes in HECS funding. 'The number of mature age applicants is tentatively estimated... to have fallen by 10,000 persons or 10 per cent of mature age applicants due to the changes to HECS announced in 1997' (Andrews 1997 p 33). Analysis shows that the level of unsatisfied demand in the work place did not affect this fall in the number of applications from mature age students (Andrews 1997).

Many women and students from Indigenous and/or rural and isolated backgrounds are already either not making it into postgraduate study or facing financial hardship following further education (DETYA 1999). Research conducted by the Council of Australian Postgraduate Associations (CAPA) found that women in female dominated professions feel particularly disadvantaged by up-front fees where a relatively low level of employer support combined with low incomes pose serious equity problems (CAPA 1999).

Current attrition rates in midwifery education

Although there are no published data specific to attrition rates within midwifery courses, Table 2 is derived from several tables showing completion rates of Australian students entering nursing education (AIHW 1999 pp. 20-23).

Reliable anecdotal reports from universities in New South Wales suggest attrition rates in some midwifery programs are as high as 25%, enrolments in some programs as low as 50% and overseas students may fill up to 25% or more of the postgraduate midwifery places in some programs. The current competitive climate makes this sort of sensitive information difficult to verify.

Table 2. Percentage of Australian (permanent resident) students completing the basic and postgraduate courses in nursing in Australia from 1994-97.

COURSE	ENROL 1994	COMMENCE 1994	ENROL 1995	COMMENCE 1995	COMPLETE 1997 (%)
3 YR Basic Nursing	23,629	8277	-	-	5,323 (64.05)
Grad. Certificate	-	-	321	301	324 (100.0)
Grad. Diploma	-	-	2641	1843	1622 (88.0)
MA +	-	-	1217	637	298 (46.0)

Source: Nursing labour Force 1998, AIHW 1999

The addition of 23 in the Grad.Cert. course could correspond to those who were enrolled in a Masters course, but subsequently left to complete a Grad.Cert.

Inconsistencies within midwifery education

There are a number of post basic midwifery courses on offer in the universities of Australia. It is apparent there is no overall consistency in design, duration or level of award both nationally or within each separate state. Examples are as follows.

- The Master of Midwifery course in one state has the prerequisite Bachelor of Nursing (three years general nursing) with a practising certificate and offers 'contact time' 208 hours.
- In the same state, a Master of Midwifery prerequisite is a postgraduate Diploma of Midwifery, with one years' clinical experience in midwifery (three years general nursing, one year to certify as a midwife, one year practising as a midwife). This program offers 'contact time' of 200 hours.
- In another state, a Master of Midwifery prerequisite is described as a nursing degree with one year's post registration clinical experience in nursing (three years general nursing, one year practising as a nurse) and offers 'contact time' 672 hours (Ashenden and Milligan 1998).

The ACMI advises that preparation for practice should be at graduate diploma level. However, a number of the programs that are attached to licensing are now offered at master's level, affecting both the duration and cost of the program (Barclay 1995).

At present there is no national monitoring system to guarantee comparability or an adequate baseline of competence. Not all states and territories have adopted the current ACMI midwifery competencies (NSW Health 2000).

Retention of graduates through evidence-based models of care

In "Education Strategies for the Midwifery Workforce", a recently released draft document from the New South Wales Health Department, the tensions between the primary health care model and the realities of tertiary midwifery services were reported. 'In many cases services are not developed with sufficient attention to the expressed concerns of birthing women, population or epidemiological data' (NSW Health 2000 p25).

Research, including randomised controlled trials of midwifery care show that midwives offering continuity of care gain a significant increase in autonomy and work satisfaction (Flint et al 1989, McCourt et al 1996, Turnbull et al 1996, Rowley et al 1996). Where midwives care for women through the entire antepartum, intrapartum and postpartum episode, the maternal and fetal outcomes have been found to be safe, less interventionist and more satisfying for both the woman and the midwife involved (Flint et al 1989, Hueston et al 1993, Kenny et al 1994, Rowley et al 1995, Turnbull et al 1996, Harvey et al 1996, McCourt et al 1996, Waldenstrom et al 1998, Guilliland et al 1998, McDorman & Singh 1998, Hodnet 1999, Homer et al 2000). Continuity of care models encourage midwives to use their skills cross community and hospital settings. Being based in the community provides a viable option for rural settings in Australia instead of the more costly 'roster

based' system within hospitals. It encourages a greater emphasis on 'problem prevention' and health promotion through community-based antenatal and postnatal care. This model of midwifery care is ideally suited to outcome based funding as opposed to fee-for-service funding.

Strategies to address the labour force shortfall through midwifery education

The first and most obvious strategy is to remove the postgraduate fee attached to midwifery education. Preliminary research suggests this is a major barrier for registered nurses.

A second strategy is to offer a three-year Bachelor of Midwifery (B Mid) or undergraduate midwifery degree program without the pre-requisite three-year nursing registration. (This is completely unrelated to the 'direct entry' midwifery program of thirty years ago which was a program of limited nature and has persisted in negatively influencing the perception of 'direct entry' education in Australia for the thirty years since the program was phased out (Barclay 1995).

In the last decade there has been resurgence in undergraduate degree programs in midwifery. The UK now prepares the majority of midwives in comprehensive three-year undergraduate degree programs (ENB 1997). Other Western countries have demonstrated a long-standing and more consistent commitment to specialist degree courses in midwifery; for example the Netherlands, France, Denmark and Canada offer midwifery education only and not as an 'end on' to nursing. In each of these countries undergraduate education to degree level for midwives is considered standard practice. New Zealand and the UK currently offer a dual route of preparation for nurses and non-nurses, however a number of universities plan to close postgraduate nursing midwifery courses in favour of the direct entry model (DOH 1998, Pairman 2000).

The context of innovation and improvements in midwifery education

Any changes in the current situation must consider the economics of a contracting funding base for the university sector. Nursing education, and by inference, midwifery education, has a high cost factor and a relatively low earning potential (Andrews 1999). If midwifery undergraduate programs were introduced they would share core subject teaching across midwifery and health programs. For example pre-registration midwifery graduates could move into shortened general nursing pathways, and to post graduate education in either nursing or midwifery. The BMid program would educate midwives who can provide a breadth of practice across tertiary, remote and rural areas.

The needs of women who seek low intervention, midwifery models of maternity care also have to be considered. A recent Senate Inquiry in Australia found that the availability of birth centre facilities are so limited for women in many areas, they are required to submit to a 'ballot' system, or a lucky draw to gain access to these birthing facilities (Crowley 1999). New models of education for Indigenous midwives would begin to address the alarming problem of poor outcomes in maternity care for Indigenous women and their families (Hecker, 2000).

A government-funded national review of specialist nurse education in Australia in 1997 revealed a range of factors to take into account in the planning and delivery of specialist nurse education in order to meet changing community and workforce needs. Amongst the main findings, it was recommended that 'the following factors be taken into account by the health and higher education sectors, government and the nursing profession in the planning and delivery of specialist nurse education:

- changing nature of health care delivery within the Australian community;
- emergence of new areas of nurse specialisation which meet the criteria given above for approval of nursing specialties;
- future development/s of the role/s of nursing specialists;
- demand by potential students in conjunction with workforce requirements (that is, market forces); and

- appropriate spread of nursing specialist programs across Australia in terms of: demographic trends and geographical location' (Russell et al 1997).

The "New Graduate Survey" recommends that Area Health Services work with universities to ensure that midwifery education programs meet service needs (NSW Health 2000).

An undergraduate degree program in Midwifery - Bachelor of Midwifery (BMid)

A proposed undergraduate degree program in Midwifery (direct entry midwifery) is one way to address issues of cost in postgraduate training of midwives. It will produce graduates in three rather than five plus years and will not attract current postgraduate fees. In countries other than Australia, where the Bachelor of Midwifery is the preferred education model for midwives, course enrolments are at full capacity while attrition rates have fallen significantly. (Page 2000, Pairman 2000).

Although several Australian university nursing schools are opposed to the concept of an undergraduate degree for midwives, the Victorian branch of the Australian College of Midwives in collaboration with women and consumers paved the way for public discussion with their release of a comprehensive discussion paper called "Reforming Midwifery" (ACMI Vic. 1999). A meeting was called in Adelaide in December 1999, to 'launch' the BMid. All interested universities were represented in the initial working party to consider the philosophical, professional, strategic, educational and financial gains to be had by launching the first B. Midwifery courses simultaneously. There was a unanimous vote to proceed in a unified manner to establish national guidelines for the new midwifery education. It was also agreed the standards would be implemented in partnership with the regulatory authorities.

Following this meeting the Australian College of Midwives released the following press statement on the 28th April 2000. "An ACMI Taskforce composed of midwifery educators from each state and territory has been formed to oversee the development of consensus guidelines that will form a national framework for the introduction of Bachelor of Midwifery education programs across Australia. This national framework will establish and articulate professional standards for the accreditation of the three-year Australian Bachelor of Midwifery (BMid) programs. These programs will enable graduates to practise competently in a range of settings within the full scope of practice defined by the International College of Midwives. The purpose of the national framework is to establish and articulate professional standards for the accreditation of Bachelor of Midwifery (BMid) programs that will proceed with the support of the Australian College of Midwives" (ACMI 2000).

The professional and political environment has to support the need for urgent action on the midwifery component of our maternity care workforce. In Australia we cannot continue to operate in professional isolation and risk the consequences of remaining out of step with the developments of our profession internationally. The proposal for a B Mid is likely to confront those who believe that midwifery is only a post nursing specialisation. Therefore the process will require both politically sensitive and respectful negotiation. The recent licensing of a number of overseas-educated 'direct entry' midwives in a number of Australian states has, however, already forged the route for registration for pre-registration, undergraduate degree midwifery students. To highlight some of the discrepancies occurring at present, overseas educated midwives who are not trained as nurses are required to register as 'nurses' to work as midwives. This assumes some competency in nursing for which they have no educational preparation.

Conclusions

There are three overriding factors that influence our current crisis in the shortage of midwives and problems with midwifery education. Firstly, it may take five years and considerable cost to the student and the university, to produce a beginning practitioner through our postgraduate educational pathways.

Secondly there is an urgent need to increase the number of midwives. The shortage of midwives is a global problem and Australia can no longer rely on migration from other countries to correct the serious shortfall. Already there is a substantial 'waiting list' of prospective students eager to enrol in the new Bachelor of Midwifery program (Leap, 2000)

Thirdly there is a serious lack of culturally appropriate midwifery training at tertiary level. The tension to be addressed in Australian higher education is, 'what is the balance between Indigenous peoples' desires for autonomy and self-determination and the overall institutional commitment to ensuring that those efforts are realised within the federated structures of universities' (Anderson et al 1998 p 9).

Research is essential to guide developments in Australian maternity care. A national database of midwifery courses and students is required to monitor trends and predict supply.

Further investigation is needed to assess the direction and quality of education for midwives, recognising an increasing use of new models of care. Midwifery models based on evidence of safety and cost effectiveness promote communication and co-ordination between health care professionals, linking hospital and community care. They are more clearly focussed in primary health care rather than hospital illness or trauma. Midwives educated through pre-registration undergraduate degree programs with a social/family-oriented approach to care practice in collaboration with medical colleagues and other health providers, in all aspects of maternity care.

Australia's lack of Indigenous midwives working within remote and urban communities needs to be addressed urgently. Education for midwives through pre-registration undergraduate degree programs that provide Indigenous communities with their own midwives could contribute significantly to improving perinatal health care for mothers and their infants. Such an initiative would reduce the social disruption to remote area women who are transported hundreds of miles to give birth to their infants.

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PART 6: MEASURES IN HEALTH REFORM AND FUNDING

CONTEXT

This portfolio component addresses one of the aims of the professional doctorate,⁶¹ that 'research and critique should inform and be informed by a broader health system and international professional context'. In meeting this objective I have chosen to explore the issues around funding from four different perspectives.

Section I THE INTERNATIONAL CONTEXT, is an overview of health funding and reform in the international context. The evolving global issues relating to funding, health service provision, professional indemnity, insurance and safety are intimately connected with one another in western health service systems, and increasingly in developing countries.⁶²

Section II FUNDING HEALTH IN NEW ZEALAND AND AUSTRALIA examines the health systems of both countries with particular emphasis on the organisation and funding of midwives. Even though the professional colleges of medicine, surgery, obstetrics and gynaecology are affiliated as Australasian colleges, and many other close links have been forged between the two countries on health policy issues⁶³, there are major differences that exist in organisation and funding of maternity care, and in areas of professional liability and patient safety. This section compares the funding of midwives in New Zealand and Australia, within the context of the overall funding systems.

Section III, A PROPOSAL FOR FUNDING REFORMS IN THE AUSTRALIAN HEALTH SYSTEM describes the model that was proposed by The Centre for Family Health and Midwifery, UTS, when asked to contribute to the second Roundtable Discussion on hospital funding, held on the 20th of November 2000, in Canberra. It is based on the wider theoretical principles of reform proposed by the first 'Roundtable' gathering in Canberra on 18th August 2000, and published in Chapter 3, Options for Reform (Commonwealth of Australia 2000).

Section IV, outlines A PROPOSAL FOR A NEW MIDWIFERY MODEL within a reformed funding model for the Australian health system.

⁶¹ UTS Doctor of Midwifery (DMid) Course Code KN95 Information to prospective candidates.

⁶² See Grembowski et al 2002

⁶³ See Davies and Hindle 1999

SECTION I: THE INTERNATIONAL CONTEXT

INTRODUCTION

The market ideology, language, principles and practices that have been incorporated into health care systems in the Western world during the past decade have not progressed these systems in a way that was initially intended (Richards 1996, Ham 1996, Hornblow 1997, Ham 1997, Malcolm 1999). The issue may not be whether, or to what extent health care fits the market paradigm, but how to best use tools of economic analysis in the special circumstances applying to health care systems (Mooney 2000). Many countries have imported the managed care and price competition policies from the US to improve the performance of their health care systems (Gremowski et al 2002). The underlying assumptions of this trend in market thinking are 'beliefs in small government, public choice theory, and belief in the efficacy of the free market' (Hancock 1999) However, healthcare costs have continued to rise, and gains in efficiency are offset by rising levels of inequity in the quality and the distribution of care (Richards 1996). New systems have been formulated on economic or political imperatives, rarely evaluating their impact on patients (Hillman 1998). One of the major hurdles blocking the way forward is the lack of research evidence with which to evaluate outcomes as opposed to activity (Richards 1996, Grol 1997, White 2002, Davis 2002).

Calls for a change in philosophy and direction have come from many countries including the UK, Netherlands, New Zealand, Canada, the US and Australia. This has resulted in some countries moving from the position where healthcare is viewed as an industry pursuing competition and efficiency, to see it again as a public good where the rights of individuals are balanced more equitably with the health needs of the whole community (Leatherman and Berwick 2000). Managers, administrators and clinicians are encouraged to see their participation in health care as a part of a collaborative team rather than the 'guardians of an industrial machine' (Richards 1996). This latest thinking in healthcare reforms from New Zealand, the NHS and Australia consistently calls for 'stimulation and acceptance of grass roots participation, based around an alliance of health workers and the community.....health industry and government working in partnership.....and collaboration amongst the health professions' (Smith 1998 p 4).

MANAGED CARE

In the early attempts at health reform, originating in the US, the concept of managed care evolved. Appearing as it does, in many guises, managed care emerged from the turmoil of spiraling health care costs and dysfunctional fragmented services. Defined as "a variety of methods of financing and organising the delivery of comprehensive health care in which an attempt is made to control costs by controlling the provision of services" (Iglehart 1994 p

1168), it was first developed in the United States in an attempt to influence and modify the behaviour and practice of doctors and other health professionals towards cost-effective care.

The proliferation of the 'managed care' thinking has spread from the US to other European countries, and to the less developed countries for a number of reasons (Grembowski et al 2002). This 'convergence' is described by some analysts within the 'convergence hypothesis' (Mechanic 1975), where integrated world economies, rapid diffusion of technology and scientific information, and mass communication create a 'world culture' of medicine (Gremowski et al 2002, Mechanic & Rochefort 1996). Given that private markets very often result in inequity, inefficiency, higher costs and dissatisfaction (Evans 1997, Eisenberg 2001, Bovbjerg et al 2001), it is difficult to see why the trend continues seemingly, unchecked. This is not the shortcoming of private markets alone, as Chernichovsky maintains, in his most recent analysis of 'the emerging paradigm of combining consumer satisfaction and internal efficiency of market competitive systems with the equity and universality of publicly financed systems' (Chernichovsky 1995). A 'well defined institutional channel for consumer choice regarding public entitlement and its production is the missing element in health system reform, and its absence threatens the viability and *raison d'être* of the publicly supported health system. The emerging paradigm has given rise to competitive budget holding institutions that organize and manage the consumption of care that is a public entitlement in a regulated market' (Chernichovsky 2002 p9).

Amongst the reasons given for the growth and continuation of managed care thinking, is that 'price competition and managed care serve the overlapping narrow economic interests of powerful groups in society – the buyers of health care (mainly employers and government), suppliers of medical goods, managed care organisations, and upper income citizens – who all benefit financially from the economic arrangement of private markets' (Grembowski et al 2002 p1168, Evans 1997). In seeking to redress the use of competition to improve performance, the UK has chosen "the third way" which attempts to bridge the gap between centralised control and market mechanisms (Ham 1999). A non-competitive and public version of the 'managed competition model' is being pursued by Blair in the UK as the NHS tries to configure the largest 'managed care system' in the world (Light 1999). Cost comparisons reveal that the Dutch, Danish and Swedish systems are among the most fair, efficient and efficacious in the world, offering sophisticated medicine to their entire population for about half the cost of the American system and a third more than the British (Light 2000).

Proliferation of managed care thinking into developing countries has occurred for several reasons, including the search for new mechanisms in the struggle to control escalating costs of care. Governments in Latin American, and Asia, who have never had a strong record of public involvement in health and who are experiencing strong competition for limited resources, are not inclined to create social service systems, and instead have divested themselves of these responsibilities to private markets relying on them to control costs (Grembowski et al 2002). Add to this, the conditions of receiving aid from lending agencies

such as the World Bank and US Aid, developing countries are often forced to move towards private markets in health (Grembowski et al 2002).

In those industrialised countries where competitive markets for health are largely irrelevant due to the national insurance systems or national health services of these countries, the 'ideology' of managed care is being embraced for the ideas and methods it brings to 'improving system performance' (Grembowski et al 2002). The underlying belief here is that market pressures that address and seek to address deficiencies in safety within the system are more important in assuring patient safety than punitive legal pressures, which tend to drive information underground (Bovbjerg et al 2001). In Germany and the Netherlands, during the 1990s, insured consumers were given free choice between sickness funds in a bid to 'bring about competition that would at the same time favour quality through selective contracting by sickness funds and curb the costs through incentives for efficiency' (Gress et al 2002 p236). In these social insurance systems, the internal market is created by splitting up the purchase and the provision of care, and to give people 'a wider range of choice between health facilities by letting the money follow the patient and not the other way around' (Gress et al 2002). The research undertaken by Gress et al (2002), found that the degree of actual changing depended strongly on economic incentives especially premiums or contribution rates, and that once young people entering the market had chosen a fund, they were unlikely to change (Gress et al 2002).

Several landmark reports in the US and Australia over the last decade have brought to the attention of practitioners, public and policy makers, the evidence about medical injuries, and highlighted the need for new approaches to systematic improvement of safety within systems of care (Brennan et al 1991, Leape et al 1993, Wilson et al 1995, Tito 1996, Kohn et al 1999). Although evidence is limited, and what evidence is available comes from other industries, such as the airline industry, the systems approach to patient safety appears to have great potential to improve upon the limited safety benefit created by professional discipline and liability (Helmreich 2000, Bovbjerg et al 2001). The patient safety movement accepts that people make mistakes not because they are insufficiently trained or sanctioned, but because they are human – therefore blame should only be apportioned those who wilfully ignore rules and processes deemed important in a system that recognises patient safety (Bovbjerg et al 2001). Where discipline and liability work in theory by removing 'low end' practices, the systems view of patient safety sees errors and accidents as the sum product of entire systems, with manifold factors that may contribute to an accident and numerous safeguards that must fail for the problem to occur (Bovbjerg et al 2001, Brennan 1998).

FIGURE 1. THE **C MANAGEMENT SYSTEM** FOR CONSUMER SAFETY.

C Management Systems

Captains used to reign supreme – the C stood for **Captain MS**; however the Co –pilot sometimes recognised an adverse event before it happened – the C then stood for **Cockpit MS** ; then one day the flight attendant saw ice on the wing – but was afraid to call in question the cockpit management – after the accident investigation - C now stood for **Crew MS**;
Then accidents happened that related to factors outside the aircraft – the C now stood for **Corporate MS**;

All incidents must now be reported and investigated to see how further to reduce the risks of flying
currently 1 death per 8 million passenger flights

Ron Law, *BMJ*,
19th August 2000;321:505

Source: Ron Law, *BMJ*, 19th August, 2000;321:505

Briefly, the benefit of ‘managed care’ thinking can be summarised as follows. Analysts believe that if safety audit was undertaken in a similar way to management audit; demanding buyers may provide systematic motivation for improvement in approaches to injury prevention; large purchasers could avoid costs related to medical injury by demanding that existing medical enterprises begin to address medical injury in a serious way. Under corporate liability reform and patient protection proposals, affecting managed care plans, insured patients would have enhanced rights to sue their plans for personal injury (Bovbjerg et al 2001, Bodenheimer 1999).

Analysts also warn of hypothetical serious adverse side effects of this movement. For example, health plans are possibly inferior to health care institutions as managers of safety because they are very separate to the delivery of care; health plans lack day to day controls over care delivery; litigation against plans will have a ‘spill over’ effect on providers and could exacerbate the disincentive to report errors or to change the internal culture of medicine (Bovbjerg et al 2001, Gabel et al 2001, Robinson 2001, Liang 1999).

In many countries at present, in particular Australia and the US, a very low percentage of injured or damaged patients ever receive compensation – possibly about 6% in Australia and even less in the US, notwithstanding the massive and possibly unmanageable premiums required to fuel such insurance systems (Light 2000, Murray 2002). In 2002, Australia is having to seriously review the way compensation and long term care will be undertaken (Cuff 2002).

Possibly the most radical and promising reform in systems thinking and liability may have begun with the legislation in the US following the catastrophic events of September 11 2001. 'The world of American tort law underwent a scarcely less radical jolt 11 days later. That's when the president signed into law a bill encouraging the victims of terrorist attacks to seek compensation through a no-fault administrative process rather than through the tort system'the legislation creates a taxpayer-financed fund to provide victims' families with "fair, predictable, and consistent" compensation within about 120 days after filing a claim. If a claimant opts for this swift, sure-thing administrative payments he or she loses the right to sue anyone else (except the terrorists or their sponsors)'. (Parloff 2002). Although there has been criticism of the funds rules, 'it is hard to believe that such a system won't also become a template for resolving tort liability claims in any number of other single-event catastrophes or mass torts. And any movement away from the tort system model threatens the long-term interests of the plaintiffs bar ' (Parloff 2000).

New Zealand introduced reform in this area thirty years ago, with the New Zealand Accident Compensation Act 1972 (Palmer 1994). The pioneering efforts to abolish the system of tort law as a means of compensating personal injury and substituting a state run system of earnings related benefits for all who suffer incapacity from accidental injury, have not been replicated in any other setting, and remain a quaint utopian curiosity in other parts of the world (Palmer 1994). The five principles driving the scheme, community responsibility, comprehensive entitlement, complete rehabilitation, real compensation, and administrative efficiency, have all in one way or another been seriously eroded over the years, however the framework of distributive justice rather than corrective justice remains intact. In areas of medical negligence and medical malpractice New Zealand has always upheld the belief that introducing negligence as an entitling event would produce confusion under the accident compensation scheme. 'The corrective justice analysis that an individual whose autonomy has been invaded ought to have it restored and paid for by the person who caused it holds no sway. There is no community expectation that the restoration needs to be carried by the person who inflicted the injury, or that anything is to be gained socially by compelling those who cause personal injury to provide redress in damages to their victims (Palmer 1994 p247). It is plain that the basis of the new Zealand scheme allows many more people to claim for their injuries than ever occurred under tort law. The system has sustained many setbacks however, not the least being the lack of evaluative data in the areas of risk management and safety improvement (Palmer 1994).

MANAGED CARE – US STYLE

In the US, although managed care has grown to become the most dominant form of health care, leading to reductions in health-care costs as insurers are able to influence health care providers with financial incentives, it has also grown to a halt, largely on account of consumers questioning what effects these financial incentives are having on care (Noble et al 2001). Managed care predominates in one of two basic types of organisational setting - the

Health Maintenance Organisation (MPO) or the Preferred Provider Organisation (PPO). Its unchecked proliferation, due to the growth in the competitive market, that gives employers and public health programmers the opportunity to purchase services for clients at lower cost than traditional insurance, provoked cynics of the US style of managed care to refer to it as the 'alphabet soup of three letter health plans' (Fairfield et al 1997).

Clinicians who are critical of managed care feel constrained by attempts to modify their actions in eliminating inappropriate treatments and ensuring that a cost-effective practice is adopted. According to Inglehart (1992), clinician's practice can be modified in three ways; by a combination of developing networks, selecting preferred providers, and providing guidelines. The use of primary care doctors to act as gatekeepers to specialised services; and clinical guidelines to modify clinicians practice, are emerging as effective means to modify the actions of doctors and other professionals (Inglehart 1992, Fairfield et al 1997, Dixon et al 1998).

The challenge to the successful implementation of managed care in the U S will be finding the balance between strategies to control the use of services combined with financial incentives to change clinical practice. There real fear, however that profit orientated managed care companies will give most priority to cost reduction and not quality of care (Angell et al 1996), appears to becoming a reality in 2002 (Noble et al 2001). Some claim managed care should be vicariously liable for the negligence of physicians they select for their networks, claiming this would encourage organizations to exercise greater responsibility for maintaining the quality of patient care (Mechanic 1997). The potential seems to be there, but above all, industry 'will have to demonstrate increased social responsibility if it is to enlist public trust and survive the public backlash' Mechanic 1997p820).

MANAGED CARE – EUROPEAN STYLE

The European ideal of managed care differs significantly from the US model in its emphasis on the community perspective, and collaborative involvement of policy makers, purchasers, providers and those receiving care (Fairfield et al 1997). European managed care is defined as “ a process to maximise health gain of a community within limited resources, by ensuring an appropriate range, and level of services are provided, and by monitoring on a case by case basis, to ensure continuous improvement to meet national targets for health and individual health needs' (Angell et al 1996 p 883) It is this emphasis on community health gain, as the starting point for the management of health care delivery, in managed care in Europe, that differs significantly from the US style managed care model; although the three central determinants remain the same - health policy, systems management and disease management (Fairfield 1997).

Priorities in health policy differ between different countries in Europe. Countries such as Sweden, with a tax based system; hold discussions at county and regional levels involving the public, in deciding on the populations' health status needs, evaluating the effectiveness of treatments, and cost effectiveness of services. The 1982 Health Care Act decentralised

responsibility for healthcare to the county councils (independent, regional governing bodies). The Swedish health system has an excellent reputation for emphasising equity: standards of care are the same irrespective of income, sex or age. This decentralisation has led to increased cost awareness, with a corresponding improvement in management and efficiency (Burroughs 2002).

In countries where the system is based on social insurance such as the Netherlands and Germany, health policy is focussed around the extent of services covered by basic health insurance (Angell et al 1996, Fairfield 1997, Ham 1997). Germany, however, is poised to follow Australia's system of classification for health services, the diagnosis related group (DRG). From Jan 1, 2003, the government hopes to be able to relate resource allocation to clinical criteria allowing output to be measured and compared between hospitals and regions. The measure is part of ongoing health system reforms that aim to restrain increasing costs. Other measures obliging doctors to prescribe generic drugs and limiting doctors' fees are under debate (Orellana 2002).

In the UK, the King's Fund's blueprint for the future of healthcare in Britain report, stressed that all patients should have more choice as to how their own healthcare is managed, including where, how and by whom they are treated (Kings Fund 2002). The report recommended that the health service remain in public ownership, but strongly advocated a decentralised NHS, operating with greater independence from the government. Although it has been general health policy for the last 10 years to involve local people in planning and developing health services, primary care organisations, (primary care trusts and primary care groups), have struggled to implement public involvement (Kings Fund 2002).

PRIMARY CARE

The response to the burden of rising health costs varies considerably, but there seem to be certain themes emerging. The evolution of managed care has been driven by widely held views internationally that health funding and health care revolve one way or another around the central premise of primary care (Ham 1996; 1997; Angell et al 1996; Fairfield et al 1997; Dixon et al 1998; Smith 1999; Majeed et al 1999; Malcolm 1999). A recent health policy document from the UK, "The New NHS" (DOH 1997), calls for the establishment of primary care groups as the cornerstone to health reforms (Richards 1998).

Primary Care is defined as "first contact, continuous, comprehensive, and coordinated care provided to populations undifferentiated by gender, disease or organ system" (Starfield 1994). Primary care differs from secondary care in several key respects. It aims to provide longitudinal personalised care that is customised to individual beliefs, needs, values, and preferences across a broad spectrum of concerns relating to health and illness (Wilson et al 2002, Starfield 2001, Greenfield 1992). It is the concern with costs that encourage the limited use of expensive secondary and tertiary care services, taking advantage of technology to deliver a higher proportion of care in the community, that makes

primary managed care likely to replace managed competition in health care reform (Ham 1997).

Variations exist in the scope of primary care groups in the UK and Europe mainly with respect to managing finances, whether this is fund holding or total purchasing (Ham 1997). Countries with policies designed to shift the balance from secondary to primary care tend to have lower health care costs compared to those dominated by secondary, tertiary and emergency care which tend to be fragmented, discontinuous, uncoordinated and costly (Coulter 1995).

The European and British model includes using primary care doctors as gate keepers; standardising clinical practice with guidelines, protocols and care pathways; using financial incentives to influence clinical practice patterns; developing information systems to monitor the use and cost of services and informing and educating patients to take greater responsibility for their own health (Ham 1997). In a climate where scrutiny of quality and cost of care become more intense, primary care providers will take a bigger role in managing resources for primary and secondary care.

The prime movers shaping health systems in the UK and another countries in recent years see much greater investment in an expansion of the role of primary care (Dixon et al 1998, Smith 1999, Malcolm et al 1999). This includes a gate keeping role to secondary services and other primary care, through budgetary control, and offers the opportunity to shape services provided in secondary care, by directly managing budget incentives to reduce inappropriate or ineffective care provided at the secondary or primary level (Dixon et al 1998). A recent survey of 979 specialist physicians found that specialists' financial interests may be threatened by referral restrictions. Gatekeeper policies that reduce use of specialist services may be reducing specialist income, especially when a fee-for-service basis is used, and may also reduce the level of clinical decision making (Pena-Dolhun et al 2001).

Regardless of the mechanics of the primary care organisation, the next theme to emerge from the funding reforms is the concept of clinical governance (Scally 1998, Majeed 1999).

CLINICAL GOVERNANCE

The scope and purpose of clinical governance is still evolving, and exists mainly at the theoretical level. But in general terms it is a form of local professional self-regulation where financial control, service performance and clinical quality are fully integrated at all levels (Scally et al 1998).

A key factor in successful clinical governance appears to be strong development of a collective professional accountability in managing new internal and external relationships, that does not need to adhere to a bureaucratically imposed framework (Majeed et al 1999). Integration projects achieved through clinical governance are able to initiate a wide range of care through collaboration between primary multidisciplinary groups and secondary specialist or hospital care (Majeed et al 1999). The goals of well-designed programs to advance quality

strategies that are based on sound evidence will be the markers of good clinical governance (Scallly et al 1999). In summary, clinical governance requires organisation wide transformation and a positive organisational culture that will foster entrepreneurial and innovative developments (Scallly 1999, Majeed et al 1999, Malcolm 1998, 1999).

A CAUTIONARY NOTE

On a cautionary note, one must consider questions such as whether the reforms will forsake continuity of care and personalised negotiations between caregiver and patient, if the interests of the patient are overridden by the employing organisation (Heath 1997). Choice in relation to prescribed drugs, and referral to tertiary care may also be problematic. A possible solution to these concerns lies in the commitment of governments to establish pilot programs with funds allocated to proven research teams to evaluate thoroughly before widespread implementation occurs (Heath 1997, Grol 1997, Pringle 1999).

The notion of change imposed without evidence was addressed recently by Professor Jill White in her keynote address to the New Zealand - Australia Health Services and Policy Research Conference in December 2001. She said, "While countries had adopted different strategies in an attempt to 'cap yesterdays health care costs', there were remarkable similarities in their emphasis and outcomes. Contributing to this was prevailing public policy philosophy, the rapid transfer of knowledge 'and to no small means , the international nature of health care consulting companies'.....whatever mechanism was used to terminate the 'blank cheque' funding of health services, transaction costs were high...choice and competition were the rhetoric, reality and cost containment became the objective. Improvement in patient outcomes and quality of care were not high on the agenda" (White 2001). In calling for coalitions for skilled health service researchers to advise politicians and policy makers of the evidence to inform changes, we might avoid future situations where nurses (and by implication, midwives,) are being asked to participate in gross system manipulation. (White 2001).

SECTION II : FUNDING HEALTH IN AUSTRALIA AND NEW ZEALAND

Whilst some similarities exist today between the health systems of Australia and New Zealand, for example both countries meet the cost of publicly funded health through taxation rather than social insurance; Government provides for both secondary and tertiary care, whilst general practices exist in a fee-for-service arrangement with no enrolment based capitation system similar to that in the UK. General practitioners act as 'gatekeepers to control access to secondary services, and specialist staff work in both the public and private sphere (Davies and Hindle 1999). There are major differences that have emerged however, and these are briefly noted here.

New Zealand has a unique constitutional relationship between the Crown and the Maori people - the Treaty of Waitangi was signed in 1840. This has, over time fostered innovative approaches to health care, resulting in a development of greater autonomy for

Indigenous people over their own health care and lowering disparities in health status (Davies and Hindle 1999).

Davies and Hindle (1999) outline five other important differences as follows:

- New Zealand has a unitary national system of funding, whereas Australia divides responsibilities between the State and Commonwealth governments.
- New Zealand had a separate distinction between purchaser and provider in contrast to Australia's government agencies having no legal status and allowing for frequently unclear boundaries between volume setting, resource allocation, and service provision. (NB. Reforming this 'split' is one of the focal points of the new health reforms being introduced in New Zealand in 2001 (Devlin et al 2001).
- private health insurance in New Zealand is not subsidised or regulated by government, as it is in Australia.
- New Zealand makes greater use of co-payments – in particular with respect to general practitioners.
- New Zealand's publicly owned hospitals are constrained in their ability to deliver services to private patients.

FUNDING IN NEW ZEALAND

Whether by virtue of its isolation, or the fact that it has a smaller, less cumbersome economy than Australia without the two tier confusion of state and commonwealth divisions in funding, New Zealand embarked on cutting edge health reform twenty years ago. It led the charge in both forging market based health reforms in the 1980s, and in rejecting the same model of economic rationalism in health a decade later (Ham 1997, Hornblow 1997, Malcolm 1998). Over the past decade, New Zealand's health sector has undergone a series of structural reforms and rollbacks: first an area health board system, then a competitive internal market system with regional health authorities and crown health enterprises (1993-96), a centralised purchasing system (1997-2000), and now in 2002, moving towards a system of district health boards (White 2001).

The imposition of a market driven health system strongly challenged the dominant values and beliefs of those practicing within the public health system, and have left the country with a major challenge to re-establish cooperative decision making between clinical and commercial subcultures in making the best use of limited resources (Hornblow 1998). In an attempt to move forward, New Zealand has advanced further in respect of integrating clinical and financial accountability in the form of primary care organisations managed by community trusts or by consortiums (Pringle 1997, Malcolm 1999). These formal contracts now include monitoring and management of clinical activity with collective professional accountability for both quality of care and financial management in practice (Majeed 1999).

Critics of the New Zealand independent GP associations to move further into budget holding, to 'achieve a better balance between secondary (hospital specialist) services and primary care services, see this trend as: a threat to public providers by increased

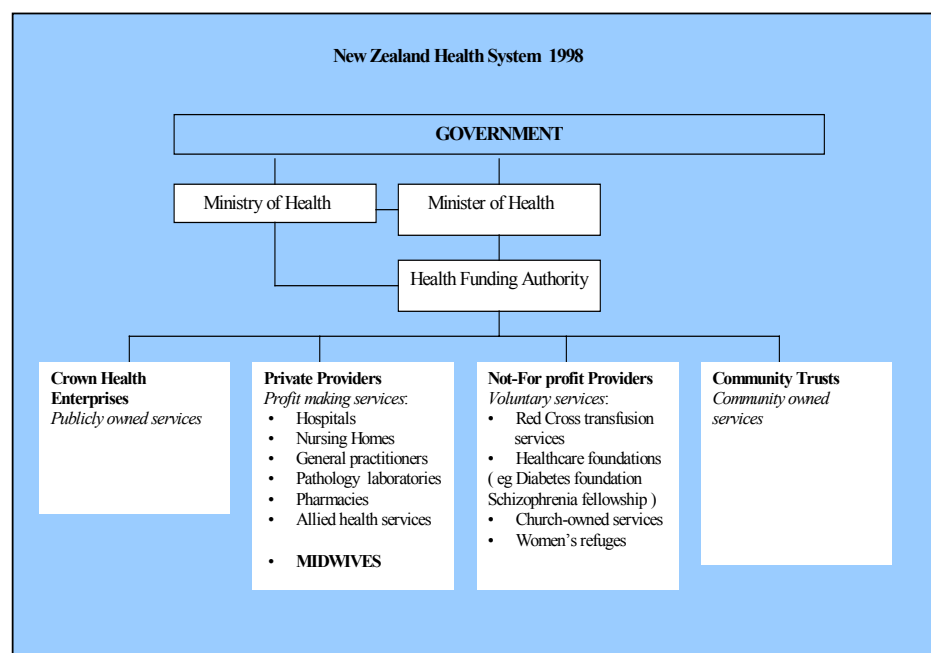
“privatisation’ (Labour and Alliance Parties); hospital based specialists see it as a potential threat; and private laboratories and the pharmaceutical see it as a threat to profits (Malcolm 1998).

Nevertheless, New Zealand continues to push the boundaries of major health reform in developing the role of the primary care budget holder (Hornblow 1997, Malcolm et al 1999); and it is within this innovative context that midwives in New Zealand established themselves as serious contenders for budget holding health care providers through the Midwifery and Maternity Provider Organisation (MMPO) (Guilliland 1999).

Figure 2. shows the health funding arrangements up until 2000 when the next new model came into being. It is useful for demonstrating the position in the health funding arena from which the MMPO evolved. The challenge for midwives now, under the new funding system in New Zealand, will be to strengthen the MMPO with its unique midwifery focus, in competition with other Independent Practitioner Organizations (IPO's) that many midwives find themselves contracted within.

Figure 2. illustrates the structures in the New Zealand system in relation to the funding of health prior to 2002. The Health Fund Authority (HFA) funded a wide range of health and disability service providers owned by public, private (for-profit), voluntary (not-for-profit), and community organisations. Each provider had a separate funding contract with the HFA. The HFA analysed variation in expenditure on a per capita population basis and took this into account in its funding policy (Malcolm 1998).

FIGURE 2. FUNDING NEW ZEALAND HEALTH SYSTEM 1998 PRIOR TO THE REFORMS OF 2001.



Sources: A diagrammatic representation of the funding of health in New Zealand prior to July 2000 based on a diagram titled 'Structures in New Zealand Health System'. In : Malcolm L (1998) Towards general practice-led integrated healthcare in New Zealand. *MJA*; 69(3)p 148 and Guilliland K (1999) 'Autonomous midwifery in New Zealand: the highs and lows' 1999 *Birth Issues* 8(1)

FUNDING IN NEW ZEALAND 2002

The major changes to be implemented in New Zealand following July 2000 involve a radical restructuring of funding, and system organisation. In a bid to retreat from the market thinking of previous health reforms, two principle components will govern the proposed changes. The first is an attempt to strengthen local, democratic input into an integration of funding and providing services for publicly owned providers. The second is the development of national strategies through identification of objectives and priorities for improving health and independence levels in the population. These national strategies are also aimed to reduce the discrepancy between Maori and non Maori health and to decide how services should be offered (Devlin et al 2001). Twenty one largely elected District Health Boards (DHB's) will be responsible for planning most services and for delivering hospital services. Board members will have 'dual accountabilities to both government and the community and having to take the hard decisions over resource allocation and service prioritisation (previously a Health Funding Authority liability) in a constrained funding environment.'(Gauld 2002 p144) The major challenges facing the new system will be to balance local autonomy with national consistency, avoiding hospital domination, and satisfaction with the allocation of funds to the district health boards (Devlin et al 2001). The structural changes represent a radical departure from the current system and have required primary legislation. Such a

radical move is seen by some as a necessity to formalise the break from a 'corporate rationalist' model and a market ideology in health care thinking and to return to 'cooperation' as opposed to 'competition' by reinstating locally elected boards and abolishing the purchaser provider split.

HEALTH FUNDING IN AUSTRALIA

There is a widely held belief that Australia is out of step with the rest of the world in health reforms. A 1999 World Health Organisation Report (1999) suggests Australia is going the wrong way by limiting government funding of health care in favour of 'user pays'; by retaining fee for service payment of providers; and by promoting markets in the private sector (WHO Report 1999).

Many of the leaders in health policy in Australia are also highly critical of Australia's stance on health funding (Hindle 1998, Baume 1998, Duckett 1998, Leeder 1998, Smyth 1998, Smith 1998, Nelson 1998 Alexander 1998). According to one well known health economist, Australia's health sector is characterised by government intervention limiting and constraining through regulation, the size and behavior of the market. Transactions are characterised by asymmetrical information, and asymmetrical power...service provision is dominated by politically effective individuals and organisations, and private health insurance is 'bizarre' (Richardson 2002). The Dean of Australia's largest medical faculty agrees when he claims: 'The decision to subsidise all private health insurance may have other negative effects.....it is plausible that the Commonwealth will seek to recover the billions it pays for private health insurance by decreasing the support it offers public hospitals' (Leeder 2002 p 7)

Ten years ago, a national review of the role of primary health care in health promotion, concluded that in areas of effectiveness, efficiency and equity of disease prevention and health promotion in Australia, there have been significant limitations caused by the lack of a more coherent adequately resourced primary health care sector (NCEPH 1992). The same review found the 'four basic principles of primary health, (collaborative networking; consumer and community involvement; a balancing of health care priorities between the micro and immediate on one hand, and the macro and long term on the other; a partnership relationship with the secondary and tertiary sectors)' to be seriously lacking in primary care in Australia (Baum et al 1998).

The problems facing Australia in the new millennium were outlined by the Director General for Health in New South Wales in Sydney in July 1999 (Reid 1999). He stressed that his views applied to Australia in a general sense. There were eight major points he made in his address. They are summarised below in an effort to give an overview of the extent of the problems facing Australia today.

- A better balance between acute care, community care and prevention. In changing the focus from supply issues, to demand benefits, a long-term efficiency in health spending is guaranteed.

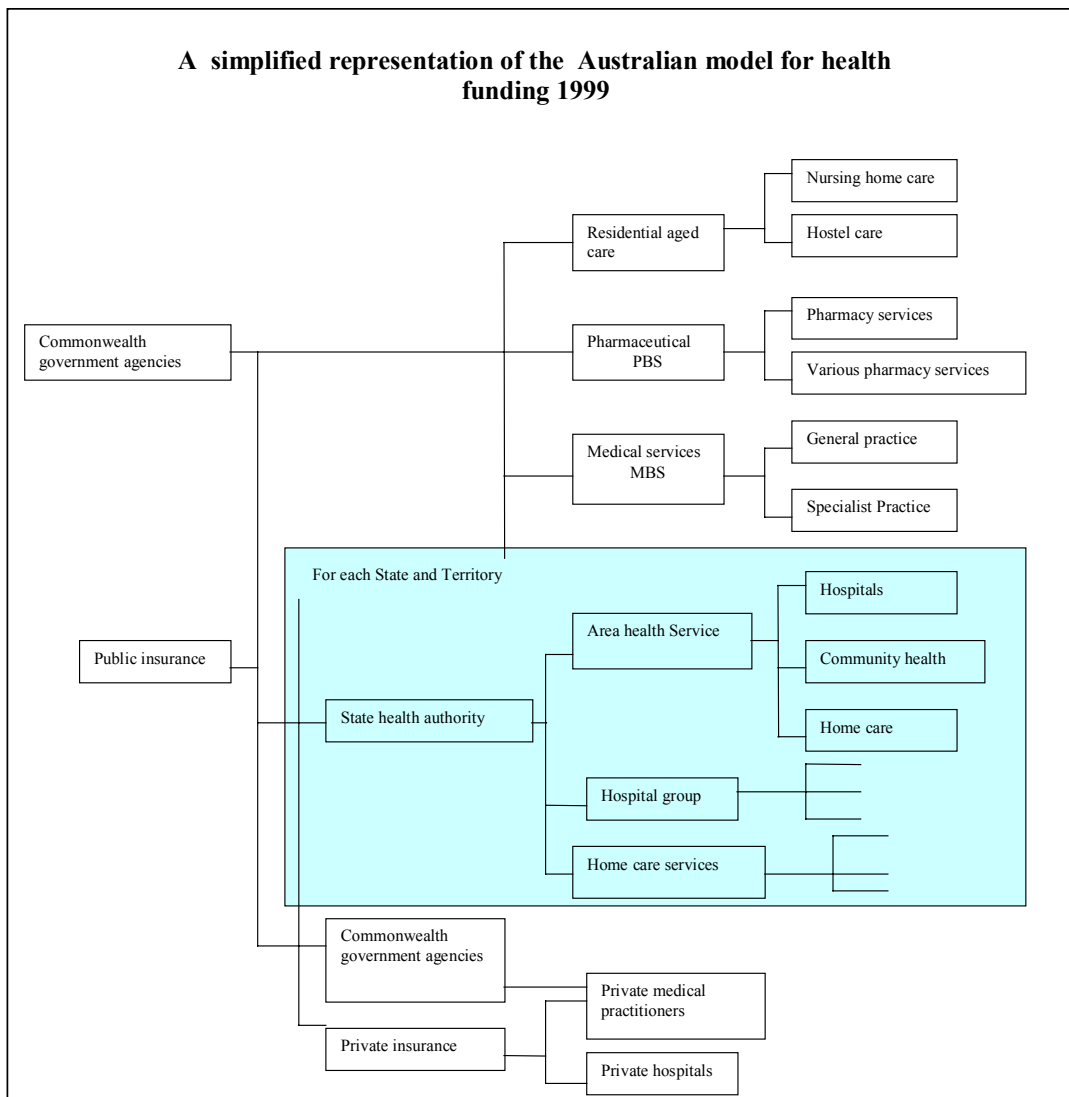
- To address the neglect in three areas of the population, namely Aboriginal health; people with mental illness; and rural and regional communities. This would involve trying to decrease the gap that is widening in terms of health status between the indigenous population and white health; reducing the rate of suicide of the young; and funding and a level of commitment by the public sector to give a degree of certainty to the continuation of appropriate services to rural and regional areas.
- Improving the integration of health care services by linking together various service providers.
- Refocusing attention on the effectiveness of care and assessing the most effective way of providing quality in health care. This involves the development and use of clinical indicators, clinical governance, and credentialing and accreditation processes.
- Improving the funding arrangements in Australia. To address the situation in Australia where funds are spent more on the basis of functional responsibility than on the basis of true need. To address the problem of cost shifting between states and Commonwealth, a single pool of dollars for health is called for.
- To clarify the role of private health insurance, taking account of the increased Commonwealth investment, the real ability of people to choose within the system, and the increasing demands being placed on public hospitals.
- Improving workforce planning, addressing in particular restrictive trade practices and, the undersupply of health professionals and the multi skilling of health professionals.
- Management of the location, range and mix of tertiary services; and the management and monitoring of the introduction of technology (Reed 1999).

In 1946 the Australian Constitution was amended to enable the Commonwealth to provide health services and benefits without changing the status of the States and Territories in this regard. Consequently two levels of government have overlapping responsibilities in the area of funding health care. The States and Territories are responsible for delivering public health services; regulating health professionals; public acute and psychiatric hospital services and community services such as school health, dental health maternal and child health and environmental health programs. The Commonwealth funds most medical services out of hospital via the Medical Benefits Schedule (MBS) and the Pharmaceutical Benefits Schedule (PBS) and most health research. It also finances and regulates care for older people and the disabled.

As well as this, the Commonwealth government subsidises by 30%, individuals who take out private health insurance, as well as offering further incentives to those who sign up for private health insurance under a Lifetime cover (Commonwealth of Australia, 2001). Private health insurance can cover private and public hospital charges and a portion of medical costs for inpatient services. Private insurance can also cover allied health and paramedical services as well as some aids and appliances.

The diagram on the following page, Figure 3, is a very basic attempt to illustrate the funding for the Australian health system, as it exists currently. This diagram has been reproduced from a diagram drawn up by the Australian Health Authority and published in the *Australian Health Review* Vol 21(2) 1998: p38-64 .Figure 3. illustrates the complexity of the current two tier health funding system as it exists. (A marked comparison between the funding system for example in New Zealand, which centres its funding arrangement within the primary care locus.)

FIGURE 3. A SIMPLIFIED REPRESENTATION OF THE AUSTRALIAN MODEL FOR HEALTH FUNDING IN 1999.



Source: Adapted _ from "A simplified representation of the current financing model" the Australian Healthcare Association, John Smith in the *Australian Health Review* 1998 21(2):38-64

(Note in particular from the perspective of funding Australian midwives:

- No recognition of salaried midwifery services within public sector systems to provide antenatal and postnatal community care, or continuity of care.
- No recognition of Independently Practicing Midwives.

- no recognition of homebirth - therefore women choosing to give birth in any setting other than a recognised hospital facility are not covered by any public revenue from public taxes.)

FUNDING NEW ZEALAND MIDWIVES

In 1997 the New Zealand College of Midwives (NZCOM), took a revolutionary step in successfully establishing their own primary care provider organisation as a commercial contracting body for midwifery members of the College. The Midwifery and Maternity Provider Organisation (MMPO) is the first non-medical health provider organisation and as such is in a strong position to tender and compete for the midwifery service contracts to ensure midwives offer a comprehensive service based on wellness and personal responsibility (Guilliland 1999). It was envisaged that the MMPO would offer national coverage to midwives, however, it currently operates a South Island venture, with the hope of becoming the contracting body for midwives nationally once the new reforms take shape.

The MMPO is organised along the lines of an Independent Practitioner Association (IPA), is contracted to the Health Funding Authority and is a separate entity to the College of Midwives. The Independent Practitioner Associations were initially formed by General Practitioners to provide a stronger contracting base to negotiate with government purchasing agencies in New Zealand, (similar in some respects to the Divisions of general practice which exist in Australia.) (Malcolm 1999). In particular, the IPA's that formed on the initiative of practitioners, and without government mandate or sponsorship have reshaped the face of primary care. Their new roles include co-ordinating services, developing relationships with communities and other primary and secondary care services. According to some commentators they are moving rapidly towards clinical governance in primary care (Malcolm 1999, Hendry 2002).

New Zealand midwives claim a Maternity Schedule, that is a capped budget per normal birth. The MMPO tenders and competes for the midwifery service contracts to ensure midwives continue to control midwifery (Guilliland 1999). This has been an important move for midwives who saw their service considerably de-valued in the 1995 fee restructuring, when the then Regional Health Authorities⁶⁴ restructured the fee for service, through the Section 51 Advice Notice to the Health and Disabilities Act (1993). Reduced capital was allocated to those services traditionally provided by midwives, for example, home visits and postnatal care. This new Section 51 was enacted in 1996. It clarified the framework for the modular maternity system and required one named lead practitioner (midwife or doctor) for each pregnant women. This move rejected the doctor's lobby for a separate medical maternity schedule and introduced stiff competition between the two providers to claim the dollars that went with the Lead Maternity Carer (LMC) (Hendry 2001).

The doctors did, however, gain an advantage. Through their Independent Provider Organisations they were able to negotiate with the Regional Health Authorities for variations to the standard Section 51 Notice, giving their members a sometimes significant advantage over midwives who were accessing the standard Section 51 (Hendry 2001). The budget allocation was re-arranged for services usually associated with medical care: antenatal GP

⁶⁴ who later amalgamated to become the Health Funding Authority in January, 1998

visits and ultrasound. Consequently doctors have had a significant increase in their hourly rate at the expense of the midwife as they control the budget (Guilliland 1999 p17)].

Midwives in New Zealand have also integrated into the primary care practices that are managed by consortiums of general Practitioners, for example, MATPRO in Wellington. Interestingly, the variation in practice outcomes that have occurred for midwives within this organisation, although multidisciplinary, nevertheless guided by medical values, stand in stark contrast to those achieved where midwives have a clinical governance in midwifery (Guilliland 1998)⁶⁵. As with any 'colonisation' of one culture by another, major changes occur in decision-making, resource allocation, social structures, dominant values and beliefs (Loomba 1998, Martin 1987).

UPDATE

With the latest reorganisation of New Zealand's health sector into twenty-one District Health Boards, midwives are again facing dangers to their autonomy as a profession. The uncertainty around whether funding will be national or regional, and the fragmentation of midwives through membership of multidisciplinary IPO's will present new challenges and change (Hendry 2001). There is a strong possibility that the New Zealand College of Midwives will successfully tender for the funding of midwives to be contracted through the Midwifery and Maternity Provider Organisation.

FUNDING AUSTRALIAN MIDWIVES

Australian midwives are not funded to provide a service beyond that of a hospital employee in the acute care health service in Australia. With the loss of professional indemnity cover since July 2001, and the lack of any alternative in the foreseeable future, Independent Midwives have been forced to withdraw from practice as accredited members of the Australian College of Midwives Inc. Losing accreditation with the College effectively disallows them from access agreements they may have had with Area Health Services. There are only two birthing programs that sit outside the public hospital service and offer women community antenatal, intrapartum and postpartum care in the community at present. These are the Community Midwifery Program, Western Australia (CMPWA), and the Northern Rivers Program in Adelaide, South Australia. They also suffer an insecure relationship with funding organisations, who, although agree the service is commendable, nevertheless report a low priority on the funding agenda (Reibel 2002, Vernon 2002, Short 2002).

There are stories of women giving birth unassisted, without a midwife in attendance, and according to the health spokesperson for the Democrats in the Senate, midwives will only have an invitation as observers to the summit meeting being held on the issue of the indemnity crisis for health workers on the 23rd of April 2002.

⁶⁵ See also the statistics from the MMPO 2002 (unpublished)

Urgent reform is needed in Australia to restore the option for women to birth with an attendant other than a hospital employee. This reform revolves around the issue of funding for midwives.

SECTION III : A PROPOSAL FOR FUNDING REFORM IN AUSTRALIA

INTRODUCTION

'In July 1999, following widespread public concern about the state of the public hospital system, State Premiers and Territory Chief Ministers called on the Federal Government to establish an independent inquiry, preferably to be conducted by the Productivity Commission, into the health system. In response to the request, the Federal Government stated that it did not believe such a review would be productive. The Senate subsequently agreed to establish an inquiry, and on 11 August 1999 the matter was referred to the Committee for inquiry and report by 30 June 2000.' (Commonwealth of Australia 2000, Intro). The terms of reference related to how, within the legislated principles of Medicare, hospital services may be improved, with particular reference to the adequacy of current funding levels to meet future demand for public hospital services and how to better coordinate funding and services provided by different levels of government to ensure the appropriate care is provided through the whole episode of care, both in hospitals and the community. Particular emphasis was to be made concerning current practices in cost shifting between levels of government for medical services and the impact on consumers of cost shifting practices.

Following the written submissions to the Senate Inquiry into Hospital Funding, the Committee considered that it would be useful to draw together funding information into a First Report (The First Report: www.aph.gov.au/senate_ca). The Committee decided that there was a need for further debate on the problems being faced by the public hospital system and that the First Report would act to stimulate that debate. The First Report was tabled on 11 August 2000. The Report presented an overview of the public hospital sector, identified the major problems of the hospital system, examined the adequacy of funding and canvassed a range of options for reform which had been raised by participants in the inquiry. This was an initial report by the Committee and did not contain any conclusions or recommendations or endorse any particular reform option. Rather, the report reflected the views of participants with the intention that those views would be discussed further.

In order to move the debate further, the Committee convened a Roundtable Discussion on 18 August 2000 at which expert participants considered the options presented in the First Report. The Roundtable evaluated the options for reform of the hospital system. Options for funding reform were considered at a theoretical level with assessment of the likely success or otherwise of the options as the basis of reform of the hospital funding system. It was also decided at the first Roundtable, in August, that it would be useful if a broader discussion with clinicians and those at the 'coal face' of service delivery also took place. It

was considered that these participants would be able to identify problems and how options may impact on the efficiency and effectiveness of public hospital service delivery. A second Roundtable was convened on 20 November 2000 at which health, allied health and consumer groups discussed reform of the hospital system and mechanisms to improve the delivery of quality care' (Commonwealth of Australia 2000, Intro: 1.11-1.13).

THE MAJOR OBJECTIVES OF THE SECOND ROUND TABLE DISCUSSION CANBERRA 20TH NOVEMBER 2000 WERE TO:

1. *Identify priorities for reform of public hospital funding and how in-hospital and out of hospital services can be better coordinated.*
2. *Identify and discuss the needs of Indigenous people using the public hospital system*
3. *Discuss planning within emergency departments and the changing role of large public hospitals within the public health sector.*

The Centre for Family Health and Midwifery was invited to participate, and I prepared the following proposals to be considered within reforms to both funding and the options of care available to women. I based our discussion around a theoretical model that had been proposed following the first Roundtable Discussion in Canberra on 18th August 2000 and was further debated on November 20th 2000. Many of the key concepts had been submitted on behalf of the Australian Healthcare Association (AHA), Women's Hospitals' Australia (WHA) and the Australian Association of Paediatric Teaching centres (AAPTC) (AHA, WHA, AAPTC No 63, 2000). The model outlined a fund 'pooling' between the Commonwealth and states and territories to create a single fundholder in each state to be known as a Regional Health Agency. In its introduction, the submission from AHA, WHA and AAPTC stated that "there needs to be a move away from discussions between governments the nature of which is their relative contributions to health care. These have been no more than blame shifting exercises and have done nothing to enhance the health of the community" (AHA,WHA,AAPTC 2000 No 63 p13). As health and healthcare are a national responsibility, health funding and policy should be the responsibility of the Commonwealth government (AHA, WHA, AAPTC 2000 p5). The submission from AHA, WHA and AAPTC proposed, "the purchasing function for the basic national health care package be assigned to a single level of government". Additionally it proposed that "the existing range of State /Territory and Commonwealth program should be amalgamated and managed on a population basis by regional health authorities to procure appropriate healthcare for a defined catchment population. This would eliminate multiple reporting and policy conflicts between levels of government." ((AHA, WHA, AAPTC 2000 p5).

Optional private healthcare insurance should be available as a matter of choice to purchase a level and range of care above the basic package. However all taxpayers should contribute to and be entitled to access the basic national healthcare package on the basis of clinical need, not capacity to pay ((AHA, WHA, AAPTC 2000 p6).

The government and non-government healthcare services are encouraged to continue their provision of hospital and healthcare services in a mixed healthcare system. "Collaboration between the non government and government sectors in the provision of public

care should be enhanced, on objective evidence of demonstrated community benefit and cost effectiveness, not ideology “(AHA, WHA, AAPTC 2000 p6).

The positive aspects of regional funds pooling through a Regional Health Authority include the potential for the Authority to incorporate potentially unique needs and preferences of the population they serve; as well as greater emphasis on preventive, coordinated care across traditional service boundaries (CHERE 2000).

The negative aspects of the model include the complex calculation of capitation payment that is involved with addressing the population demographics and specific health care needs of that population, including situations where all services can not be provided within each health authority, the complexity of dealing with service flows and patient flows between services (CHERE 2000).

A THEORETICAL CONSTRUCT OF THE NEW MODEL – THE ‘REGIONAL HEALTH AUTHORITY’

The key features of the Regional Health Authority were outlined by the Australian Healthcare Association, Women’s Hospitals Australasia, and the Australian Association of Paediatric Teaching Centres in their joint submission to the Inquiry into Public Hospital Funding - October 2000 (AHA, WHA and AAPTC submission 2000, No 63). They have been summarised as follows.

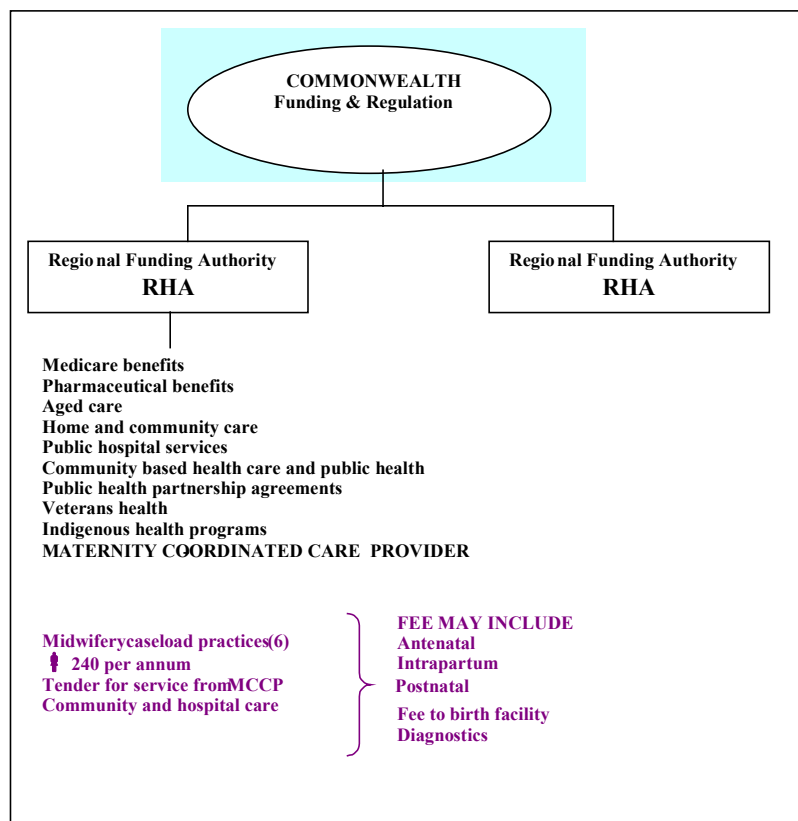
1. The RHA is responsible for the basic national package service requirements of a defined geographical population.
2. The funding is calculated through a population based, needs adjusted formula that is capped but has flexibility to move funds across existing programs in response to population requirements and availability of providers.
3. The RHA is a statutory authority at arms length to the govt. but responsible for the financial and clinical risks associated.
4. RHA s would purchases and plan health care services on behalf of their population.
5. Accountability for the national health policy outcomes of the global package, and the purchasing of and implementation of health strategies lies with each RHA.
6. Prescribed quality, price and volume of service purchased are negotiated between the RHA and providers by way of service contracts.
7. Provider contracts ensure the service is undertaken within settings appropriate to the episode of care.
8. Regulation of the RHA function is to be the responsibility of either Commonwealth or state/territory but not both.
9. Purchasing agreements between providers and the RHA contain explicit guidelines for rationing of basic health care.
10. Provider payment methods specified by the RHA and may include block contracts, case/episode payments and fee for service. Payment methods would maximise

efficiency, minimise incentives to over service and maximise opportunities for co-ordination of care across settings.

Source: AHA WHA & AAPTC Submission No 63

The following figure (Figure 4.) incorporates the key concepts from the theoretical model proposed by the AHA, WHA and AAPTC (above). The diagram shows where I would envisage the funding of the proposed new model of midwifery care that I have outlined in the following section, Section IV. It shows a pooled funding model funded by the Commonwealth government through the regional health authorities that in turn fund a Maternity Co-ordinated Care Provider (MCCP). In this model a formally constituted group of midwives contract their services to the Regional Health Authority through the Maternity Co-ordinated Care Provider (MCCP) for a specified number of women per year (usually 40 per full time caseload midwife). The group practice would be self-managing.

FIGURE 4. THE POOLED FUNDING MODEL DEFINED WITHIN A NATIONAL HEALTH POLICY AND FUNDED BY THE COMMONWEALTH, INCLUDING FUNDING FOR MATERNITY CO-ORDINATED CARE PROVIDER.



Sources: Model based on key concepts within the Submission by the AHA, WHA & AAPTC. Inquiry into Hospital Funding - October 2000.

THE NEED FOR REFORM

The following discussion points were identified and submitted to the roundtable discussion. The anomalies and problems listed below underpin the urgent need for reform.

a) Funding the **antenatal care of women in the community** by midwives where appropriate.

Currently midwives do not provide antenatal care because:

- hospital administrators are unaware of cost savings, safety and satisfaction for the women involved;
- powerful vested interests in maintaining sessional Visiting Medical Officer (VMO) service (fee for service – Commonwealth funded);
- revenue raising for public hospitals in the form of antenatal clinics 'bulk billing' for medical service. Women are referred from their GP's to see Dr 'Blogs' at the public hospital who authorises their care within the public hospital. For future visits they see either him or a registrar or possibly a midwife, but the service is 'rubber stamped' by the authorising specialist and the hospital claims Commonwealth reimbursement. This is an ideal way for 'cash strapped' hospitals to generate revenue from the Commonwealth.
- shared care with GP's means cost shifting between the GP and hospital, this is a way of 'cost shifting' between State and Commonwealth funding – the Medicare rebate claimed for GP care comes from Commonwealth purse, whereas the hospital pays the midwife out of the acute care budget under State funding. A report in the Australian Medical Journal (1997) claimed that duplication of health care services such as that between GP's and state funded community care in primary care cost Australia \$1.5 billion per year. In fact the cost of cost shifting between Commonwealth and State governments may cost the Commonwealth around \$400 million a year (Duggan 1997). On a social note, there is less satisfaction for the women, and 'shuffling' between care providers for over servicing with diagnostics eg ultrasound.
- For rural and remote women the lack of appropriate antenatal care is a huge issue. Where women are expected to access care through the public hospital system, those who are not intimidated by this system may receive some antenatal surveillance. Those who fear being transferred to large tertiary centres to birth, away from home and community, choose not to attend the public hospital for antenatal care. Evidence of this 'late attending' can be found in the national and state mothers and babies perinatal statistics reports for the past five years, where the 'born before arrival' figures are consistently higher than the 'planned homebirth' rates at both national and state levels (AIHW 1998, 1999, 2000).
- For Indigenous women the almost universal 'transfer' policy to a large impersonal centre for birth at a predetermined date (according to estimated gestation) means that many young women are forced to conceal their pregnancies and arrive at local hospitals in advanced labour for 'emergency' care.

- Because birth is funded only within the institution many women will either have no antenatal care, or else their care is provided by someone who will not be attending them during labour or at birth.
- Among the 'key findings' of the Phase 2 (93/94 - 96/97) Alternative Birth Services Program (ABSP) " the ABSP funded programs had succeeded in developing services which were trusted by Aboriginal women and culturally appropriate" (NSW Health 1998 p 7). However in spite of these very positive findings the service did not continue because of the lack of funding for the Aboriginal health workers and the midwives who supported them. Aboriginal women were required to go back to a GP provided service for antenatal care because at the present time this is the only way funding is provided for antenatal care in these communities. This was despite the Aboriginal women themselves preferring and giving strong support to the Aboriginal Medical Service for birth and post birth care.
- Several other key issues emerged from these five ABSP projects. One of the most serious being that one particular AMS service lacked access to the delivery suite in their own geographic area, thereby preventing any form of continuity of maternity care for Aboriginal women in that community. At present, because of inadequate funding for community care the onus rests with funding provided by Area Health Services to see that indigenous women are provided with equitable access to services.

b) For ***intrapartum care*** under a new proposed funding arrangement women choosing the care provider for their pregnancy and maternity care would have the opportunity to decide where they want to give birth and with whom. Currently the funding of maternity care within the acute care services of hospitals does not allow women to have this choice because:

- In rural and remote areas the specific skills of midwives are not recognised nor utilised to care for women who may not want to travel huge distances before birth and have to 'board' in less than familiar and often expensive surroundings awaiting the birth of their babies.
- For indigenous women this is a very real crisis for those wishing to restore their cultural birth practices and customs and give birth more 'safely' in their own lands (Kildea 2000, Hecker 2000, Stewart 2000, Rowlings 2000, Chamberlain and Barclay 2000, Tracy et al 2000).
- Preliminary data from the AMAP research project supports the fact that rural midwives are becoming de-skilled and demoralised because they are unable to provide a comprehensive midwifery service based on both the WHO (1999) definition of a midwife, and the National Health and Medical Research Council (NH&MRC Australia) proposed scope of practice (1996).
- The new midwifery models are still considered 'extraordinary' rather than mainstream, even though the outcome measures of these programs have demonstrated major

improvements for women and clear benefits to the institution in the way of cost saving (Homer et al 2000, CMPWA report 2000)

- Women can not choose a midwife as their primary care provider for their entire pregnancy and birth unless they pay from their own pocket to have the services of an Independent midwife. ie NO Medicare rebate, or national insurance rebate is available for any of the care offered. Added to this, if the woman transfers to hospital for medical consultation during the birth, she will forfeit the services of her chosen midwife unless the hospital concerned has an actual 'access policy' in place (as recommended in the Shearman report 1989, the NH&MRC Review of services offered by midwives 1998, and the NSW Framework for Maternity Services 2000).⁶⁶
- Women may be 'lucky' enough to get in to a publicly funded birth centre⁶⁷, but most will still not have had the chance to meet their midwife. They will also have to satisfy very tight medically determined risk criteria, and for many birth centres there are unacceptably long waiting lists. Historically, this option for birth care with a strong focus on supporting a normal physiological life process, is often the first to close in 'cash strapped' public hospitals.⁶⁸
- Continuity of care can be provided by paying for private obstetric care with the real risk of more intervention at birth for low risk normal care⁶⁹. In Australia at present, both primiparous and multiparous women with no previously identified obstetric or medical risk factors who pay for the service of a private obstetrician are twice as likely to have surgical intervention at birth compared with women giving birth in the publicly funded system (Roberts et al 2000, Cary 1990, Shorten and Shorten 2000).
- In rural communities there is an even greater problem for women who must rely solely on care from medically qualified (rather than midwifery qualified) care providers, and very often transfer huge distances to give birth in an institution. Midwives are not funded to practice in team or caseload practices and very often the GP's are not willing to provide medical support or backup to those who offer a midwife only service. Midwifery models of care are viewed as an unwelcome intrusion into the income earning potential of many rural medical practitioners.

c) A new funding proposal that incorporates **postpartum care in the community** is long overdue. The current Casemix costing for birth provides funding for care in the hospital facility with no allowance for even minimal postnatal care to be undertaken in the community. More and more women are being asked to leave hospital early with no follow-up care. This is known to have serious long term public health consequences.

⁶⁶ This option is now compromised in 2002 by the lack of professional Indemnity cover for Independent Midwives

⁶⁷ See 'Rocking the Cradle' http://www.aph.gov.au/senate/committee/clac_ctte/index.htm

⁶⁸ See the reasons for John Hunter closing, and more recently, the Nepean Birth Centre within the Wentworth Area Health Service, NSW and the Camden Birth Centre, Sydney

⁶⁹ Roberts et al 2000

- Breastfeeding rates are at an all time low in Australia where midwives are not funded to follow up women in the community after discharge. However, in programs that fund postpartum care by community midwives the rates of breastfeeding are noticeably improved. A report published this weekend by the WA department of Health shows a significant improvement in breastfeeding rates for the now state funded Community Midwifery Project (DOH WA 2000). The project was so successful that after the ABSP funding finished the state was encouraged to continue funding. Most significantly, women who are choosing to give birth at home or in the birth facility are supported in their choice with public funds administered through the WA Health Department⁷⁰.
- Current funding of maternity care does not allow for innovative models of care to continue in to the post partum period unless these are subsidised by the institution. This is particularly significant for women who suffer violent relationships and other forms of social deprivation. Where caregivers are funded to work with community networks that often start with antenatal groups in the community (not hospital classes), women have found new ways to cope with the wider pressures of social and economic deprivation in building childminding networks, drug rehabilitation support networks and breastfeeding and anti smoking networks.⁷¹

SECTION IV : A PROPOSAL FOR AN INTEGRATED MIDWIFERY MODEL

Within a framework of the reforms outlined in the previous Section III, I have outlined the key parameters of a midwifery model of care, designed to be implemented across a continuum of community and hospital⁷².

The current system of maternity care when measured using population and morbidity indicators may not adequately meet the needs of populations. Nor does it appropriately allocate skills and resources. Care is fragmented, professionally focused around acute care hospital providers and may not address the social and emotional needs of families who need it most. Disadvantaged communities are known to be the most difficult to reach populations in health care. Research also shows that pregnancy based care and childbirth is one of the few times some families access the health system and therefore offers an ideal opportunity to establish health relationships. Maternity care provided for healthy women within a primary health model that accesses the community and hospital rather than an 'acute services ' or 'hospital' model requires us to focus on services women and families need rather than the perceived needs of service providers (obstetrician, midwife, neonatologist, early childhood

⁷⁰ See the National Maternity Action Plan Appendix.....for a full description of the funding and the management of the CMPWA

⁷¹ See the description of the Edgware and the Albany Midwifery Practice schemes, and Sandall et al 2001

⁷² This model has informed the NSW Community Midwifery Model proposed by Maternity Coalition in 2002. Supplementary paper 3

nurse and general practitioner). In this way women's social and emotional needs can be met without sacrificing specialist medical skills that ensure safety when physical problems arise.

Two key principles underpin this approach:

- Firstly women access a caseload primary care midwife who provides the continuity of care through the antenatal, intrapartum and postnatal period, collaborating as necessary with other practitioners according to the needs of the woman. This can be further complemented by additional services e.g. non-government organisations, social institutions and networks where necessary.
- Secondly, wherever possible, services are community based, to provide maximum continuity for women. This approach is designed to actively and effectively engage women as partners in their care and more adequately prepare families for parenting.

ANTENATAL CARE

- The relationship between the woman and the professional is based on the woman's needs and how the midwife or other nominated caregiver can meet these to preserve safety and build on the woman's own confidence and capacity.
- Guidelines for care, including screening protocols will be evidence based (eg Cochrane Collection Standard, Victorian Antenatal Guidelines 2001, NZCOM handbook for Midwives 2002). Educative elements will be integrated with clinical care fostering social support networks and drawing on community resources to assist the woman in preparing for childbirth and parenting.
- The frequency of visits for most women depends on physical or social health status determined on the basis of comprehensive consultation and assessment. In populations with higher needs there will be more episodes of care as required.
- Antenatal care will only be provided from tertiary institutions when necessitated by investigations or specialist skills and will otherwise occur in the community or in the home.

INTRAPARTUM CARE:

- As the model is based on continuity, the midwife and her backup midwife will be known to the woman and her family. By comprehensively addressing her need for safety and providing a continuum of care in partnership with the women, the midwife facilitates the women's preparation for motherhood and early parenting.
- The focus is the biophysical and social safety of mother and infant. The range of women's and infants needs are the focus for consultation between the women and the midwife, with attention to evidence based care and monitoring. The skills and expertise of other professionals will be accessed as necessary in consultation with the woman.
- A range of locations and professionals will be available for childbirth according to the women's preference and health status.

POSTNATAL AND NEWBORN CARE:

- This will be community focused and support and strengthen the woman's ability to mother. It will be achieved by introducing midwifery led postnatal care for a period of four to six weeks as necessary followed by a referral to Early Childhood services and/or the GP on discharge. This will effectively integrate women into systems and programs that build family and community capacity.
- The content of care will be based around strategies that have been found to be effective and meet the women's needs. It will be designed to encourage maternal confidence and self-efficacy and build on social support. Health outcomes such as puerperal health, infant feeding, family functioning, infant health and social and emotional needs including social isolation and fatigue will be evaluated.
- Increasing evidence shows the problems of 'ward' based post natal care and services are not meeting either women's needs or optimal professional standards. This model emphasizes home and community focused midwifery care, for the healthy women and neonate, for birth and/or as soon as possible after birth.

KEY REQUIRMENTS:

This new model requires:

- The recognition of the midwife as the most appropriate primary caregiver for women in childbirth.
- Pooled funding arrangements across acute care and community according to numbers of births and families who receive services
- The education of students to be integrated and centred around quality rather than volume and in ways that treat the women as a respected partner who participates in the process.

FUNDING

In this model a formally constituted group of midwives contract their services to the Regional Health Authority through the Maternity Co-ordinated Care Provider (MCCP - See Figure 4.) for a specified number of women per year (usually 40 per full time caseload midwife). The group practice would be self-managing.

Midwives provide care during the antenatal period, during labour and birth and postnatal care up to six weeks postpartum, with appropriate backup from other midwives in the practice. The group practice takes full responsibility for the care of these women. The responsibility and the contract is with the Midwifery Group Practice rather than individual midwives. The group practice would be responsible for employing and replacing staff as necessary.

The per capita payment should be adequate to accommodate provisions for leave, superannuation and workers compensation arrangements. The contract would be based on an agreed service level and tied to cases managed.

Equipment, consumables, car, and mobile telephone are costs that the midwives will need to cover from within their per capita payment fee. If the midwives choose to operate from a community-based location for antenatal visits and/or groups rental will need to be negotiated by the MCCP through the relevant RHA and the midwives. The rental would need to be accommodated within the negotiated per capita fee.

Other costs, such as superannuation and workers compensation would be arranged by the midwives themselves and would also need to be built into any per capita payment.

ORGANISATIONAL AND MANAGEMENT ISSUES

The MCCP sub-contracts the total care package to the group practice who are providing the service. A contractual arrangement needs to be negotiated between the group practice and a particular public hospital or hospitals, possibly through the Maternity Coordinated Care Provider and the relevant RHA. The group practice would be self managing and responsible for paying wages of all members and for covering absence including sick, annual and maternity leave. The midwives would plan their work so that they have appropriate annual leave. It would be necessary to negotiate a means by which the personnel within the group practice are paid and to have one person who coordinates the transaction and is a single point of contact between the group practice and the MCCP. The Maternity Coordinated Care Provider team negotiate funding from the Regional Health authority for the group practice.

RISK MANAGEMENT

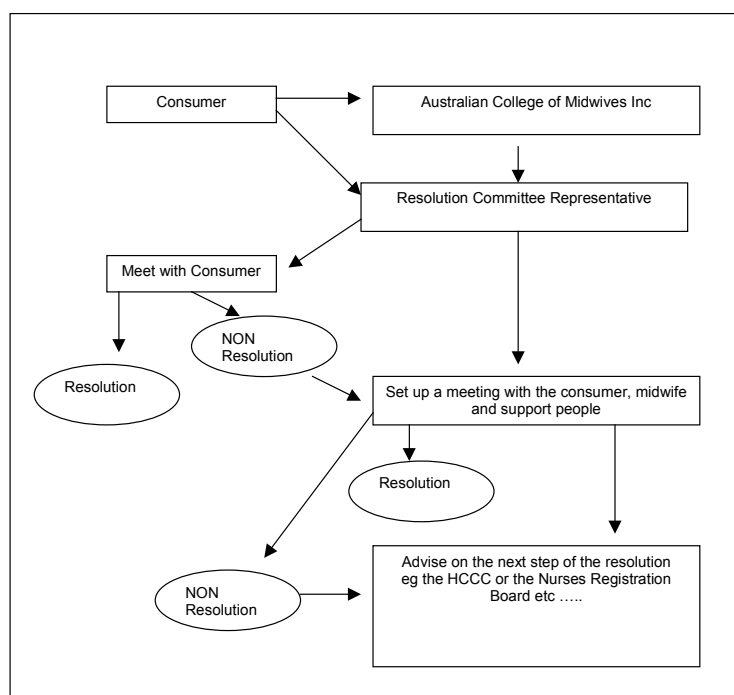
Indemnity arrangements need to be agreed between government and insurance providers. The group practice would be covered by vicarious liability from within the public health system, negotiated by the Regional Health Authority.

In addition to this, there would be a mechanism for resolution of complaints. See Figure 5.

Professional isolation and burnout remains a potential disadvantage, although this is addressed through support provided by members of the group practice to each other. Midwives need to be well linked to their contracting RHA with avenues to facilitate involvement in educational programs and opportunities for professional support, clinical standards review and debriefing.

The contract with a MCCP ensures that the practice guidelines of the organisation will be followed in a similar manner by other contracted practitioners, for example, visiting medical officers (VMOs) and private obstetricians.

FIGURE 5. A PROPOSED COMPLAINTS MECHANISM FOR WOMEN UNHAPPY WITH A PARTICULAR OUTCOME OR SERVICE.



Source: This model is based on a successful model for resolution identified by the New Zealand College of Midwives The New Zealand College of Midwives Handbook for Practice, 2002.

FOOTNOTE

The 'integrated midwifery model' is a hypothetical model designed as part of the proposed larger health reforms, however, this option would be possible within the current State and Commonwealth funding structure if the Commonwealth government were to re-examine the Medicare schedule in terms of the practitioner and service provided. If a Medicare-style rebate were available for women to access midwifery services, midwives could provide this service under Commonwealth funding arrangements. An example of this model is seen in New Zealand where each woman nominates a Lead Maternity Carer (LMC) and this practitioner is reimbursed from a central government fund for each aspect of care. The LMC may be a midwife, GP or obstetrician. Privately insured women could be charged by the midwife, group practice, or hospital.

BENEFITS OF A NEW MODEL

There is a major opportunity presented by the insurance crisis to reform Australia's maternity services and to significantly reduce the impact of the Professional Indemnity (PI) problem on these services.

- PI premiums for obstetric specialists are spiralling and specialists are already leaving the industry. Recent media reports suggest up to 70% of specialists will have left by 2012.
- Australia's high rates of intervention in childbirth are unsustainable. Each intervention increases the costs of maternity services as well as the risks of litigation and the price (and availability) of PI insurance.

Establishment of community midwifery programs as a mainstream element of maternity services would:

- Deliver substantial costs savings to Medicare and to State health budgets.
- Overcome the withdrawal of obstetric specialists from the industry by providing community midwifery services offering primary care to the majority of women. (If in 10 years time only 30% of the current workforce of obstetricians remain in the industry they will be well placed to provide care for the 20% of women who need their expertise rather than to the healthy majority they now service⁷³).
- Improve the risk profile of Australian maternity services by lowering intervention rates and reducing the likelihood of litigation.
- Bring Australia into line with international best practice policy and practice.
- Better meet the needs of Australian women and their families for greater continuity (one-to-one) and certainty in their maternity care.

CONCLUSION

The funding mechanisms that govern the provision of maternity care in Australia are in urgent need of reform. Current funding that is costed solely on acute hospital Casemix costing does not fund care to be undertaken in the community. Where 'team' and 'caseload' midwifery models have been implemented and evaluated the outcomes show they are of benefit to women and babies (Kenny et al 1994, Rowley et al 1995, Leap 1999, Reibel 1999, Homer et al 2000). Many of these models have been discontinued regardless of the evaluations that demonstrated safety and effectiveness. Notwithstanding, the models that have survived have made a huge contribution to the well being of women and their babies (Homer et al 2000, Thiele et al 2001, Church et al 2002).

Until funding encourages non intervention by provider, probably through some form of capped prospective allowance for each woman attended, mothers and babies will continue to be disadvantaged by not having access to proven practices of safety and comfort in childbirth. Such a system is based on 'collaboration' and 'co-operation' across all levels of service provision.

The service itself must cross both the acute hospital and community boundaries to achieve a balance between hospital based and community based care. This coupled with

⁷³ Dr Barb Vernon from speech given during the launch of NMAP at Federal Parliament 24th September 2002

funding a lead maternity carer through a capped maternity allowance allocated in terms of a maternity benefit for every pregnant women, is known to significantly contribute to the welfare of childbearing populations.

The debates about hospital funding reform continue into 2002 unchecked. The remaining challenge in maternity funding reform must be geared towards making the system more responsive to women. With this objective in mind, consumers have begun to take the lead in calling for changes to the maternity system in Australia. In 2002, the Maternity Coalition took the lead in producing a vision statement for the reform of maternity services in Australia,⁷⁴ thus moving the debate towards ensuring that the system will be responsive to the community's needs and flexible enough to allow for innovation and change which would drive the allocative efficiency of funds. This rise in consumer participation combined with other significant social trends such as the spiralling rise in insurance claims for medical negligence in obstetrics, and an increasing concern for the over medicalisation of birth at a global level⁷⁵ may see the long awaited reforms begin in the not too distant future.

⁷⁴ The National Maternity Action Plan (NMAP) www.maternitycoalition.org.au

⁷⁵ Johanson et al (2002)

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PART 7: MIDWIFERY AND PUBLIC HEALTH

MIDWIFERY AS A PUBLIC HEALTH MEASURE : IS THERE ANY EVIDENCE?

CONTEXT

The following paper compares the nature of midwifery care in New Zealand and Australia in relation to the way midwives are recognised through legislation and funding. The paper is co-authored with Karen Guilliland, Director of the New Zealand College of Midwives.

Our aim was to identify the effects of each funding model on the practice of midwifery and to identify outcomes associated with public health that may be influenced by midwifery care. Initially we undertook a descriptive ecological study of women who gave birth during 1999 in hospital in New Zealand and in Australia, in addition to comparing available published population data on breastfeeding and childhood vaccination rates for both countries. However it was difficult to find accurate rates of the proxy measures of public health. Breastfeeding and vaccination data are difficult to collect and difficult to access in both countries. As the data bases containing this information get stronger, it will be possible in the future to compare these valuable public health indicators. From the available population databases we did conclude however, that New Zealand has higher breastfeeding rates at six weeks and six months and higher vaccination rates at one year. Midwives in New Zealand are funded to provide both antenatal and postpartum care in the community. One of the most valuable aspects of this form of care is the link that is initiated between the GP or 'well child services' at 4 to 6 weeks postpartum.

This paper was presented at the XVIII European Congress of Perinatal Medicine, Oslo, Norway 2002 , and the New Zealand College of Midwives Biennial Conference, Dunedin 2002. It will be submitted for publication to *Birth*.

ABSTRACT

A public health report tabled in the UK House of Commons in 2001 advised, "Midwives are often passed over by public health strategists because they are usually employed and managed by the acute sector, which is not at the forefront of the public health agenda".(1)

The extent to which midwifery may be regarded as a public health strategy is addressed in this paper by contrasting the effect of two different models of maternity service funding on the scope of midwifery practice in New Zealand and Australia. The objective of the study is to determine the extent to which midwives can provide a public health service depending on the way they are funded. Although the populations of women giving birth are similar in these two neighbouring countries, there is a fundamental difference between the practice of midwifery in New Zealand and Australia, and the social and philosophical constructs surrounding childbirth. Australian midwives work in the hospital setting funded and managed within an acute service sector; whilst New Zealand midwives practice autonomously through a contractual funding arrangement with the government, administered under a Public Health Act.(2)

PUBLIC HEALTH STRATEGIES AND OUTCOMES

Just as health services within 'public health' are not easy to quantify, so the link between intervention and outcome is more difficult to evaluate for preventative public health services, than personal curative health services.(3) Public health outcomes are defined as the outcomes of preventative health measures undertaken within a given population for the good of the population compared to health interventions that affect only the individual.(4) Breastfeeding and childhood vaccination rates for example, are health indicators used to measure the effectiveness of public health interventions within populations and have recently been the subject of national health improvement programs in NZ and Australia at the recommendation of the WHO (5;6) However data on these outcomes are both difficult to obtain in Australia and New Zealand, and there are often inconsistencies within breastfeeding definitions.(7) A public health focus on breastfeeding encourages efforts to create a supportive breastfeeding environment through a multi strategy approach aimed not just at mothers but also at the community.(8)

Other public health outcomes are less easily 'measured', including interventions that assess and seek to change the social and physical environment around childbearing women. When the social and physical environment in which the behavior takes place is assessed, interventions aimed at changing that environment can be given as much attention as disseminating information on health risks.(9) For example antenatal care and postnatal care offered in the community draw heavily on the social context of the woman. Community based care has the potential to strengthen or initiate connections to facilitate change using social capital, social networking and collaborating with other community groups to address issues of social justice and social disparity. (10) Enhancing the quality of relationships with families,

partners, and community in a 'strength based' model creates a context for resilience and encourages the community to effectively respond to the need for resources and services(10;11) Care in the community contrasts starkly with the 'expert-based, deficit model of intervention' (10) most often available to health care workers bound by the restrictions of institutional control. Contributing to the reduction of domestic violence and smoking in pregnancy are two issues experiencing relative neglect on the public health agenda. (8;12-17) The prevalence of domestic violence is common in both countries (5;6) as is smoking, especially amongst younger women. (12;13;16). Both are positively associated with adverse outcomes of mother and child health. (8;12;13;15-17) However a public health potential exists for midwives who are politically positioned to facilitate reform in the community. Ten years ago, a well known British obstetrician claimed , 'current moves to demedicalise and decentralise childbirth potentially providing more continuity of care, are necessitating radical changes in the organisation of maternity care. They should be seen as an opportunity to discard outdated rituals rather than simply to transfer them from doctors to midwives (18) Facilitating women to recognise their own strengths in forming self-help groups, smoking cessation programs and breastfeeding support groups as well as community action projects to address domestic violence, are very real examples of public health strategies. Results from the Albany Practice in London support the claim that one-to-one continuous midwifery care results in better outcomes for socio-economically disadvantaged women, including teenage mothers, single mothers and mothers experiencing drug or alcohol problems. (1;19) Where public health success depends upon improving health through enabling societies to provide a health-promoting environment, then Australian midwives, constrained as hospital employees, may possibly find themselves too far removed from the macro political arena to have much hope of success. New Zealand midwives, on the other hand, are being encouraged and funded to provide woman-centred care in partnership with childbearing women.(2;5;20) The need to change restrictive boundaries around the context and practice for Australian midwives has been raised many times in the last decade, most recently in the National Health and Medical Research Council 1998 policy statement on the review of services offered by midwives (21), and by women themselves, through the Australia-wide launch of the National Maternity Action Plan.(22)

SIMILARITIES BETWEEN NEW ZEALAND AND AUSTRALIA

The non-Indigenous populations of New Zealand and Australia share a common European ancestry. New Zealand and Australia collaborate on many professional levels of health policy, research and management. In particular they share Australasian membership of the colleges of medicine, surgery and obstetrics and gynaecology, and Australasian membership of the major women's and children's teaching hospitals through the organisation of Women's Hospitals Australasia. They also currently share mutual recognition of qualifications for nurses and midwives.(23) Childbirth is the most common reason for hospital admission both in New Zealand and Australia, and midwives attend all births in both

countries. New Zealand and Australia each manage a nationally subsidised maternity service, and women buy the services of private obstetricians and private hospital care to a varying degree in either country. See Table 2.

Regardless of these similarities, the experience of childbirth has the potential to be profoundly different in each country.

MIDWIFERY CARE IN NEW ZEALAND

In New Zealand the capped fee schedule for maternity care is paid according to a series of 'modules' for pregnancy, birth and postnatal care detailed in Section 88 of the New Zealand Public Health and Disability Act 2000.(2;5) Each woman, regardless of perceived 'risk' selects her own lead maternity carer (LMC) who may be a midwife, GP or obstetrician to 'take responsibility for the care provided throughout the pregnancy and postpartum period including labour and birth'.(2;5) It is expected that from the time of initial registration with that carer, all the modules for which payments are claimed are the responsibility of one lead carer who has been chosen by the woman in order to achieve continuity of caregiver.(2)(p11) This method of funding an autonomous lead carer guarantees a woman the capacity to choose where she gives birth, and with whom. It enables the vision underlying maternity services in New Zealand that 'pregnancy and childbirth are a normal life-stage for most women, with appropriate additional care available to those women who require it. (2)(p11)

New Zealand women engage a midwife whom they get to know during their pregnancy and who follows through with their birth and for at least five to ten visits at home after the baby is born(2)(p14), referring them to obstetric specialist care if the need arises. The care following birth is detailed in Section 88 of the Act (2) to include; "assistance with, and advice about breastfeeding and the nutritional needs of the woman and baby; assessment for risk of postnatal depression and/or family violence, with appropriate advice or referral; provision of the Ministry of Health information on immunisation; advice regarding contraception and parenting advice and education; provision of, or access to the 'well child services' and a written referral transfer from the LMC to the well child provider to take place at a date agreed by the women, normally between four and six weeks from birth, or earlier if the baby has unusually high needs'.(2)(p14)

MIDWIFERY CARE IN AUSTRALIA

In Australia, the situation for women is very different. To begin with, women in Australia do not have the opportunity to access a midwife as their primary caregiver through the antenatal, birth and postnatal period. To give birth, Australian women go to hospital where they are cared for by rostered midwives and obstetric staff whom they usually do not know.(24) They can choose a variety of different medical care options, one of the most popular models being combined public hospital birth care with pregnancy check ups provided by GP's and Obstetricians in their practice rooms. (25). Until the loss of professional indemnity cover for privately practicing midwives from July 1st, 2002, there was an

opportunity for some Australian women to pay for a midwife privately and receive continuity of care during pregnancy and the option to give birth at home. Following a short hospital stay, most Australian women do not receive any further postnatal care at home. A survey conducted by an Australian state health department found that, of the 101 public facilities providing maternity care, only 72 reported availability of early discharge / community midwifery programs, and the availability of these programs was based on the availability of resources rather than on women's needs for home based midwifery. (26) In cases where domiciliary postnatal care is offered, it does not guarantee continuity of care with a midwife known antenatally or for birth.(27) The current trend in Australia to provide a specialised professional service for breastfeeding advice in hospitals, rather than support for women within their own home, effectively removes the function and control from women themselves, while co-opting the social and emotional relationship into an 'expert' professional territory and possibly making breastfeeding more difficult.(28)

Women are referred to 'well child services' when they leave hospital, and they may or may not choose to follow up with this arrangement when the baby is a few weeks old. The precedence of medical care over all other care, means that midwives have very limited opportunities during the antenatal or postpartum period to educate or effect community strategies with regard to linking women into other primary health providers, facilitating initiatives for smoking cessation, childhood vaccination and programs designed to limit family violence. If breastfeeding is not established when women leave hospital for home, there is limited support available.(28) Although facilities such as Karitane and private lactation consultants exist, they may not be accessible to women who are feeling vulnerable through lack of social support, or have limited financial means.

In Australia, the funding for maternity care is organised on a 'fee for service' model.(6) Women may pay privately for obstetric antenatal care or access free maternity care by going to hospital to attend antenatal clinics. Obstetric care is subsidised by the Commonwealth government through the national health insurance (Medicare) rebate as part payment for a fee for service.(6) Hospitals are funded through a cost sharing arrangement between Commonwealth and State Governments(6)and midwifery care is provided as a hospital service offered by rostered midwives.

Most notably, in Australia, midwives are not autonomous practitioners and are paid about one third the rate of medical practitioners offering maternity care compared to New Zealand where all lead maternity care providers are theoretically reimbursed equally. (This has not been without challenge in New Zealand from the medical profession who claimed that there should be a separate payment schedule for doctors and midwives.(29)

COMMUNITY CARE FROM MIDWIVES IN NEW ZEALAND

New Zealand midwives enjoy equal status, higher pay, have more control over their working lives, carry caseloads and have visiting 'privileges' to public hospitals for referral and consultation with medical colleagues. Antenatal care and postnatal care are conceptualised within a unique partnership(30) framework in New Zealand.(20;30) (2;5;30)(p11) Rather than

prescribing a course of required medical 'visits' that include routine examinations at monthly and fortnightly intervals, midwives and women follow a series of 'decision points' (20) for the woman and midwife to negotiate through the entire pregnancy, birth and postpartum spectrum. This reinforces the notion that women are paramount in the decision making around childbirth, and offers a unique opportunity for women to plan with their midwife, the strategies and actions needed to make their pregnancy and birth both safe and fulfilling. An important aid to this information sharing is the New Zealand Midwives Handbook for Practice produced by the NZ College of Midwives.(20) This is a widely available practical guide written for women, midwives, and the general public, setting in place a system for the profession and the public to measure both individual midwife practices and midwifery services, as well as providing comprehensive information on public health interventions that are attainable during pregnancy and childbirth. It prompts health behaviours such as choices for self-care and lifestyle including education about smoking, diet, exercise, breastfeeding and childhood vaccination, information about community agencies, social services, and consumer agencies. It raises public issues with women such as the need to educate the medical and midwifery workforce for the future, and invites women to consider participating. It also spells out the rights women have, to make a complaint about their care, and how to access resolution processes when problems arise. The involvement of midwives for all women postnatally in New Zealand affects the well being of the population in several ways. Firstly it facilitates early discharge from hospital and a system of support for breastfeeding during the critical first days at home. It also promotes a system of record keeping and referral beyond the immediate postnatal interval. Notes on breastfeeding and early childhood vaccination are recorded in the health notes of the mother and baby that are transferred from midwives to 'well child' services and the general practitioner at four to six weeks after birth.(2;5;20) It is estimated that more than 90% of all infants are referred at this time.(5) The initial link between the baby at six weeks and referral to an appropriate preventative health or public health service is potentially a most valuable public health measure. Midwives who follow through with women and their newborns into the postpartum period, are in a position to recognise special needs and also facilitate this critical link. In this way the most vulnerable women and babies are not 'lost' to follow up.

BENEFITS OF COMMUNITY CARE

The benefits of providing this form of care are measurable in several ways. Firstly, the budget for maternity care including the budget for ultrasound, has evened out in New Zealand since 1997 and continues to fall.(5;31)

TABLE 1. TOTAL MATERNITY EXPENDITURE FOR NEW ZEALAND OVER THE LAST EIGHT YEARS 1993-2001 (INCLUDING THE BUDGET FOR ULTRASOUND FROM 1995 ONWARDS)

Fiscal year	\$N Z Million
1993/94	318.0
1994/95	369.5
1995/96	343.9
1996/97	362.1
1997/98	354.9
1998/99	351.4
1999/2000	348.9
2000/2001	To come

Sources: New Zealand Ministry of Health Funding Authority. "Improving our Health: Marking our Progress". November 2000.

Secondly, the workforce number of midwives, contrary to other global trends, is stable and showing a trend towards increasing where midwives are able to establish themselves autonomously in caseload practice.(32)

Thirdly, although hospital obstetric protocols and national specialist referral guidelines recommend women should have at least one consultation with an obstetrician, this usually means in practice a 'one off' visit, thus preventing the possibility of overservicing at a specialist obstetric level.(2;5) The New Zealand government does not have a policy to subsidise private obstetric care for otherwise healthy women, through a fee for service structure.(2;5) Fourth, the New Zealand health system does not underwrite incentive payment programs for general practitioners to be involved in breastfeeding and vaccination initiatives.(33)

A fifth cost effective measure is the sophisticated risk management strategy that the New Zealand College of Midwives has in place to deal with complaints and resolution concerning standards of practice. (20) Added to this is the annual Standards Review for all practitioners. (20)These strategies have guaranteed effective professional indemnity cover for New Zealand midwives in a climate where reasonable levels of insurance premiums are very difficult to obtain.(29)

AUSTRALIAN COMMUNITY MIDWIFERY MODELS

The Community Midwifery Programs in Western and South Australia, are the only publicly funded models currently available anywhere in Australia that offer autonomous primary midwifery care in a community based setting with the option of either a home or hospital birth. Both these Programs are community managed.(22;34;35)

All other examples are hospital based and managed, with some community based ante and postnatal care incorporated into the model.(22) The evaluations of the experimental alternative birthing strategies (ABS) programs established through special government funding in the early 1990's, showed that these models operated effectively for five years before funding was stopped, and were strongly preferred by women of all socio-economic and ethnic backgrounds.(36;37) Allowing two or three very small programs to thrive, however, does not spell any real commitment from the Australian government to recognise the valuable contribution in skills and education midwives bring to the maternity services.

AUSTRALIAN GOVERNMENT SPENDING IN MATERNITY CARE

Although it is clearly impossible to calculate the level of public spending in maternity in Australia, it makes common sense that a fee-for-service industry will always be more expensive than a capped finite budget for each episode of pregnancy and birth. In addition, at least 30% of Australia's mothers seek private obstetric care, which not only increases their likelihood of higher rates of obstetric intervention regardless of clinical need(38) but ensures a collateral payment by the individual, of anywhere between \$500 and \$6,000 or more for a straightforward birth and hospital stay, depending on the level of private health insurance cover.(39) This figure is predicted to rise further owing to the current crisis in professional indemnity cover for medical practitioners.(40) Some crude estimations of the magnitude of public spending can be made. For example, a calculation of the Medicare rebate for the 2000-2001 financial year shows that there were almost 1.5 million attendances made by obstetricians costing the public purse through Medicare, \$62.5 million dollars.(41) (The full cost of this service to women through the fees charged, was in fact \$120.1 million dollars(6)(p407). The average benefit paid by the government per service was \$42.9 dollars.(41) Hypothetically then, this cost can be extrapolated in population terms to the Commonwealth government paying approximately \$250.00 dollars for every woman, or an average of five visits to see a private obstetrician for every one of the 250,000 women in Australia who gave birth in 2000. Ironically the data from both New Zealand and Australia shows that women who are possibly at highest risk of complications during childbirth actually have less obstetric care, and it is the association between the number of obstetricians per women in any geographic region that more accurately predicts the rate of obstetric referral and intervention in both New Zealand and Australia(42;43)

Trial evidence does not support specialist obstetric antenatal care for low risk women,(44) and a recent Australian study of the prevalence and persistence of health

problems after childbirth found that 40% of women would have liked more help and advice to assist them in looking after themselves and their babies. (45) Australia has actively promoted the move towards “shared care” between hospital antenatal clinics and GPs and obstetricians practicing in the community. But there is little evidence that this has had the desired beneficial effect for women in promoting choice or less fragmented care, or that it operates as an integrated system of care.(46) The new casemix model of funding for episodes of care does not translate to care provision across boundaries from acute care facility to community care, and may even compromise standards of care.(47)

With the declining numbers of midwives in practice the lack of recognition in terms of remuneration and the invisibility of midwives within the Australian maternity system are the most commonly cited reasons for midwives not continuing to practice in Australia.(48) While New Zealand hospitals also report having difficulty recruiting hospital employed (non LMC midwives); the number of self-employed midwives with caseloads continues to grow. In 2000, more than half the active direct-entry midwives, 59.4%, reported their work as case-load midwives, and of these 36.7% were self employed.(32)

BIRTH INTERVENTIONS

Where women give birth in hospitals, regardless of the nature of the primary caregiver for childbirth, both countries reveal high levels of obstetric intervention (Table 2).

This finding is consistent with studies showing the over-riding effect of the hospital on different birth interventions(49) and the opinion of leading health policy analysts who claim that hospitals are possibly incompatible with integrated primary health care because they empower ‘health system dominance’.(50) It also supports the claims recently made in the British Medical Journal from consumers and obstetricians concerning the worrying trend of over medicalization of childbirth (51) where external control in the form of drugs and surgical interventions overrides the biological response to give birth without interference. The preliminary data on birth outcomes for the 12% of women who gave birth in primary midwifery led units in New Zealand shows a substantial drop in the rates of induction, augmentation, epidurals and surgical births.(29)

TABLE 2. FREQUENCY OF MATERNAL AND INFANT CHARACTERISTICS OF WOMEN GIVING BIRTH IN HOSPITAL IN AUSTRALIA AND NEW ZEALAND DURING 1999, IN PERCENTAGE RATES.

	Australia 1999 n = 253,352	New Zealand 1999 n = 53,273
Maternal and Infant characteristics	100%	92% (**8% 'missing')
Maternal Age		
less than 20 years	5.1	8.0
20 – 34	78.5	77.9
≥35 years	16.4	14.2
Infant Birth weight (g)		
<2500	6.7	6.3
2500-4499	91.5	91.3
>4500	1.8	2.3
Gestational age in weeks		
<37	6.4	6.8
37-41	91.3	86.1
>41	2.2	6.4
Labour & Birth		
spontaneous onset	61.9	71.7
spontaneous vaginal	66.2	68.7
forceps	5.6	5.3
vacuum	5.5	4.8
elective C/S	10.8	7.1
emergency C/S	10.2	13.3
Total C/S	21.9	20.4
Episiotomy	14.1	12.1
Postnatal hospital stay < 1 day	2.3	12.3
Postnatal hospital stay ▶ 2 days	27.8	54.3
Private hospital	28.6	2.7
Public hospital	71.4	90.3

Sources: New Zealand Ministry of Health. Report on Maternity,1999. <http://www.moh.govt.nz>

: ** percentage location not recorded (includes homebirths),8.0% ;Australian Institute of Health & Welfare (AIHW). Australia's mothers and babies,1999. Canberra 2001. <http://www.npsu.unsw.edu.au/ps11high.htm>

INDIGENOUS WOMEN AND INFANTS

The maternal and infant characteristics of the women giving birth in hospital in New Zealand and in Australia are quite similar, however differences exist in the ethnic makeup of the populations. In 1999, 65% of New Zealand women identified themselves as New Zealand European/Pakeha compared with 78% of Australian women who identify themselves as Australian. New Zealand has a larger Polynesian population, and an indigenous population

six times that of Australia 19% v 3.5%.(6;42) The outcomes for Indigenous people in terms of perinatal mortality show quite different trends in Australia and New Zealand.

One critical difference exists between the Indigenous people of New Zealand and those of Australia. The Maori people were signatories to the Treaty of Waitangi in 1840, between the British Crown and the Maori people, in recognition of their sovereignty. Australia has no such treaty and has also failed to even acknowledge through an official 'apology' the previously executed integration policies that saw Aboriginal and Torres Strait Islander children forcibly removed from their mothers during the early 1900's – the Stolen Generation.(52) The Indigenous populations of both countries suffered losses in self-determination due to the effects of white settlement and colonisation. This in turn has affected the health of Indigenous people as a result of cultural disintegration in terms of loss of identity, language and health practices due to the removal of land and sovereignty.(5;52) Recognition of the need for culturally appropriate care for Indigenous women, led both the New Zealand College of Midwives and the New Zealand government to actively encourage the support and retention of Maori midwives who have achieved some success in smoking cessation programs as well as offering information and support for traditional birthing methods.(5) New Zealand midwifery workforce data shows that whereas the percentage of Maori midwives in the workforce overall amounts to 5.3%, for the active midwifery workforce, holding direct entry qualifications, 14.4% identify as being New Zealand Maori. (32)

Research undertaken amongst Australian Indigenous women in 1999 and amongst the remote women of North Queensland in 1990-1993 highlighted the lack of midwifery services in remote and rural Australia despite the desire of many Indigenous women to give birth in their homelands as opposed to traveling hundreds of miles to busy tertiary centres away from families and community. (53;54)

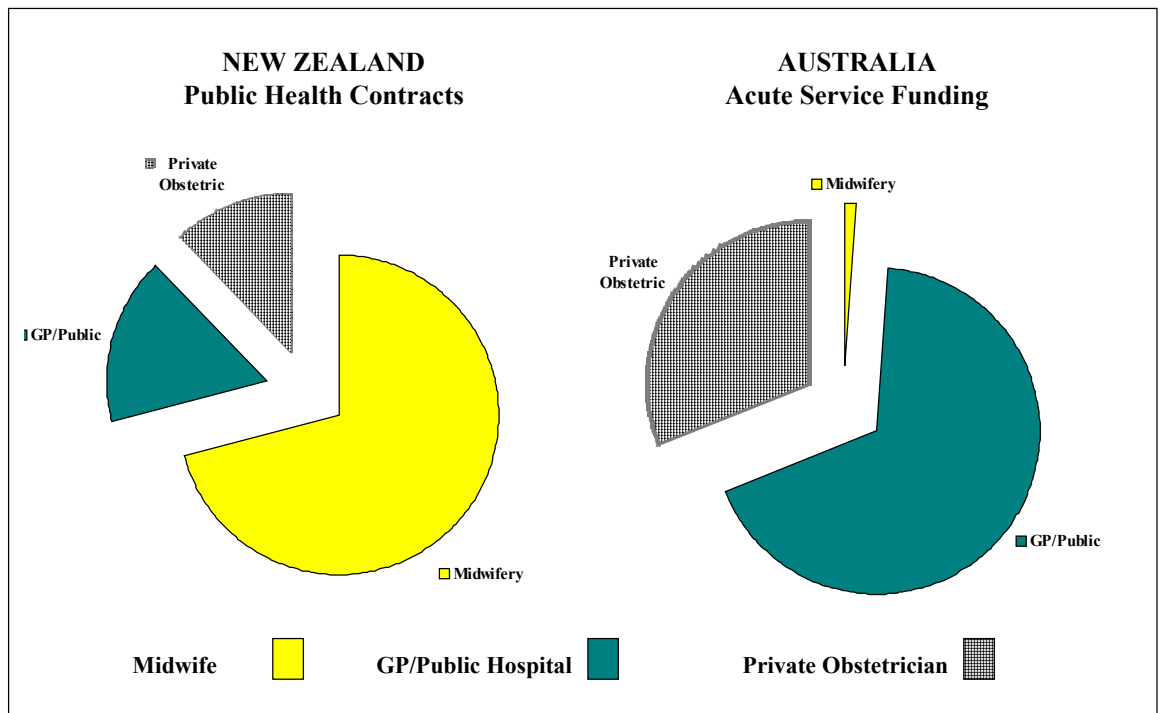
BACKGROUND TO THE NEW ZEALAND REFORMS

Prior to 1990, New Zealand women gave birth in very similar circumstances to Australian women today. Less than 1% of babies were born at home, and midwives were employed and managed in similar fragmented models of care. Twelve years ago, the Nurses Amendment Act, 1990, was introduced by the then New Zealand Minister of Health, the Hon Helen Clark, as a move to "increase the choices available to women and their families in childbirth services... to restore autonomy to midwives, who were previously limited by legislation" ...and to challenge the fact that "the majority of women have been socialised to perceive birth as an illness".(55)(p2] With the consequent revision of the Health and Disabilities Services Act 1993, then the introduction of the Maternity Services Advice Notice (Section 51) in 1996, the Lead Maternity Carer (LMC) concept evolved.(56) Under Section 88 of the New Zealand Public Health and Disability Act 2000, the nominated lead carer (LMC) claims payment for pre-defined clinical modules of care.(2) It is in effect a modular risk sharing contractual relationship between the health funding authority and individual providers, (57) that exhibits two essential characteristics of successful 'integrated care' provision;

namely service co-ordination and delegation of purchasing responsibilities.(57)The objectives are to foster collaboration among different services such as home and hospital, midwifery and obstetric; to meet the needs of an identifiable population - childbearing women; and to deliver improved outcomes within available resources.(57) It was designed to empower women to become the central focus of a service “based on partnership, information and choice”. (5;30)(p10)

Information derived from the Health Benefits payment data set in New Zealand forming the new Minimum National Data Set, with data recorded for only 39,406 of mothers (30% less than the known total) shows that in 1999, in New Zealand, 70% of women registered with a midwife Lead Maternity Carer, 19.8% GP, and 14.2% Obstetrician LMC.(42)(p77) **NB** A further 8% of women In New Zealand who do not give birth in hospital have midwife only care

FIGURE 2. THE PERCENTAGE OF MIDWIFE, OBSTETRIC AND PUBLIC HOSPITAL CARE AS LEAD MATERNITY CARER (LMC) CHOSEN BY WOMEN IN AUSTRALIA AND NEW ZEALAND



Sources: New Zealand figures from NZ Ministry of Health. *Report on Maternity 1999* p77;
 Australian figures from New South Wales data for private obstetric care; and national data for birth centre and homebirth (midwife only care)
 Roberts CL, Tracy S, Peat B. Rates for obstetric intervention among private and public patients in Australia: a population based descriptive study. *BMJ* 2000; 321: 137- 141 <http://bmj.com/cgi/content/abstract/321/7254/137>
 Australian Institute of Health & Welfare (AIHW). *Australia's Mothers and Babies, 1999*. Canberra 2001. <http://www.npsu.unsw.edu.au/ps11high.htm>

Home birth increased from 0.5% in 1990 to 8% in 1999, and the shorter average length of hospital stay reflects the level of continuing postnatal care at home.(5) The process of government policy to define childbirth as a life process rather than a medical event (2;5) and giving midwives, general practitioners and obstetricians equal status in the provision of

services around childbirth (2;5) encouraged women greater access to primary health care, and gave weight to their choices. It clearly spells out to providers their responsibilities and holds them contractually as well as professionally accountable. Although a government funded Review of Maternity Services in New Zealand in 1999(58) found that women were consistently well satisfied with their pregnancy care by independent midwives (58)(p39), there was also sharp criticism at the time that this radical experiment in maternity care was not accompanied by any method to regularly collect and systematically analyse clinical outcomes and service delivery outcomes.(59) This is now being addressed with the proposed introduction of the Maternal and Newborn Information System in 2003.(2;60)

AUSTRALIA'S PUBLIC HEALTH PARTNERSHIP STRATEGIES

Recognition of the public health role of the midwife has been negligible in Australia, despite the government's strong commitment to public health through the National Public Health Partnership program.(61) Both the National Breastfeeding Strategy and National Immunisation Program were launched in 1997 as part of this major government initiative.(61)

There are several areas as yet unexplored, within these programs where midwives could have a valuable public health role. For example, a recently published evaluation of the Australian Childhood Immunisation Register (ACIR)(62) reviewing performance in terms of data capture and quality, found two critical performance indicators that are fundamental to the operation and integrity of the ACIR strategy. They were:

- 'the time lag between date of registration through Medicare notification
- and the vaccine lag time or lodgement delay' (62)(p.iii)

The first problem, in registering newborns with Medicare, may take any time from 51 to 75 days following birth so that the initial vaccine notification and the first treatment that should ideally be given 46 days doesn't happen in time. At present this initial registration is dependent on mothers taking their babies to a doctor to link into the system through Medicare. One of the recommendations of the study was that to enrol mothers and their babies with Medicare when they left hospital after birth.(62) This would certainly ensure that the database is complete, but studies have shown that it is essential that personalised strategies are developed to assist each mother to take advantage of immunisation for her child and that a lack of detailed and balanced information, and health providers not listening to or understanding mothers' concerns are significant barriers to vaccination.(63) There is a potential here for midwives to inform and 'link' mothers and the Australian Childhood Immunisation Register (ACIR), as their counterparts do with the well child services and GP's in New Zealand. The issue of the 'time lag' between vaccination and reporting to the register could be overcome if women were informed postnatally that the reporting was linked to their own Maternity Allowance payment as well as that of the GP. (Part of the Australian government's 'seven point plan' for immunisation designates financial incentives to parents as an extra \$68 to the Maternity Allowance on successful immunisation of the child; and an

incentive payment of \$18.50 to GP's for giving a vaccination and reporting it to the national vaccination register.(64) If women were well informed postnatally of the current vaccination schedules and the financial incentive offered by the government they may 'drive' the system far more effectively by initiating the link themselves between the national vaccination register and the incentive payment.

Breastfeeding has also been strongly promoted through the National Public Health Partnership program in Australia with the National Breastfeeding Strategy allocated a substantial funding of \$2 million in 1997.(61). The evidence from systematic reviews suggests a strong link between successful antenatal and postnatal care and breastfeeding.(65) So far, however, the funding for this service has been directed to medical practitioners with little or no connection to antenatal or postnatal care, at the exclusion of midwives.

Australian midwives are overlooked as agents of public health mainly because they are managed within the acute health care model in isolation from the wider social determinants of population health. Australian women are doubly disadvantaged in that they have no voice in the policy or funding decisions of the maternity service, which would ensure them a choice of carer other than a medical practitioner.

CONCLUSIONS

The fundamental difference in funding policy between the two countries, sustains an integrated approach between family, community and hospital in New Zealand where midwives are recognised as autonomous practitioners who negotiate independently with childbearing women for the provision of midwifery care. Their role includes working with women antenatally and postnatally to assess needs, ensure good co-ordination of care, continuity of carers and referral to support groups, community agencies and other health services. [4,19] In comparison, Australian midwives have become an integral part of the hospital system that links obstetric medical care and the childbearing woman. There are many possibilities for enhancing the experience of birth and the public health role of the midwife when the emphasis of maternity care is moved from a medical birth outcome. Further research is recommended to identify whether achievable public health outcomes can be reached by funding a model of midwifery care that is based around women's perceived needs both in the community and in hospital, compared to a model funded and managed as an acute medical service.

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PART 8: GRAFFITI - A MEASURE OF UTTERANCE

CONTEXT

This component of my portfolio is based on the exploration of the basis of a new research method. The Graffiti method was devised explicitly for the purpose of engaging and seeking the views of midwives across Australia, on the questions relating to their current situation within the wider maternity service. This was one of the major areas of inquiry within the AMAP project⁷⁶. I have described the way the method evolved chronologically, and also in terms of the intrinsic nature of the method. The application of the method and what was produced is an integral part of the Professional Doctorate of my colleague, Pat Brodie and will be found in her thesis. The results and conclusions of the Midwives Voices study will be found in the Journal of the Australian College of Midwives Inc.⁷⁷ My part of the project is to describe and elaborate on the development of the Graffiti method. I have discussed some of the theoretical constructs that underlie the method, drawing on the writings of modern French theorists such as Gilles Deleuze, Claire Parnet, Felix Guattari and Roland Barthes, and the feminist theorist, Elizabeth Grosz.

This is a formative exploration of a method that could become a tool for other similar research projects. It highlights the multiple connections between social forces and institutions in the maternity arena without falling into a modernist philosophical framework that only recognises 'hierarchical systems representing centres of significance and subjectification' (Deleuze and Guattari 1987, p16). Or, as Elizabeth Grosz describes her understanding of these concepts, " simply describing interrelations and connections without subordinating them to an overarching order, system, or totality,' (Grosz 1994, p196).

For me, the method is a tool for describing how we connect with the complex reality within and around us at a certain moment within our existence and encourage others to connect and inform us.

⁷⁶ See Pp for a full description of AMAP

⁷⁷ Brodie P. Addressing the Barriers to Midwifery - Australian Midwives Speaking Out .Aust. J. Midwifery 2002;15(3):

The minimum real unit of writing “ is not the word, the idea, the concept or the signifier, but the assemblage. It is always an assemblage which produces utterances. Utterances do not have as their cause a subject who would act as a subject of enunciation, any more than they are related to subjects as subjects of utterance. The utterance is the product of an assemblage – which is always collective, which brings into play within us and outside us populations, multiplicities, territories, becomings, affects, events.....the author is a subject of enunciation but the writer - who is not an author – is not. The writer invents assemblages starting from assemblages which have invented him, he makes one multiplicity pass into another.”

Deleuze and Parnet *Dialogues* 1987 p51-2

BACKGROUND

The concept of graffiti has always interested me from the point of view of its unruly and egalitarian association with democracy in the purest sense, the freedom of expression. It manifests in many forms - the art of the underdog, the voice of the people, the expressed anger of the dispossessed, the instantaneous thought process that blurts out unstructured and unrefined. It finds its way into our lives by appearing in unpredictable yet accessible places. It can be both an intensely private and an overtly public outcry.

Derived from the Italian word “graffio”, a scratch, the action of graffiti has not changed significantly in two thousand years. Contemporary graffiti would be considered less refined than its classical ancestry, but graffiti has always meant ‘ a drawing, or writing scratched on a wall or other surface, as at Rome and Pompeii’ (Shorter Oxford, 1969). In Medieval and Renaissance times it achieved the status of an art form called “sgraffito”. This was a technique in art in which one colour was overlaid with another and a design scratched through. Medieval and Renaissance buildings were sometimes decorated with two layers of plaster - one white, one coloured - and a scratched decoration was applied. The term “graffito pottery” refers to this scratching decorative technique.

In 2002, an art historian, Véronique Plesch, published a scholarly treatise on the occurrence of graffiti on religious wall paintings, and on other public spaces during Medieval and modern historical times. Graffiti was used as both a vehicle of “appropriation” and also to maintain a “presence”. In the case of the wall above the Aquila Tower in ancient Trent, for example, it functioned as a "contact zone,"a site where a dialogue between two conflicting entities could take place’. (Plesch 2002). The marks left by pilgrims in holy sites--graffiti in particular--are testimony to the desire of recording a visit, and even of maintaining a presence: "to write one's name somewhere in a sacred place leaves a presence, one that outlasts the brevity of a life, indeed 'forever.'"(Plesch 2002 p 169). The Oratorio di San

Sebastiano at Arborio, a small chapel probably first built in the Romanesque period, on the outskirts of the Piedmontese town of Arborio (about 60 km west of Milan) has been the site of graffiti-making on paintings for at least four centuries. " Some of these paintings received an extensive set of graffiti over time. The corpus is remarkable both by its extent--some 150 entries can be deciphered--and by the uniformity of many of its features. All the inscriptions follow the same structure: starting with a date, they record significant events in the life of this community, using a simple vocabulary and grammatical structure that remain constant over the course of the centuries. The majority of the inscriptions are in Italian, and a few, among the earlier ones, are in Latin. The earliest surviving entry dates to 1531 and the most recent to 1889. Yet the practice may have started earlier; pictorial layers can be detected under the mid- to late-fifteenth-century frescoes, and these might well contain more graffiti. Further examples of this form of graffiti survive, for example, at San Giulio's basilica on an island in the nearby lake of Orta. Plesch reports "on the thigh of Saint Donnino, for instance, several inscriptions dated 1513 are legible: "1513 die 21 *aprilis imp. . . ventorum*" (1513 on the 21st of April . . . wind); "1513 *die 22 aprilis pruina maxima*" (1513 on the 22nd of April there was the greatest frost); "1513 *die 23 aprilis neve maxima*" (1513 on the 23rd of April there was the greatest snowfall" Instead of statements by an individual who hopes to leave a mark of his passage, all these graffiti made in a religious setting represent the recording, and thus the preservation and memory, of data which is of concern to an entire community. (Plesch 2002 p 180)

In modern usage, graffiti is a versatile and universal method of expression. For example, it becomes a personal signature--a sign of voices that do not wish to be silenced, or a powerful tool for self-definition. Although the toilet is arguably the most common repository for graffiti in contemporary society, it does not limit itself to this environment. The walkway to the Casa di Guilietta (Juliet's house) in Verona is a fine example of passion and expression! Aroused by the love story of an unrestrained Romeo and his Juliet, the street itself has become a public proclamation of love over the centuries. (See following). Many cities boast a public place of expression. Some have billboards erected for the explicit encouragement of freedom of speech (Ninnes 1998). But more commonly the process of free speech is regarded as a semi-subversive pastime and many city councils budget for the removal of unwanted graffiti (New York Times date, Australian 12/06/01).

The wall, as a site for graffiti, provides an edifice that both abridges and separates the space where dialogue exists. "In contrast to the page's rigid spatial stratification, the wall offers what Deleuze and Guattari would call a rhizomatic space: inscriptions can begin and end anywhere, can proceed unpredictably in any direction, can form surprising juxtapositions, layerings and diagonal relations " (Nandrea 1999p 110). Among the most infamous in our modern history, was the Berlin Wall that provided reinforcement for the despair and hopelessness scratched out on it. Similarly in Israel, following the assassination of the Israeli Prime Minister, Yitzhak Rabin, in 1995 young people drew on the walls around Rabin Square where the assassination occurred. Researchers found that the graffiti became the cultural

apparatus for expression of the unexpected and ever-changing situations of powerlessness, loss and existential anxiety (Klingman & Shalev 2001; Luzzatto & Jacobson 2001).

Contemporary societies display ambivalent attitudes towards graffiti. On the one hand graffiti is regarded as vandalism, disrupting the social order in a way that is considered morally and aesthetically base (Luzzatto & Jacobson 2001). In other contexts graffiti attains a measure of respectability and utility. For example, the Newton Institute in Cambridge, UK, was built with custom-made graffiti boards on all walls and behind all toilet doors. Chalk and dusters are provided and signs advise everyone to be considerate and not remove any graffiti for which they are not responsible. (This allows the author to safely transfer the graffiti to laptop at a more convenient time!) Graffiti is 'de rigeur' as a prelude to serious mathematical problem solving for eminent scientists such as Stephen Hawking and his fellow visiting physicists.⁷⁸

Official graffiti displayed in signs of prohibitions, warnings and instructions manifest a distinct form of hegemony that is exercised through the small daily acts of everyday governance (Hermer & Hunt 1996). Signs such as the prohibition circle with a slash, (No Smoking, No Eating, No Drinking, No Dogs, No Surfboards), display the regulatory authority of the absent and anonymous 'experts'. They become the site of resistance through defacement and vandalism as well as constructing notions of danger and risk in public spaces (Hermer & Hunt 1996).

Pavement art, subway signs and even 'Tele graffiti' (*New Scientist*, 2001) all add to the diversity and repertoire of graffiti in their displays of doodles, love, hurt, loneliness, threat or militancy. There is hardly a human emotion that has not been scratched out somewhere to provoke others to consider it. Ordinarily we write on pages... a space with a logic that is literally prescribed and machines to map it out for us (Nandrea 1999). Graffiti is invasive; it is the physical invasion of public space, and it forces us to witness something. The nature of graffiti is unrestricted. It does not follow any set rule of expression. It is unrehearsed and honest; it is both candid and sincere. Above all it is accessible and free.

⁷⁸ I had personal experience of the graffiti phenomenon at Cambridge during the 1990's when I was part of the nursing team caring for Professor Stephen Hawking.



(Above) The Berlin Wall – a site for graffiti

(Below) The walkway to the Casa di Guiletta, Verona, 1995 – a site for graffiti



INTRODUCTION

When my colleagues and I were faced with the prospect of finding out what midwives from all around Australia perceived as the barriers to their practice, we were confronted with several large obstacles. On the one hand we could guess that there may be in the vicinity of 10,000 practicing midwives currently working in Australia, and they would be scattered over a country that encompasses eight state and territory boundaries and a landmass the size of Europe. To identify areas of greatest concern and interest to the midwives being surveyed, and also to enlist the responses of the largest possible sample of midwives within Australia, we chose a method that fits closest to the metaphorical notion of graffiti.

Graffiti, for all the reasons elicited in the introduction, became the most rewarding vehicle for accessing data.

- It provided the anonymity with which midwives could freely express their grievances without the threat of reprisal or punishment for what might be seen as 'whistle blowing'
- It provided the 'edifice' on which to construct a dialogue between those who wanted to have their say, and those who were willing to listen.
- It became the 'rhizomatic' space where expression could proceed unpredictably in any direction providing layers of information and unlocking, I suspect, latent anxieties and culturally suppressed voices.
- It facilitated the invention of an 'assemblage' – a collective or group writing with one another as a means of drawing together fragments and creating new dimensions and connections.
- Above all it appeared to be both liberating and lots of fun for the researchers and the midwives engaged in the process.

During the years 1999-2002 the graffiti method evolved as a research tool in the Australian Midwifery Action Project (AMAP) as the research midwives gathered responses from midwives in Australia on the following two questions:

- What are the barriers to the provision of safe, efficient and economic midwifery care within maternity services?
- What are the strategies to overcome these barriers?

We always preceded a data gathering exercise with an outline of the project, with preliminary results if they were available, and an invitation to all the midwives to come and have a say about the situation confronting the profession in Australia today. In the very first instance, we held interactive forums where the researchers scribbled responses and ideas down onto graffiti sheets. These sessions were similar to a brainstorming exercise following a class. This form of data collection was supplanted by another sort of interactive forum where midwives were encouraged to make their way to the graffiti sheets during morning tea and lunch breaks, or immediately following the presentation by the researchers, and 'have their say' about the project and the issues being addressed.

This next evolution involved 'graffiti boards', in the form of large sheets of paper from floor to shoulder height fastened to the walls of the seminar room and below them, pens provided for writing. Very often groups of midwives would write up collective statements or phrases. The writing might take up a whole section of the wall, or alternatively an insignificant corner of one of the sheets. The paper that had been attached to the walls was collected at the end of the day and catalogued with the date and location of the conference and the number of midwives who had attended the presentation or information session.

During the second year of the project, in order to access as many midwives as possible, the method evolved a little further. We added another communication vehicle to the graffiti sheets that were pinned up around the rooms where we presented. We had 'graffiti survey' sheets placed individually on chairs in the conference room where we were presenting. The sheets had the two questions placed at the top and plenty of room left for comments and thoughts to be written on the page. These were again anonymous contributions that were posted in a 'graffiti box' at the back of the hall on completion of the conference – in much the same way an evaluation sheet would be collected. Midwives were reminded during the conference to 'have their say' on the walls and on the sheets. Any and all comments were welcomed.

The next evolutionary step involved a single graffiti sheet incorporated as a supplement in the professional journals. Several of the professional journals provided us with the opportunity to access midwives who may not have attended conferences, but who nevertheless may have wanted to make some contribution to the project. The single 'graffiti sheet' (the same as the one placed individually on chairs mentioned above), was incorporated in a page of the journal with the instructions for midwives to 'have their say' and send or fax the responses back to the research midwives. The final avenue was a web page designed so that midwives could respond anonymously to a web based 'graffiti sheet' via the World Wide Web site. As the method was innovative and continued to evolve and expand during the life of the project, the Midwives Voices study⁷⁹ (Brodie 2002 In Press) became a study involving multiple methods of data collection. The various manifestations of the Graffiti method embraced several unique theoretical constructs that form a framework for the method itself.

KEY THEORETICAL CONSTRUCTS

In analysing the dimensions of the graffiti method I have drawn on selected writings of Roland Barthes, Gilles Deleuze, Claire Parnet, Felix Guattari and Elizabeth Grosz, to illustrate and clarify several of the theoretical concepts informing the method. In particular, readings from the essay "*From work to Text*" (Barthes *Image-Music-Text* 1977 Heath trans.), and "*Dialogues*" (Deleuze and Parnet, Tomlinson and Habberjam trans 1987), and "*A thousand*

⁷⁹ See Brodie P 2002

Plateaus" (Deleuze & Guattari, Massumi trans, 1987) have influenced my exploration of the following qualities of the midwives responses:

- The 'assemblage' in relation to text - the minimum real unit, not the word, the idea, the concept or the signifier, that produces 'utterances' (Deleuze and Parnet 1987 p 51). The utterance as the product of the assemblage, is always "collective, brings into play within us and outside us populations, multiplicities, territories, becomings, effects and events" (Deleuze and Parnet 1987 p 51) The intrinsic nature of Graffiti as 'rhizomatic' (Deleuze & Guattari 1987 trans.) enriched the data in a way that was quite unique and very satisfying. The methodology revealed that every point connected to every other, creating a non - hierarchical database of responses that flowed and formed surprising juxtapositions and relationships within and between each other.
- A 'wall' or plane that through inscription is transformed to a 'rhizomatic' space (Deleuze & Guattari 1987) for dialogue where layered comment develops naturally into 'axiomatic codes' (Strauss & Corbin 1998) for analysis. The 'wall', or data collection sheets that constituted a wall, provided an 'edifice' of anonymity, and a contact zone where dialogue was made possible between anonymous respondents. The graffiti sheets illustrate an 'assemblage' of authors (Deleuze and Parnet 1987), that arose from the desire to speak out and to write and speak *with* others. "This assembling, being in the middle, on the line of encounter between an internal world and the external world" (Deleuze and Parnet, *Dialogues* 1987p 52) meant that the graffiti writings of the midwives became the site of mediation between the internal world of thought and the external world of moral and political action.
- The non-recognition, the anonymity of 'author' (Barthes 1977, Deleuze and Parnet 1987, Deleuze and Guattari 1987), to release the powerful revolutionary potential of the 'text'. The success of the method was interdependent with the needs of a profession dealing with situations of powerlessness, existential anxiety and a degree of horizontal violence (Kirkham 2000).
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TECHNIQUES USED FOR GRAFFITI SHEETS

The method appeared deceptively simple, but there were some common ground rules that needed to be in place before a graffiti a session could be undertaken successfully.

The success of a graffiti sheet depended largely on being able to motivate and excite midwives to consider their situation, and to feel motivated enough to make a conscious effort to write up some of the opinions they held most strongly at the time. For this reason the sessions were planned to run simultaneously with the various midwifery conferences we attended. One or both researchers would outline the project, its relevance to change, the opportunity being offered all midwives to "have their say", and the value the research project itself placed on the contribution of the midwives. Ideas were written up on large sheets of paper at morning tea and lunchtime. In the first instance this was done by one of the

researchers. These sessions contrasted with what would be described as a “jam session” specifically because the aim was not to achieve consensus and harmony. The researchers did not obstruct the path of consensus or general agreement, but the chief aim of the session was to encourage free, uncensored expression, including friendship, support, anger or discord.

TECHNIQUES USED FOR GRAFFITI BOARDS

This method gave way to the technique of having the large sheets of paper stuck around the walls (graffiti boards) and coloured felt pens left beside each sheet for the midwives to write up the contribution themselves. It was important to incorporate this session into the days proceedings, because midwives were encouraged to express anger or discord following presentations which had deliberately set out to make them think critically about the relevant issues. I doubt that the energy and enthusiasm for participation would have been aroused as acutely if the participants had been invited to attend a focus group and the proceedings moderated by the researchers.

The researchers presented the research proposal to the conference and openly invited participation in the project. They consciously engaged with the audience to ‘have their say’ and assured midwives that their participation would be valued. They also encouraged midwives representing the minority groups, for example, rural and remote midwives, to ‘have their say’. We purposely avoided structuring focus groups for this exercise in the hope that if we gathered ideas and spontaneous opinion in the form of a ‘graffiti board’ we would accomplish several things. The first was to illicit response from midwives who might otherwise defer to expert opinion and remain silent or intimidated. In this respect the graffiti method set out to achieve a similar response to that achieved by the role of the devil’s advocate in focus groups (MacDougall & Baum, 1997). Secondly, we were aware of the need for equity in addressing the concerns of rural, remote and urban midwives. The perceived needs of these groups differed markedly across the spectrum of issues such as education, employment and feelings of worth and professional autonomy. Very often, however, the rural or remote midwife was outnumbered by her city counterpart, and it was necessary to promote an egalitarian environment, unthreatening and democratic, in order for all the voices to be heard clearly.

The size and popularity of the conference predicted the sample size in each case. From the perspective of the researchers this was a very economical and innovative way to access midwives from widely divergent demographic strata. In a macrocosmic sense the group was homogenous in that the sample consisted entirely of registered midwives, who by their attendance suggest they were motivated and committed. But within the microcosm of the profession the sample was strongly heterogeneous and diverse in a number of ways, with representatives from rural, remote and urban settings, from teaching, research, management across clinical practice fields. Where respondents were not midwives they were also invited to add this to their responses.

The plan to gather responses via the Web site was embraced enthusiastically by many midwives who see themselves isolated by distance from many of the main urban centres. The information they offered was invaluable to the project in offering a rural or remote perspective on the issues in question. Often the responses from rural midwives were 'posted' on the web site as a group response from the delivery unit of a hospital or clinic 'somewhere'. The only identifying feature as to the whereabouts of these places was the optional field for a postcode. Most respondents filled in their postcode.

AUTHORS COMMENTS ON THE METHOD

The graffiti board clearly fits the idea of a metaphorical concept (Wurzbach 1999), used to convey new insights by using a comparison to another word or idea, making different aspects of the experience intelligible in terms of each other. The graffiti metaphor provided a tacit explanation of the levels of participation and involvement that occurred during the process of qualitative data gathering. By structuring the exercise in the form of a graffiti board we could reflect on exciting and innovative ways to introduce our research project and engage a large group of midwives to participate actively in the research process about to be undertaken. The graffiti session was in effect a conventional qualitative data gathering exercise, but it was more than this. It was also an exercise in raising consciousness and promoting interest and involvement in the project especially since the public nature of the 'wall' created a dialogue or debate between individual and ostensibly anonymous participants. Further analysis of the method is required to discover whether at a deeper level, the metaphorical process of making graffiti may have become an apparatus for dealing with situations of powerlessness and anxiety.

COMMENTS ON GRAFFITI SURVEY SHEETS

The individual 'graffiti survey sheets', as distinct from the large 'graffiti sheet' and the 'graffiti board' described above, were designed to provide a vehicle for an anonymous, unstructured response as a collective or individual exercise, frequently completed in isolation or at least privately. Data collection via the individual 'graffiti survey sheet' was achieved by

- a) Collecting the sheets at the end of a conference, from the seats or the 'graffiti box' placed at the back of the hall, or,
- b) inviting mailed responses to the project on sheets distributed through the professional nursing and midwifery journals.

Most midwives across Australia receive these through membership of their professional or industrial organisations - The Australian Nursing Federation (ANF) and its branches, and the Australian College of Midwives (ACMI). Nursing journals were used to distribute the graffiti survey sheet. Because many midwives are not members of the ACMI, but are members of nursing industrial organisations for legal and insurance reasons. Dissemination through these journals allowed for a wide distribution. Over 120,000 'graffiti survey sheets' were posted to members of these organisations. Distribution using this method, however, was not targeted to

midwives, as databases from the industrial body do not identify which of their members are registered midwives or who are in fact currently practicing clinicians. There was also the potential that midwives may have received the graffiti survey sheets through a variety of sources because of their affiliation with several of the organisations that assisted in the distribution. About three thousand of the graffiti survey sheets were also sent specifically to midwives who were members of the ACMI, through the 'Journal of the Australian College of Midwives'.

The graffiti survey sheets were anonymous, as participants could not be identified in any way, unless they chose to identify themselves. The graffiti survey sheet increased the level of anonymity compared to the original wall located 'graffiti sheet', and provided access to midwives who could not, or chose not to attend conferences and seminars. It did not allow the researchers a deeper insight beyond the actual word, into the nature of responses, as indeed the 'graffiti boards' did, in terms of colour and size and shape of the writings, or the drawings that accompanied the text.

COMMENTS ON GRAFFITI WEB BASED RESPONSES

The electronic 'web based graffiti survey sheet' generated responses to the two research questions through the website of the Centre for Family Health & Midwifery, University of Technology, Sydney. The web based survey was advertised through the conferences, seminars and journals and by word of mouth using hospital managers from the member hospitals of the organisation 'Women's and Children's Hospitals Australasia' and other Industry Partners for the AMAP project. Once again the anonymity of the respondent was ensured and the space was provided for a response from groups of people adding various comments on each other's contribution, as well as private individual responses. The prescriptive nature of an electronic response once again deprived the researchers of the richness of the responses that were observed on the graffiti boards mentioned above. There was no attempt to construct a question line or question guide (Dawson et al, 1992).

DATA ANALYSIS

The data analysis followed very closely the methods described by Glaser B & Strauss A (1967), Strauss A & Corbin J (1990) and Strauss and Corbin (1998 revision). All ideas and suggestions were copied to disc and a thematic content analysis was undertaken by one of the researchers⁸⁰. The computerised software package known as NUDIST ('Non numerical unstructured data indexing searching and theorising') was used to organise the data..

(For a full report on the Midwives Voices study, the analysis, results and conclusions, please see Brodie P, 2002⁸¹)

⁸⁰ Brodie P. Addressing the Barriers to Midwifery - Australian Midwives Speaking Out .Aust. J. Midwifery 2002;15(3):

⁸¹ op cit

DISCUSSION AROUND THE GRAFFITI METHOD

I have chosen to discuss the Graffiti method in light of readings around the concept of graffiti, and around the operational concepts of 'text' and 'author' with special reference to readings from several French theorists and philosophers, Deleuze and Parnet, Deleuze and Guattari, and Roland Barthes.

The study we undertook as part of the AMAP project became known as the Midwives Voices study (Brodie 2002). The innovation occurred in the area of conceiving of data gathering and analysis alongside participation. We reached for the metaphor of 'graffiti' to describe the method of gathering data from the midwives in the study.

The Graffiti method differs from a descriptive or exploratory survey study design in that it makes little or no attempt to relate one variable to another in a search for 'accurate information about the characteristics of particular subjects, groups or institutions or about the frequency of the phenomenon's occurrence (LoBiondo – Wood and Haber 1994). Rather it relates to the reality that midwives perceive themselves to be in - for example, positions of strength or powerlessness, professional crisis and change, and the multiple understandings of how these situations might be overcome.

In its claim to a metaphorical notion of graffiti, the method assumes a position that is quite different to one that we commonly encounter in qualitative research. The nature of responses and the way they are gathered lends richness to the data by offering an insight into the existential anxiety and collective consciousness of the profession. The data gathering process allowed a form of analysis to occur of data that emerged within what Deleuze & Guattari describe as a 'rhizomatic' space (Deleuze & Guattari 1987).

To describe the concept of 'rhizomatic', as described by Deleuze and Guattari (1987), one must look first at the botanical derivation for the term. The rhizome in botanical terms is a stem that grows laterally at the soil surface, or under the ground from which rootlets are sent off (Browse 1993). It is different from a tree, for example, because it doesn't have a central taproot. This is pivotal to the discussion of Deleuze and Guattari. " Rhizomatics opposes itself to both what Deleuze and Guattari call the tree image and what they call the root image. The tree metaphor is an emblem of linear, progressive, ordered systems.....the root metaphor also presumes a unity, but like the root itself, this unity is hidden or latent, and thus may present itself as if it were decentred or nonunified" (Grosz 1994 p 199) So the rhizome is decentred and eclectic. According to Deleuze and Guattari it is 'a chaotically distributed network rather than a regular hierarchy of trunk and branches' (Deleuze and Guattari 1987 p300-301).

“ The rhizome connects any point to any other pointis reducible neither to the One nor the multiple. It is composed not of units but dimensions, or rather directions in motion. It has neither beginning nor end, but always a middle (milieu) from which it grows and which it overflows...the rhizome is made only of lines: lines of segmentarity and stratification as its dimensions...the rhizome operates by variation, expansion, conquest, capture, offshoots...the rhizome pertains to a map that must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable and has multiple entryways and exits and its own lines of flight “

Deleuze and Guattari 1987, p21.

Elizabeth Grosz interprets this to mean, “it is based on connections, bringing together diverse fragments – not only different theories, but also theories with objects and practices; it is based on heterogeneity: these multiple connections. ...bring together very diverse domains, levels, dimensions, functions, effects, aims and objects; It is based in multiplicity.....a genuine proliferation of processes that are neither ones or twos; It is based on ruptures, breaks and discontinuitiesand is based on map making and experimentation” (Grosz 1994, p 199-200).

In the introductory ‘plateau’ of *A Thousand Plateaus* Deleuze and Guattari establish the ‘map’ as integral to the rhizomatic method. The map ‘constructs the unconscious’ and is ‘open and connectable in all of its dimensions. It can be drawn on a wall, conceived as a work of art, constructed as a political action or as a meditation’ (Deleuze and Guattari 1987 p 12).

The response of the midwives in the Midwives Voices study demonstrates this disjointed nature of utterance. Responses grew from initial statements or phrases or words through being added to or joined by lines and arrows. Ideas were written up as a consensus statement from groups of midwives or written up separately and added to by midwives next in turn.

The ‘wall’ or in this case the graffiti boards of paper pinned around the conference setting walls, having provided the rhizomatic space, confirmed at the outset a different sort of linguistic structure. Midwives elaborated on comments already written up, in some cases disagreed, in others, underlined the outburst to reinforce their agreement. We found this structure lent itself most appropriately to the sort of coding procedures followed in grounded theory method through thematic content analysis. The graffiti session often produced the category and the subcategories with their relationships established by the positions of the responses to a main theme or comment. Midwives would draw lines to reinforce the relationship between a particular comment already written up, and the one they were about to write.

The creative implications of graffiti extend further than the actual presentation of data within this rhizomatic space. There are implications regarding the text itself and the presence

or non-presence of the author that I would like to explore further. The use of graffiti as part of the design within an otherwise well documented qualitative method such as grounded theory, corresponds most closely to what Barthes describes as an “epistemological slide’ (Barthes 1977 p155), a mutation or an interdisciplinarity that has occurred with the breakdown in the solidarity of disciplines such as linguistics, anthropology, etc, following crises in the humanities and human sciences. Scholars of Barthes’ writing refer to this movement as one that could be roughly compared to the movement in physics from the thinking of Newton to Einstein (Payne 1997), but I suggest the ‘epistemological slide’ is more closely compared to Heisenberg’s understanding of the nature of language when describing his discovery that chance is inherent in the nature of a system, and not merely imposed on it by our limited understanding. In Heisenberg’s words,

“the real problem behind these many controversies was the fact that no language existed in which one could speak consistently about the new situation. The ordinary language was based upon the old concepts of space and time and this language offered the only unambiguous means of communicationone should simply wait for the development of the language, which adjusts itself after some time to the new situation”

Werner Heisenberg 1962 p 162

In a sense, the graffiti utterances illustrated and confirmed Barthes designation of text rather than work, as the object of study. The graffiti represented a new language system that included “the relativity of the frames of reference” (Barthes 1977 p156) ie, the text becomes a “methodological field”, and a “ process of demonstrationin the movement of a discourse” (p157). The reading of the text is defined by the text itself – ie “the text knows itself as a text “ (p157) and calls up and questions preconceived notions of language and subjectivity for the reader. Ultimately the “text is experienced only in an activity of production” (p157). According to Payne’s reading of Barthes (Payne 1997), the “ distinguishing feature of the text is its ability to exert a ‘subversive force’ against what are presumed to be established generic classifications (such as a novel, a poem, essay) or disciplines (such as economics, philosophy, literature). Because the text is perpetually exploring the limits of such rules of enunciation as rationality and readability, it resists all forms of classification.” (Payne 1997 p 4) The text, according to Barthes, will determinedly resist whatever efforts are made to curtail its multiple significations because the text is ‘woven out of citations, references, echoes, cultural languages which cut across and through it like a stereophony” (Barthes 1977 p160).

Similarly Deleuze and Guattari are interested in the connections and interrelations that a text makes. “ We will ask what it functions with, in connection with what other things it does or does not transmit intensities, in which other multiplicities its own are inserted and metamorphosed, and with what bodies without organs it makes its own converge...writing has nothing to do with signifying... It has to do with surveying, mapping, even realms that are yet to come’ (Deleuze and Guattari 1987, p4-5).

The text of the graffiti demonstrated all these qualities. Words shouted off the page; exclamations, expletives, long drawn out descriptions of hopeless situations; demands, commands for change and recognition. Always the voice and hand were anonymous. The author was never acknowledged, may never have existed except as a member of an 'assemblage' or group energised by one another to propose both conservative and outrageous strategies for change at a personal or political level. The respondents felt they had nothing to lose.

To elaborate on the theme of 'author' Deleuze and Parnet write, "the author creates a world, but there is no world which awaits us to be created. . Neither identification nor distance, neither proximity nor remoteness, for, in all these cases, one is led to speak for, in the place of,.....One must , on the contrary, speak *with*, write *with*. With the world, with a part of the world, with people. Not a talk at all, but a conspiracy, a collision of love or hatred...This is assembling, being in the middle, on the line of encounter between an internal world and the external world." (Deleuze and Parnet 1987, p 52).

The 'assemblage' thus defined, is explored further in the writing of Deleuze and Guattari in their exploration of the rhizomatic space (Deleuze and Guattari 1987). As Lorri Nandrea describes this space in her essay 'Graffiti taught me everything I know about space', " Taking writing quite concretely, how does graffiti map or remap the formal space of inscription? In contrast to the page's rigid spatial stratification, the wall offers what Deleuze and Guattari would call a rhizomatic space: inscriptions can begin and end anywhere, can proceed unpredictably in any direction, can form surprising juxtapositions, layerings and diagonal relations." (Nandrea 1999 p 111).

On the subject of author, according to Payne, reading Barthes' *Death of the Author* (1968), "the idea of author reduces the writing to property ownership, literature to positivism, human subjectivity to static identity, criticism to mechanical deciphering , meaning to fixed limitation, and reading to impotent passivity. But with the death of the concept of author, the powerful revolutionary potential of the text is released." (Payne 1997 p 6).

Again Deleuze and Parnet , " the assemblages are populated by becomings and intensities, by intensive circulations, by various multiplicities" (Deleuze and Parnet 1987, p79). We felt that the 'conventional' methods for data collection that were available to us, would not have served us to the same extent as the graffiti method we describe. With the advent of the World Wide Web for dialogue, the possibility of accessing groups of midwives in workplaces that were far too remote for us to have contemplated otherwise became a real possibility. Our technique for collecting data had to resonate with the midwives perception of their lack of time to complete survey forms, their lack of motivation to feel that their contribution would make any difference, and a medium that ensured their anonymity through which they could express their deepest feelings and frustration without the threat of censure or being 'named'.

The graffiti response was in the truest sense a collage or 'assemblage' of responses, built upon by others in a group, or added to singularly by others coming later. It was unconventional text in that it varied in size and shape of the letters and words, there was no

beginning or end on the page, no grammatical sentence structure was required to make a point, no sense was required other than the utterance or outburst of a word or words that the research analyst could join with other responses to construct a picture or relationship of words that became themselves the categories and codes to describe the midwives voices.

The graffiti technique supported a flow of unconscious thought processes that operated on an emotional level as well as on a rational level. The responses were very often indiscriminating, and unreflective, they ignored the relations of time and place, identity and causality. Similarly the responses offered well thought out strategies and techniques for trying to improve the system of maternity care. The graffiti released, or unleashed a flood of responses that gave us a much needed insight into the lived experience and the multiple and complex reality of midwives in Australia.

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Part 9: EVIDENCE BASED EVERYTHING

CONTEXT

This is the concluding paper in my Professional Doctorate. It asks midwives to consider challenging the status quo within maternity care through the application of evidence. It begins by relating a challenge made by the well known sociologist, Ann Oakley when she asked her colleagues to join her “in finding ways of spending less time in paradigm disputes and boundary marking and more time trying to systematise our knowledge in such a way that it can be used to reduce the damage that unsystematic professional beliefs do to people’s lives, and even change the world for better” (Oakley 1998 p 483). The questions I am moved to ask, are why have we been so preoccupied and beguiled by the conflict for so long, and is it possible to change? As I have already explored in the first essay, ‘Reconceptualizing Risk and Uncertainty’, the intrinsic nature of our differences is shaped by the way our ‘professional knowledges’ are constructed through different worldviews. My hope is that the way forward must surely draw us closer together in the same search for systematic knowledge and its application to improved care.

ABSTRACT

The aim of this paper is to introduce the evidence-based movement to practicing midwives enrolled in postgraduate study. It describes some of the methods for seeking ‘truth’ and then addresses some of the underlying issues in evidence based research. It provides an overview of the role of epidemiology and some of the reasons for pursuing research within this evidence based paradigm. The audience is asked to consider the role of politics, authority and evidence in decision-making within the maternity services.

SEEKING TRUTH

There are several methods of seeking truth that may conflict or co-exist with each other at various times. To begin with, it is important to consider the safety of believing in something or having *faith* in the authoritative expert opinion. For example many women and midwives believe that having an epidural during labour is both safe and effective. They believe that if the departments of anaesthesia and obstetrics promote and endorse the procedure, then it is unlikely that having an epidural will have any adverse side effects. Similarly, having a continuous CTG monitor running and recording the baby’s heart beat for the whole of labour is often seen as the safest way to detect anything going wrong as soon as it happens. Both these procedures were introduced as routine interventions without prior scientific validation. They are still supported because many women like them, they are so comforting and there seems little reason to question their routine use and safety.

Then there is the use of formal logic to extrapolate truth through the use of firm rules and explicit pathways. This constitutes the application of *reason* to arrive at the notion of truth. Reason is further qualified by applying methods of randomisation is a popular and logical way to control bias in assessing the effects of certain treatments (Chalmers 1998). In controlling

the selection bias the aim is to be able to distinguish between the effects of a certain treatment on a group of people that is separate to and not affected by the individual characteristics of that group of people. In the randomised control trial the logical application of controlling bias coexists or goes hand in hand with seeking empirical evidence through experimentation.

Then there is the *feeling* that something is right. For years midwives have performed certain little rituals because they had a gut feeling it was the right thing to do. How does this come about? Well for many it is the wisdom gained through the experience of looking after many women in childbirth. It may be something as simple as recommending a salt bath for the relief of the perineum, or wanting to give a baby extra fluid to complement the mothers milk supply when it seems that neither can settle happily. These are interventions that for some just feel like the right thing to advise, though they may have no knowledge of the benefits or safety of such measures.

Very close to the feeling that something is right is the knowing through *personal experience* that this is the way to do something. We have seen something, or heard it so often that our personal experience of the event leads us to believe it must be true. In both midwifery and obstetrics much of what is practiced is based on personal experience and learning from past mistakes. In fact midwives constantly use their personal judgement to affirm what they believe to be true in certain situations – the non-scientific ‘rule of thumb’. This is also one of the most contentious areas to change attitudes and practice because it challenges one of the most strongly held methods for seeking truth – the knowledge gained through the personal experience of doing things a certain way.

Legal methods of arriving at the truth need little explanation. Here something is deemed to be true because it can be substantiated through *authoritative testimony*. The expert witness is seen as an authority and an expert in the subject under examination.

One of the most widespread methods for ‘seeking truth’ in obstetrics and midwifery is through empirical research where both experimental and non-experimental methods are common. Non-experimental research involves observation and recording without manipulating the variables. Experimental method, on the other hand involves the systematic manipulation of and control of variables. Generally speaking, evidence based health care, or the practice of basing clinical decisions on the best available scientific evidence is derived from experimental method.

EVIDENCE BASED OBSTETRICS

The aim of evidence based medicine (and by implication, obstetrics), to quote from Professor David Sackett is “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.... the integration of individual clinical expertise with the best available external clinical evidence from systematic research” (Sackett 1996 p535). In other words the combination of clinical judgement, and clinical practical experience with information we gather to help us learn. In trying to do this we:
- fit what we want to know into a question that can be answered

- go looking for the best research to answer it
- critically estimate the research for how close it is to the truth and whether it could be clinically useful.
- try to use the suggestions in practice
- then reflect on, or evaluate what happens.

Most would agree the method described in these simple steps gives little obvious cause for antipathy or resistance.

EVIDENCE BASED EVERYTHING

Evidence based medicine became the buzzword of the 90's. Proponents of the method often recommend it with the zealotry of those who have received religious enlightenment (Traynor 2000). To illustrate this, let me relate the claim of a keynote speaker at an international conference in perinatal medicine, who said that medicine had continued on a very dark and ill-informed path over the centuries. In fact, when the teachings of Galen superseded Hippocrates' first aphorism, "life is short", sixteen centuries of dogma followed, and scientific rigour was not applied to medicine again until the appearance of Archie Cochrane and his contemporaries in the 1950's! (Halliday 2000).

The "Evidence Based" prefix (EB) moved with discreet political correctness over the years and attached itself not only to medicine, but more inclusively to EB- practice, EB- decision making and EB- healthcare. As Sackett concedes, it engenders enthusiasm, anger, ridicule and indifference amongst people (Sackett 1996), whilst others question whether evidence based medicine represents the "scientific chauvinism of the English"? (Halliday 2000)

Clinicians not so convinced of the place of 'EB Anything' at the head of the table believe that only the studies with *positive* results get published, or the *art* of patient care is threatened. Systematic reviews may be "pooling ignorance as much as distilling wisdom" (Naylor 1995). The 'grey areas' in our everyday clinical practice suggest there are a few things we know, a few things we think we know, and some things we don't know at all. Others concede that life would be very much simpler if new technologies could be appraised in rigorous studies with clinically relevant endpoints and data to guide practice. But 'medical muddling' is a profitable business and the proliferation of new tests, devices, and drugs continues at an unprecedented pace (Naylor 1995).

It is not only clinicians that have voiced dissent towards the evidence-based movement. Very recently a well-known Australian consumer advocate, Hilda Bastian declared she was leaving the EBM movement because "EBM devotees tend to share a common culture, values and social class. They are not nearly as objective as they think. They don't see the extent to which their values are driving what they are doing because their values are so similar. EBM is out of touch with consumers". She felt she was contributing to EB healthcare by "being one of the people who says yes or no to what treatments will be available purely on the basis of evidence" (Sweet 2000)

The misgivings or resistance many midwives have towards EBM concerns the extent to which evidence is manipulated or in fact politically driven. Most midwives would agree with the statement “The power of authoritative knowledge is not that it is correct but that it counts” (Jordan 1997, p58). In fact, many midwives claim that EBM has been used to increase the subordination and powerlessness of those practising in the hospital system – in the form of extravagant claims for the basis of interventions. Or as Mary Stewart found in her research into “Whose evidence Counts?” the ‘ definitions of evidence vary widely among health practitioners.and are affected by the individuals own beliefs and give rise to a hierarchy in which some types of evidence are valued above others’ (Stewart 2000).

In an editorial column of the Australian and New Zealand Journal of Public Health in 1997, a visiting Canadian epidemiologist reiterated that the rise of evidence-based medicine is a phenomenon of the nineties driven largely by a general culture of accountability (Lomas 1997). The intensely political nature of evidence was cleverly and clearly articulated when he criticised researchers for ‘failing to tailor the content, timing, setting and format of dissemination to the audience’ (Lomas 1997) In other words, evidence, like a jigsaw puzzle needs to be pieced together not just by clinicians, but politicians, administrators, and industry decision makers.

WHERE DOES EPIDEMIOLOGY FIT?

The foundation and primary focus of evidence-based care is within the specialty of medical epidemiology ‘to ensure the practice of effective medicine, in which, the benefits to an individual patient or population outweigh any associated harm to that same patient or population’ (Muir Gray 1997 p3). The underlying belief is that meaning can be discerned from population patterns and that a relation exists between mathematics and material reality. The epidemiologist’s focus of study is the whole population, in which outcomes are described in averages and percentages, rates and risks. Then the science of chance is applied in the form of a statistical framework that gives the reader an indication of the measurement error or the uncertainty with which the result is believed to be true. This is better known as the ‘confidence interval’ (Jolley 1993). Many regard epidemiology ‘an arcane quantitative science penetrable only by mathematicians’ (Grimes et al 1996). It is true, statistics and epidemiology go hand in glove in schools of public health and in all courses in evidence based healthcare. But as some point out, ‘statistics is at most complementary to the breadth and judgement that medical knowledge demands’ (Jolley 1993).

The common origins of contemporary epidemiology and social science can be traced right back to the original quantification of natural phenomena, such as the motion of planets, the passage of time and the pitch of music (Kreiger 2000). At the turn of the twentieth century epidemiologic research began to explicitly incorporate social science perspectives related to health data that could inform public policy. One of the first substantial prospective epidemiologic analyses to be undertaken was a study of the socio-economic and nutritional determinants on infant mortality in the US in 1912, by Julia Lathrop (Kreiger 2000).

The evidence-based movement as we know it in obstetrics, began about thirty years ago. It was in the 1970s that Archie Cochrane awarded the wooden spoon to obstetrics partly because 'the specialty missed its first opportunity in the sixties ... to randomise the confinement of low risk pregnant women at home and in hospital' (Cochrane 1979). In the years following, the wooden spoon was slowly withdrawn in response to the efforts of a group of obstetricians, midwives and women who joined together to promote the evaluation of the effectiveness of care for women during childbirth. This led firstly to the formation of the Oxford Data Base of Perinatal Trials, and later to the registry of trials and reviews of interventions used in antenatal and intrapartum care. The work was published in the textbook *Effective Care in Pregnancy and Childbirth* (Chalmers et al 1989), and then in electronic format in the initial Cochrane Library (1995). As sociologist, Ann Oakley reminds us, the history of experimentation and social interventions are "conveniently overlooked by those who contend that randomised controlled trials have no place in evaluating social interventions. It shows clearly that prospective experimental studies with random allocation to generate one or more control groups is perfectly possible in social settings' (Oakley 1998 p 1240).

The usefulness of the population based results of a randomised control trial depends on the translation of the concepts and measures used to describe groups of people into a language that can inform the decisions of an individual (Steiner 1999). The randomised control trial is considered currently to be the orthodox and 'gold standard' scientific experimental method to evaluate new treatments. The ethical and even the scientifically valid basis for entering patients in randomised controlled trials however, has always invited wide debate. Some doctors espouse the uncertainty principle whereby randomisation to treatment is acceptable when an individual doctor is genuinely unsure which treatment is best for a patient. Others believe that clinical equipoise, reflecting collective professional uncertainty over treatment, is the soundest ethical criterion (Weijer et al 2000). The scientific principles that are applied to the design and conduct of primary research such as the RCT are also applied to secondary research such as the systematic review (Chalmers 1992).

During the middle nineties, the randomised controlled trial with its methodological focus in epidemiology reached its zenith. In doing so it eclipsed all attempts by researchers using other methods to shed light on the effectiveness of many aspects of health care (Black 1996). Medical dissatisfaction with the RCT has to do with the limitations, the inappropriateness, the impossibility and the inadequacy of the application of scientific experimentation to meet all needs, along with the rejection of observational methods as an alternative rather than complementary to experimental randomised trials (Black 1996). The limitations that manifest in the method are not easily overcome, but those to do with the way the trials are conducted do leave some room for modification. Where an intervention is deemed to be to be wholly effective through observational methods, such as was the case with penicillin, or insulin for diabetics, experimentation is unnecessary. Experimental trials are limited when the study size is too small to detect rare or infrequent adverse outcomes or the outcome of interest is long term and the trial would need to continue for an improbable length

of time. In all these cases observational studies may be considered more practical (Black 1996). An area of contention that holds special significance for those concerned with research in maternity care has to do with the inappropriateness of randomisation (Black 1996), or the 'effect that choice itself has on therapeutic outcome' (McPherson 1994).

There is no doubt that there are limitations of empiricism as a value neutral truth, and as the only structure for analysing our decision-making. As one physician put it "Evidence based decision models may be very powerful, but are like computer generated symphonies in the style of Mozart – correct but lifeless (Saunders 2000 p 22). From the sociologists viewpoint the implementation of randomised controlled trials in real life settings causes some hazards such as low participation and high attrition rates, problems with informed consent, unanticipated side effects of the intervention, and possible problematic relations between research and policy. Then there is the question that Oakley asks "What may a society obsessed with quantification have lost in terms of the value of more intimate knowledge, intuition, emotions and all the other qualities that (we) soft social scientists are renowned for going on about?" (Oakley 1998 p1242)

DO WE NEED EVIDENCE BASED CARE?

Randomised controls offer in the social domain exactly what they promise to medicine: the protection of the public from potentially damaging uncontrolled experimentation and a more rational knowledge about the benefits to be derived from professional interventions" (Oakley 1998 p1242)

One of the accepted tenets of accountability is the public or transparent assessment of performance and patient outcome. We perceive midwife '(physician) accountability as a function of social ideals, of science, of political ideals, of financial constraints and of the fiduciary nature of the healing relationship' (Sharpe 2000 p 29). The need to articulate the difference between bad science based on poor evidence, inadequate science based on insufficient evidence or no science based purely on dogma was well overdue.

The story of Semmelweis is well known. In 1848 he published his findings that the rate of fatal postpartum sepsis was 12% for obstetricians attending women in childbirth after having performed an autopsy and not washing their hands, compared to 3% for those attended by midwives who did not perform autopsies. The medical fraternity totally and unequivocally rejected his probability-based evidence. He was denounced and driven from his job, his country, and perhaps his mind, dying in a mental institution at the age of 47 (Goodman 1999). The collective medical tradition up until very recently was to leave the job of clinical evaluation to the individual, because, as the American Medical Association code of ethics in the latter years of the 20th century contended, 'character' was as important a qualification as 'knowledge'. The American Medical Association at the turn of the century further counselled discretion and silence with regard to the practice of colleagues (Sharpe 2000.) No ethical alarm bells rang then when Charles Meigs, chairman of midwifery at

Jefferson Medical College in Philadelphia, in 1859, (eleven years following the disclosure by Semmelweis), stated

“I have practiced midwifery for many long years; I have attended some thousands of women in labour,....passed through repeated epidemics of childbed fever, both in town and in hospital....After all this experience however, I do not, upon careful reflection and self-examination, find the least reason to suppose I have ever conveyed the disease from place to place in any single instance.....*a gentleman's hands are clean*”

(my emphasis, Sharpe 2000 p 30)

The challenge to medical authority is the natural and inevitable counterpart to a wider challenge of traditional forms of authority. The 1960's and 70's rise of Civil Rights and Feminist movements and with them the Patients Rights movements saw the emergence of a contemporary medical ethics demanding the medical profession be held accountable to the 'moral norms at the heart of a democratic society' (Sharpe 2000 p 39). The challenge to the authority of the medical profession came from several different angles. The “bioethics revolution” contested and forever altered the insularity of medical ethics (Rothman 1991). The growth of medical consumerism challenged the paternalistic authority of medicine. Expectations included tailoring professional expertise and technical knowledge to the individual; and to be accountable for this in the best interests of the each consumer measured in terms of the profession's 'discretionary wisdom and professional ethics' (Imanaka 1997). The demand for physicians to respect patient autonomy led to a challenge and reform of laws governing informed consent and the right to refuse treatment (Sharpe 2000). It was within this context of questioning the authority of medicine to provide sound reasons for treatments and preventive measures that the Cochrane centre emerged with its inclusion of midwives, obstetricians and consumers to evaluate medical treatments. However, as some authorities believe, 'the gap between true knowledge of outcomes and the need to know and understand and hence to meet these requirements remains large' (McPherson 1994 p7).

RESEARCH AS ANTI-AUTHORITARIAN

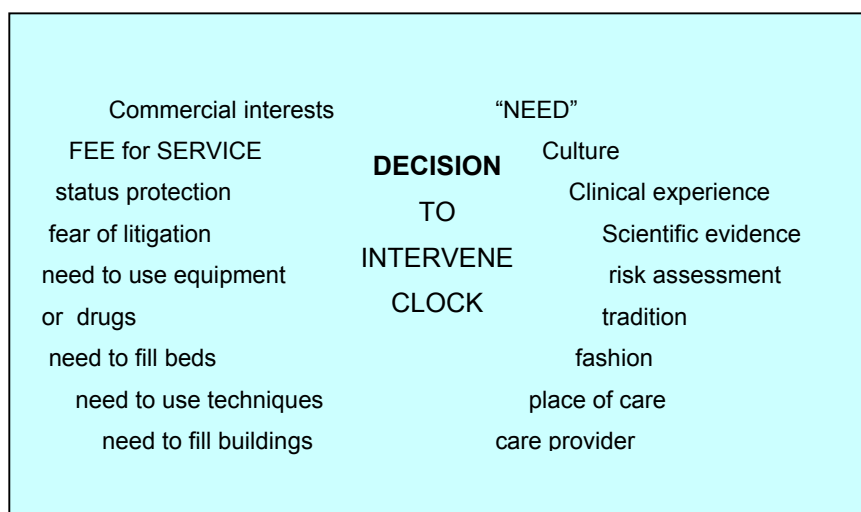
In a recent paper outlining the exclusion of midwives and mothers in maternity care Mavis Kirkham concludes by reminding us that although the church, the state and the medical profession have variously exerted control over women and midwives during the past centuries - we can now change that. One of the ways to challenge the authority of technology and ritual in obstetrics is through research, and this itself can be seen as anti-authoritarian in its nature (Kirkham 2000, Chalmers 1983).

Challenging the status quo and fostering a sense of uncertainty does not come without some resistance. A group of researchers who evaluated the response to leaflets providing information to women about ultrasonography found in their evaluation that the leaflets offered to women aroused a storm of responses. They encountered resistance from some health professionals to evidence based health; professional ownership of knowledge; conflicts with professional autonomy; concern that informed choice may create anxiety, and professional organisational barriers to allowing informed choice (Oliver et al 1996 p1252).

Questioning the status quo can be uncomfortable, even threatening to practice that is controlled and relatively certain. If we 'do not know' - the impetus is there to evaluate and find out. Eliciting and respecting women's preferences is especially important when there is reasonable doubt about the best course of action. "We become confident in our educated guesswork to the point where it is easy to confuse personal opinion with evidence, or personal ignorance with genuine scientific uncertainty. If clinical guidelines and other trappings of evidence based medicine are to be credible they must distil the best evidence about what ought to be done in practice in ways that honestly acknowledge what we do and do not know about a topic"(Naylor 1995 p841).

Twenty years ago Professor Iain Chalmers described the need to intervene in pregnancy and childbirth in terms of a 'decision to intervene' clock Fig 1. " As you go around the clock... from unambiguous "need" at 1 o'clock to "commercial interests" at 11 o'clock, the factors that influence the decision to intervene become less and less defensible" (Chalmers 1991 p137)

FIGURE 1. PROFESSOR CHALMERS' DECISION TO INTERVENE CLOCK



Source: Chalmers I (1992) Factors that Influence the Decision to Intervene During pregnancy, Childbirth, or the Puerperium. *Birth* 18(3): 137-141

The need to question the effect of non clinical factors on levels of intervention in childbirth are as relevant today as they were twenty years ago. The volumes of responses to the Senate Inquiry into Childbirth Procedures in Australia in 1999 (Rocking the Cradle, 1999) are a 'gold mine' of information voicing concerns of policy makers, obstetricians, anaesthetists, midwives and women about the 'need to intervene in childbirth. As well, there are several published studies demonstrating the effect of non-clinical intervention on the rates of operative intervention during childbirth (Carey 1990, Roberts et al 2000). The government rejected the Inquiry very cleverly on the grounds that "the Report recommendations are concerned with service delivery issues which are the responsibility of State and Territory

Governments...the Federal Government should not be dictating to the States how they should be running services that fall within their responsibilities” (Commonwealth of Australia 2000). Note here; by the Commonwealth Government’s own admission it provides and funds many of the maternity services in Australia, separate to the States or Territory involvement through Medicare and the 30% subsidy on private health insurance⁸². Needless to say the Inquiry has had little impact on clinical care within the maternity system.

IN PARTNERSHIP WITH WOMEN

Turning the phrase ‘evidence based ‘ into ‘evidence-informed’ was the subject of a recent debate in the Midwifery Digest June 2000.(MIDIRS 2000). The author claims that by using the word ‘informed’ we are more likely to be mindful of the process of midwifery knowledge that midwives understand to originate from the way women themselves understand their bodies and the process of giving birth. Professor Lesley Page, in her paper, ‘The backlash against evidence-based care’ does not contend that evidence ‘based’ necessarily means practice based on a positivist, reductionist knowledge generated solely from within the scientific medical paradigm (Page 1996). Others such as Mavis Kirkham claim that through research we can question the status quo.....it (research) is also the means with which we can move from being ‘expert, professional and oppressed’ to an alliance with women giving birth (Kirkham 2000).

New Zealand in 1990 is the most widely celebrated example of midwives and women together challenging and in turn changing the legislation and foundations of practice for midwives to ask a different, more relevant question. The strategic relationship can challenge both the economically driven imperative for research and the legislation and control of accepted practice, and in doing so it may promote the care of previously excluded groups of women. The challenge Joan Donley threw to midwives in 1984 in New Zealand remains as critical today as it did then. Midwives are taught their primary responsibility is to uphold professional standards. ‘Being accountable to another professional body (doctors) has not taught midwives much about being accountable to a mother, a baby or to themselves’. (Donley 1998 p 15)

Midwives have the opportunity to show leadership in undertaking research that is relevant to women and makes judicious use of precious research funds. My personal opinion has been confirmed by the tone of the forward in a recently published book ‘Linking research and practice in Midwifery’ (Proctor and Renfrew eds 2000.) A well-known Professor of Obstetrics from Australia laments “midwifery organisations have tended to follow evolutions in

⁸² “ The Government is also a major funder of prenatal and birthing care through Medicare payments for a wide range of antenatal, peri-natal and birthing services for pregnant women, apart from those using birthing centres or public patients using hospital based services. In 1998-99, \$57.7 million was paid in Medicare benefits in respect of 1.55 million obstetrics services. In addition, in 1998-99 \$38.6 million was paid in Medicare benefits in respect of 514,014 ultrasound in pregnancy services” P5 Commonwealth Govt Response to Rocking the Cradle.

http://www.aph.gov.au/senate/committee/clac_cte/response/index.htm

maternity care at so safe a distance that even the public at large recognises change before they do" (ibid). My fear is that this is a thinly disguised dissatisfaction with midwives holding on to less interventionist practice and possibly not being as compliant as the obstetricians would hope in undertaking data collection and research tasks that address questions more interesting to obstetricians than midwives and women. Could this also be a signal that the collective midwifery questioning of the unrivalled right of obstetricians to maternity research funds is beginning to take effect? To quote again from Mary Stewart's research, 'the technocratic paradigm has become authoritative and highly valued, whereas a more holistic model, incorporating concepts of intuition and shared knowledge, has less credence' (Stewart 2000).

The subject of research into episiotomy illustrates many of the issues raised so far. 'Based on the premise that childbirth was analogous to being impaled on a pitchfork, Dr De Lee (an obstetrician in the US in the 1920's) enthusiastically promoted an operation that after 80 years of use appears to be more harmful than helpful (Grimes 1995 p452). The rising rate of the use of episiotomy was directly proportional to the move from birth at home to birth in hospital, where in the US, in 1930 approximately 25% of women gave birth in hospital compared to 70% in 1945. The rate of episiotomy reflects this move. From 1940 to 1980 episiotomy was considered routine and necessary and thought to be 'too minor an issue for serious medical research' (Klein 1992)'. A notable exception to this was the study undertaken by a woman obstetrician in the 1950's in the UK. In 1957 the Journal of the British Empire published Miss Constance Beynon's controlled trial of 100 consecutive cases of primiparous women with a vertex presentation 'not hurried or encouraged to push in the second stage of labour' (Beynon 1957). She applied the principles of a quality seamstress to the second stage of labour, and using the metaphor of an arm being pushed hurriedly into a sleeve and thereby causing it to tear, she advised not forcing the foetal head hurriedly through the vagina. The rate of episiotomy fell to 39% in the experimental group while the rate for the controls was about 63%. Her work however, was largely ignored, possibly because she challenged practice using gender specific knowledge. She aligned herself with the practice of experienced midwives, and used a reasoning that would have been considered domestic and 'unscientific' within the medical fraternity of those times. The next time a woman's voice was heard on this subject was in the 1980's in the UK. The routine use of episiotomy in childbirth had remained largely unquestioned until a group of women challenged this in 1981 (Kitzinger 1981). The study undertaken by the National Childbirth Trust in 1981 in the UK, is an example of women and professionals seeking research funds to ask a question highly relevant to the well being of women themselves during childbirth. The study questions were raised by women about the necessity of the procedure - in particular the necessity for routine episiotomy. The study of 1795 women found that 65% had routine episiotomies and that there was no scientific evidence for the supposed benefits. Until that time it had been believed without question, that episiotomy shortened labour (Thacker and Banter 1984).

In 1984, Jennifer Sleep and colleagues conducted the ' West Berkshire perineal management trial' that reduced the rate of routine episiotomy by 85%. The study found that no differences occurred between women having routine or restricted episiotomy for sutured perineum, episiotomy extensions, or postpartum pain (Sleep et al 1984). In 1989 the rate of episiotomy (from data on all Swedish labour wards) in Sweden was 33.7% for nulliparae. This rate was reduced to 24.5% by 1995 (with a variation of between 4% and 50%) Of note is the distribution of 3rd and 4th degree tears which were three times more likely in the episiotomy groups (2.0% v 6.3%) (Rockner 1999).The latest finding from the Cochrane library on the studies where routine episiotomy was questioned and the experimental group had a restricted episiotomy - the odds ratio overall is 0.15 - which means that in 85% of cases an episiotomy was avoided or considered unnecessary (Carroll 2000).Controversy still surrounds the subject of episiotomy with several recent studies showing that the attitudes and practices of the labour attendant is most likely correlated with the rate of episiotomy (Robinson JN et al 2000, Reynolds et al 1995). The evidence from New Zealand would also support this position in relation to the low rate of episiotomy due to midwifery care. In New Zealand where midwives practice in a partnership with women giving birth, the episiotomy rate in the whole population is as low as 7.9% (Guilliland 1998).

CONCLUSION

There is no doubt that evidence based healthcare in essence, has the potential to better the lives of all women in childbirth simply because it claims to base itself in 'science' as opposed to 'authority'. It is a powerful tool with which to measure and question the authority of obstetric practice and interventions. It is also the means with which we offer accountable and responsible care to women through informed decision making. The randomised-controlled trial is currently regarded as a highly effective methodology for investigating the introduction of new technologies and treatments before they become introduced routinely. What a pity then, that the introduction of epidurals and other highly interventionist technologies were never evaluated by any rigorous, or for that matter even second rate, scientific investigation before wholesale introduction into routine practice. It is similarly disturbing that the meta-analyses and the randomised trials of midwifery care demonstrating the positive effect of one-to-one care have not been implemented widely, or in some places like Australia, have hardly been implemented at all. As the author of a recent article in Birth, 2002, claimed " if emotional support for women in labour could be packaged in a tablet form, at little or no cost, every woman would have been prescribed it' (Beverly Chalmers 2002).

In the arena of 'evidence based everything' the RCT is an immensely valuable tool. However, there is room for other methodologies and there is also room for improvement. The RCT is a relatively new and evolving method of seeking truth in maternity care that has helped to change the lives of midwives and women so far. As Iain Chalmers recently noted, 'the greatest potential for improving research may lie in greater public involvement. Partly because of perverse incentives to pursue particular research projects researchers often seem

to design trials to address questions that are of no interest to patients' (Chalmers 1998 p1168).

There is a need for midwives and women to collaborate and decide not only on the research agenda, but also study methods, study allocation, and other critical aspects of study design. The studies undertaken by Professor Mavis Kirkham and her colleagues recently published in the British Medical Journal are a superb illustration of the way research can be undertaken and presented in much more meaningful and informative ways. The midwives from Sheffield demonstrated the insight that a qualitative study can provide when coupled with a more controlled empirical investigation (O' Cathain et al 2002, Stapleton et al 2002). The conclusion from the cluster randomised controlled trial found that 'in everyday practice, evidence based leaflets were not effective in promoting informed choice in women using maternity services' (O'Cathain et al 2002). To understand the social context in which the leaflets were used Helen Stapleton and her colleagues undertook a qualitative study alongside, but independently of, the randomised trial (Stapleton et al 2002). In combination, the studies were able to make much more meaningful statements about how the inequalities in power and status in the maternity services have a greater influence on what happens to women giving birth than either their hopes and dreams or the choices they feel informed to make (Vernon et al 2002).

As well as being vigilant that research and measurement is both ethical and meaningful to those who are studied, the use of appropriate language is something that can not be underestimated. Perhaps we could be more creative in this area if we followed Ann Oakley's suggestion to rename randomised controlled trials as '*socially equitable comparisons*' - SECs (Oakley 1998). It would locate the research language in a place much closer to the language of birth if we were to suggest having SECs rather than undertaking an RCT!

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SUPPLEMENTARY PAPERS

- 1) Trends in labour and birth interventions among low risk women in New South Wales.**
- 2) NMAP – The National Maternity Action Plan – Maternity Coalition, 24th September, 2002**
- 3) Implementing Community Midwifery in New South Wales, Maternity Coalition, 2002**

Trends in labour and birth interventions among low-risk women in New South Wales

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ABSTRACT

Objective

To examine recent trends in obstetric intervention rates among women at low-risk of poor pregnancy outcome.

Design

Cross-sectional analytic study.

Setting and Population

A population of 336,189 women categorised as low-risk of a poor pregnancy outcome who gave birth to a live singleton in NSW from 1 January 1990 to 31 December 1997.

Main outcome measures

Obstetric intervention rates including oxytocin induction and augmentation of labour, epidural analgesia, instrumental births, caesarean section and episiotomy.

Methods

Trends over time were assessed by fitting trend-lines to numbers of births or by trends in proportions. Unconditional logistic regression was used to

assess the impact of epidural analgesia on instrumental birth over time.

Results

Rates of operative births did not rise despite increases in maternal age and use of epidural analgesia. Instrumental births declined over time from 26% to 22% among primiparas and 5% to 4% among multiparas. There was also a shift to vacuum extraction rather than forceps. Although instrumental birth was strongly associated with epidural analgesia, the strength of the association declined over the study period, for primiparas from an adjusted odds ratio of 7.2 to 5.2 and for multiparas from 13.2 to 10.3.

Conclusions

Increased use of epidural analgesia for labour has been a feature of the management of birth at term during the 1990s. The decline in the strength of association between epidural analgesia and instrumental birth may reflect improved epidural techniques and management of epidural labour, and recognition of the adverse maternal outcomes associated with forceps and vacuum births.

INTRODUCTION

Various aspects of birth management have been evaluated by randomised clinical trials, providing health care providers with a wealth of evidence to support and

guide best practice.¹ Thus, while epidural analgesia provides the most efficacious pain relief for labour, the consequences include prolonged labour and increased use of oxytocin augmentation and instrumental births.² There is also evidence that support from caregivers reduces the need for analgesia in labouring women, and that vacuum extraction rather than forceps for assisted delivery reduces maternal morbidity.^{3,4} Further, early augmentation of nulliparous women with mild delay in the progress of labour does not appear to provide a benefit over a more conservative form of management.⁵ On the basis of evidence to support policies of restrictive episiotomy, the World Health Organisation has recently recommended a goal of a 10% episiotomy rate for spontaneous vaginal births.^{6,7}

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Population-based studies can provide data on the observed effects of wide-scale changes in birth management over time, in light of the accumulated evidence. The aim of this study was to examine recent trends in obstetric intervention rates, both during labour and at birth, among women at low-risk of poor pregnancy outcome.

MATERIALS AND METHODS

Women delivering a live singleton infant in New South Wales (NSW), from 1 January 1990 to 31 December 1997 were included in the study. Data were obtained from the Midwives Data Collection (MDC), a population-based surveillance system covering all births in NSW.⁸

The study population included women who would have been considered to be at low risk of poor pregnancy outcomes during antenatal care (age 20–34 years with no medical or obstetric complications and a singleton cephalic-presenting infant of normal size; 10th–90th birthweight percentile, born at term; 37–41 weeks gestation). This definition of low risk has been used previously and limits the analyses to a population of women who have no obvious reasons for requiring obstetric interventions.⁹ We believe that interventions among this group of women will best show general trends in the use of obstetric procedures. It should be noted that women who did not fulfil the definition of low risk were not necessarily considered to be at high risk, they just have one or more risk factors for poor pregnancy outcomes.

Among low-risk women we examined primiparas and multiparas separately and determined trends in: age, patient/care classification (private patients giving birth in private hospitals, private patients giving birth in public hospitals and all public patients); type of labour (spontaneous, oxytocin augmentation, oxytocin induction or none (caesarean section before labour)), type of delivery (spontaneous vaginal, instrumental (vacuum or forceps) or caesarean), epidural, episiotomy and third degree tear. We also examined trends in a pre-specified cascade of obstetric interventions by grouping them in chronological sequence, with interventions that occur before or during labour (epidural, induction or augmentation of labour) followed by those that occur at the time of birth (episiotomy and type of delivery).⁹

Statistical analysis

The number of women receiving obstetric interventions and intervention rates were plotted over time. To identify changes in intervention use over time, when the number of births did not change over time, we fitted trendlines of least squares to the number of interventions.¹⁰ Increasing or decreasing trends were identified where the slopes of the lines were significantly different from zero. When the number of births did change over time we used the chi-squared test for trend statistics. The level of statistical significance was set at $p < 0.01$. To assess the impact of epidural

analgesia on instrumental birth over time we used unconditional logistic regression and limited the analyses to women who had labour. A model was fitted for each year to obtain an odds ratio (OR) for instrumental birth among women with an epidural compared to those without epidural, adjusted for age and patient insurance classification. These ORs do not approximate the relative risk as the outcome is not rare. All models had a non-significant Hosmer-Lemeshow goodness of fit statistic. Analyses were conducted using SAS via the NSW Health Department's HOIST (Health Outcomes Information and Statistical Toolkit) data warehouse system.

RESULTS

From 1990 to 1997 there were 678,840 singleton live births in NSW, an average 84,855 births per annum with no significant change in numbers over the period. Of these births, 336,189 (50%) were classified as low-risk pregnancies and this remained stable over time as did the 38% that were primiparous.

Trends by parity

Among low-risk primiparous women (Table 1) there were significant increases in maternal age, in labours that were induced or augmented and in the use of epidural analgesia. The increase in augmented labours occurred almost entirely among primiparas with epidurals. Overall instrumental births decreased from 25.6% to 21.9%; while forceps deliveries declined sharply (22.4% to 13.0%) vacuum extractions increased (3.2% to 8.9%). There were also small increases in caesarean section rates, especially after the onset of labour. Among spontaneous vaginal births the episiotomy rate decreased significantly from 23.3% to 20.9% (Table 1). While the proportion of instrumental births with an episiotomy increased, this increase was observed entirely among forceps deliveries (65.0% to 85.2%) with no significant trend in the episiotomy rate among vacuum extractions (average 55.3%).

Among low risk multiparous women (Table 2) there were significant increases in maternal age, induced labours and epidurals. Instrumental births declined overall, again with a shift towards vacuum extraction rather than forceps. When examined by mode of delivery, the overall decline in episiotomies among multiparas was restricted to spontaneous vaginal births, from 11.2% in 1990 to 7.9% in 1997 and vacuum extractions from 34.1% to 28.6% (Table 2). The episiotomy rate among forceps deliveries increased from 49.8% to 67.5%.

With the exception of epidural analgesia, the changes over time in obstetric intervention rates occurred similarly for low-risk women of all ages. The epidural rate increased more rapidly over time for older women. As there was also a shift in the age distribution to larger numbers of older mothers, these women accounted for a larger proportion of the increased epidural rate; among primiparas, 54% of

Table 1 Trends in birth characteristics and outcomes among low-risk primiparous women

Birth characteristics and outcomes	1990 n = 15,274 %	1991 n = 15,617 %	1992 n = 16,193 %	1993 n = 15,886 %	1994 n = 15,959 %	1995 n = 15,825 %	1996 n = 15,726 %	1997 n = 15,974 %
Maternal age								
20–24 years	36.0	35.6	35.0	34.3	33.9	32.3	32.1	29.4
25–29 years	45.0	43.5	42.4	41.8	41.9	42.4	42.4	43.6
30–34 years	19.1	21.0	22.6	24.0	24.2	25.2	25.7	27.0
Care Classification								
Public patients	43.7	45.6	49.6	52.7	56.3	59.6	63.1	65.3
Private patient/public hospital	46.3	41.8	33.7	29.1	24.1	19.1	16.3	14.6
Private hospital	10.1	12.6	16.8	18.2	19.6	21.3	20.7	20.6
Type of labour								
Spontaneous	66.4	65.2	65.2	62.6	62.7	60.9	60.4	57.3
Augmented	16.2	17.2	19.1	18.8	19.1	19.7	20.5	20.9
Induced	15.2	15.5	13.7	16.3	15.9	17.3	17.1	19.3
No labour	2.2	2.1	1.9	2.1	2.3	2.1	2.0	2.5
Delivery								
Spontaneous vaginal	64.1	63.8	64.7	64.7	65.7	66.1	66.2	65.8
Forceps	22.4	21.0	19.4	18.1	16.6	15.7	14.4	13.0
Vacuum	3.2	4.1	5.0	5.7	6.0	6.7	7.9	8.9
CS during labour	8.2	9.1	8.7	9.3	9.3	9.3	9.5	9.8
CS before labour	2.2	2.1	1.9	2.1	2.3	2.1	2.0	2.5
Epidural	25.9	26.7	27.5	27.6	28.7	30.6	31.3	32.6
Episiotomy*	34.8	37.1	36.0	37.1	34.3	34.8	33.7	33.9
Episiotomy among:								
Spontaneous vaginal	23.3	25.3	23.9	23.1	21.7	21.1	20.8	20.9
Forceps	65.0	69.5	70.0	80.6	77.1	84.6	81.9	85.2
Vacuum	53.5	54.8	60.4	57.4	54.8	53.3	53.6	54.0
3rd degree tear*	1.4	1.8	1.7	1.8	1.8	1.9	1.9	2.1

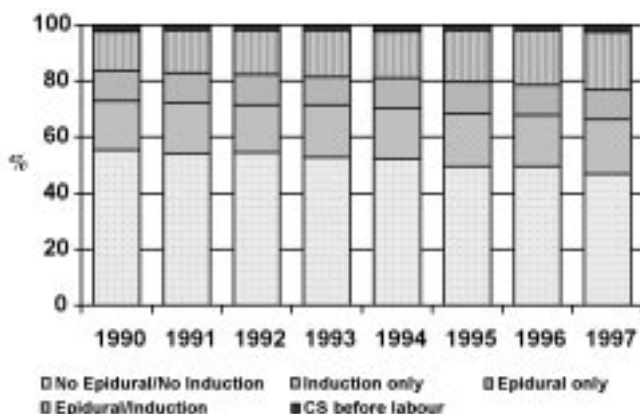
*Among vaginal births; CS = caesarean section

Table 2 Trends in birth characteristics and outcomes among low-risk multiparous women

Birth characteristics and outcomes	1990 n = 25,043 %	1991 n = 26,698 %	1992 n = 27,493 %	1993 n = 26,515 %	1994 n = 26,745 %	1995 n = 26,202 %	1996 n = 25,387 %	1997 n = 25,652 %
Maternal age								
20–24 years	18.0	17.7	18.1	18.7	18.2	18.5	17.7	16.7
25–29 years	43.6	42.3	41.2	39.7	39.5	38.4	39.7	39.9
30–34 years	38.4	40.1	40.8	41.7	42.4	43.1	42.6	43.4
Care Classification								
Public patients	48.9	51.2	55.5	58.7	62.7	65.5	69.2	71.2
Private patient/public hospital	42.7	38.6	32.1	27.3	22.1	18.0	14.0	12.5
Private hospital	8.4	10.2	12.5	14.0	15.3	16.5	16.8	16.3
Type of labour								
Spontaneous	73.6	72.9	74.0	72.0	72.5	72.3	71.6	70.1
Augmented	5.1	5.6	5.9	5.4	5.0	5.0	5.3	5.6
Induced	13.2	13.4	12.5	14.5	14.3	14.7	14.8	15.9
No labour	8.1	8.2	7.5	7.9	8.0	8.0	8.2	8.4
Delivery								
Spontaneous vaginal	84.4	84.6	84.9	84.5	84.9	85.3	84.7	84.8
Forceps	3.8	3.1	3.2	2.7	2.5	2.2	2.2	1.7
Vacuum	0.8	1.2	1.3	1.4	1.4	1.6	1.8	2
CS during labour	2.8	2.8	2.9	3.2	2.9	2.9	3	3.1
CS before labour	8.1	8.2	7.5	7.9	8	8	8.2	8.4
Epidural	10.6	11.2	10.9	11.5	12.4	12.7	13.3	14.5
Episiotomy*	13.1	13.0	2.9	2.3	11.1	10.8	10.3	9.5
Episiotomy among:								
Spontaneous vaginal	11.2	11.2	10.9	10.1	9.2	8.9	8.4	7.9
Forceps	49.8	52.4	56.6	69.4	61	67	65.8	67.5
Vacuum	34.1	33.3	35.3	34.3	35.8	34.9	33.0	28.6
3rd degree tear*	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.3

* Among vaginal births; CS = caesarean section

Figure 1 Trends in interventions before and during labour among low-risk primiparas



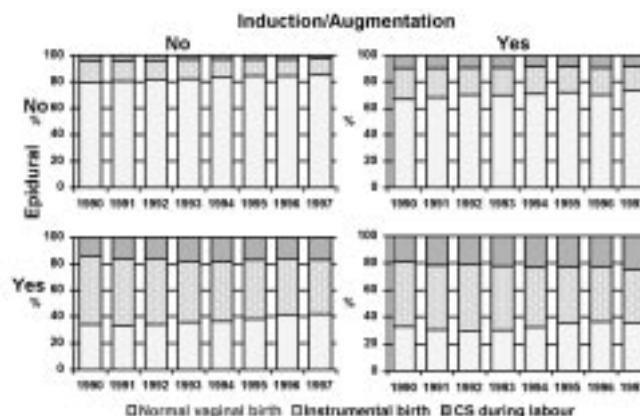
the increase in epidurals occurred among women aged 30–34 years and for multiparas this age group accounted for 74% of the increase. However, this association was confounded by the strong association between maternal age and use of private care. Fifty-five per cent of women aged 30–34 years chose private care compared with 44% aged 25–29 years and 20% aged 20–24 years).

Trends in obstetric interventions

The use of interventions before and during labour increased among low-risk primiparous women during the study period (Figure 1). The increase was mostly in epidural with induction or augmentation of labour, from 14.2% of low-risk primiparous women to 20.9%. Primiparas who did not receive any interventions during labour declined from 55.5% to 46.9%. The picture was somewhat different for multiparous women where those women without any labour interventions decreased only slightly, from 69.7% to 65.0%. In addition, the increase in labour interventions was equally spread among those with augmentation or induction and/or epidurals. There was no significant change in caesarean sections before labour for either primiparous (average 2.1%) or multiparous (average 8.0%) low-risk women.

Because of the change in distribution of the four labour intervention groups, the changes in interventions at birth were examined within these groups, rather than as a percentage of the total. Among low-risk primiparas who had an epidural, fewer than 40% had a spontaneous vaginal birth (Figure 2). This rate fell below 30% when episiotomy was included in the intervention cascade. Among women with an epidural the most likely mode of delivery remained instrumental birth but this outcome decreased over the study period from 49.4% in 1990 to 40.1% in 1997. There was a coincident increase in spontaneous vaginal births for women with epidural but without induction/augmentation. For women with both epidural and induction/augmentation the decline in instrumental births

Figure 2 Trends in interventions at birth among low-risk primiparas



was matched by increases in both spontaneous vaginal births and caesarean section during labour. Compared to low-risk primiparas who laboured without an epidural, the OR for an instrumental birth (adjusted for age and patient classification) for those with epidural peaked at 7.2 in 1992 and then declined to 5.2 in 1997.

Among low risk multiparas the use of interventions at birth was notably lower, with little change over the study period. Among women without epidurals, the addition of induction or augmentation of labour had little impact on the mode of delivery. However, the addition of epidural was associated with a large increase in the likelihood of an instrumental birth or caesarean section during labour. The strength of association between epidural and instrumental birth decreased over time for multipara as it did for primipara, peaking in 1991 with an adjusted OR of 13.2 and declining steadily to 10.3 in 1997.

There was no significant change over time in the overall number or proportion of low-risk women who gave birth without any interventions in the pre-defined cascade. This was true for primiparous women (average 33.9%) and multiparous women (average 59.5%).

DISCUSSION

Assessing change over time in the use of obstetric interventions during labour and birth is complex because few, if any, factors operate in isolation. The tendency for obstetric interventions to accumulate, with one intervention increasing the likelihood of another, has been previously documented.⁹ Data that would allow assessment of the broader influences on birth management over time are generally unavailable. However, monitoring practice trends provides the opportunity to consider whether observed changes are in a direction that will achieve the best outcomes for mothers and their infants.

Instrumental births decreased during the 1990s for all women in this study, suggesting a general change in

obstetric practice and perhaps reflecting a growing recognition of the long-term adverse consequences of perineal and neonatal trauma.¹¹⁻¹³ As observed in several countries, among instrumental births, we found a shift from forceps to vacuum extraction.^{14,15} Systematic review of randomised controlled trials of forceps versus vacuum extraction shows the use of vacuum extraction decreases the risk of maternal perineal trauma without long-term adverse consequences for mother or baby.^{4,11,16} Thus the overall reduction in instrumental births plus the change to vacuum use is a positive trend for genito-urinary health and function.

The most marked change in obstetric intervention rates has been the increased use of epidural analgesia, usually in conjunction with oxytocin induction or augmentation of labour. Epidurals provide the most effective form of pain relief during labour and have been in increasingly widespread use since the 1970s.^{2,17} However, randomised trials have shown that epidural analgesia in labour increases instrumental deliveries, which in turn increases the use of episiotomy.^{2,18} The increased use of epidurals was partly attributed to the increase in maternal age over the study period in addition to the preference of older mothers for private obstetric care.

The cause of the association between epidural analgesia and instrumental delivery is not entirely clear, and may have as much to do with the management of epidural labour and selection of women for epidural analgesia as with underlying biological mechanisms. It is clear that epidural analgesia prolongs both the first and second stage of labour, and may result in reduced uterine activity and relaxation of the pelvic floor musculature.^{2,19} Depending on the timing and management of labour, this may lead to ineffective pushing.²⁰ It could be argued that epidural labour has a different course to normal labour.^{2,19} If progress in epidural labour is monitored by the parameters of normal labour, this alone may result in other interventions when all that may be needed is more time.

Although epidural analgesia was strongly associated with instrumental births, the strength of the association diminished over the period 1990 to 1997. The rising epidural rates have not been accompanied by an increase in instrumental births, and the odds ratio for instrumental births given an epidural declined notably compared to those women without epidural. One possible explanation is that increasing awareness among obstetric care providers that epidural labour may have a longer natural course has altered management of epidural labour, eg liberal time limits for second stage and delayed pushing.²⁰ As well, the increasing proportion of epidural labours which also receive oxytocin may be an indication that practitioners are conscious of the time differences, and are attempting to make epidural labour more closely track normal labour. Other possible explanations for this reduced association include a move from

using epidural for complex births to wider availability for low-risk births, and modified techniques for epidural analgesia during labour aimed at minimising the adverse effects on obstetric interventions. Surveys from several countries have reported declining doses of local anaesthetic and increasing use of opioids in obstetric epidurals, a change from intermittent bolus top-ups to continuous infusion and increased use of combined spinal epidural (CSE) analgesia during the 1990s.²¹⁻²³ Use of opioids, low dose continuous infusion and CSE have been associated with reduced motor block and decreased rates of instrumental births, potentially via increased mobility and more effective pushing during second stage.²⁴⁻²⁷ Although no local data are available, anecdotal reports suggest there was increased use of opioids but not CSE during the study period.

Episiotomy rates declined slowly over the study period especially among primiparas with spontaneous vaginal births. Evidence to support policies of restrictive episiotomy was first published in 1984.⁶ While there was a small increase in third degree tears as episiotomy rates declined, overall there was an increase in the rate of intact perineums. Of note is that the rate (but not the number) of episiotomies increased markedly among the fewer forceps births but not among the increased vacuum births. This could indicate that those births where forceps continue to be used are more complex or urgent births or it may reflect a, perhaps dwindling, group of clinicians who continue to prefer forceps with episiotomy to vacuum extraction. There are no published randomised controlled trials to guide clinicians on the use of episiotomy in instrumental births.

Validation studies in 1990 and 1998 have shown the MDC to be a source of reliable data on women giving birth in NSW.^{8,28} However, cross-sectional data have limitations. For example, although randomised trials have shown that epidural increases the risk of operative birth,² we cannot distinguish between epidural that results in operative birth and epidural that was used to facilitate an operative birth. Further, there is always likely to be some misclassification of data in routinely collected data sets. For example the group of women who have a caesarean during labour will include both emergency caesareans and some women who had planned a caesarean but went into labour before the planned date. We found some suggestion of this among multiparas as those with epidurals who did not have induction or augmentation of labour were twice as likely to have a caesarean during labour as those who also had induction or augmentation of labour. Overall this represents only a small group of women.

In summary, over the period 1990 to 1997 there was a significant decline in the rate of instrumental births among women at low risk of poor pregnancy outcome, regardless of parity. There was a coincident increase in spontaneous vaginal births and to a lesser extent

caesarean sections during labour. Episiotomy rates also declined over the study period. The decline in instrumental births occurred despite increased use of epidural analgesia. Epidural analgesia was associated with an increased likelihood of instrumental birth but the strength of this association peaked in 1992 and has declined since then, perhaps due to improved epidural techniques and management of epidural labour.

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The Launch of the National Maternity Action Plan (NMAP), September 24th, The Federal Parliament, Canberra, Australia

From Left: Dr Barb Vernon, national president, Maternity Coalition; Sen. Kerrie Nettle (Greens); The Hon. Carmen Lawrence (Labour) MP, Shadow Minister for the Status of Women; Sen. Aden Ridgeway (Australian Democrats); Sen. Meg Lees (Independent); Vanessa Owen, national president, Australian College of Midwives Inc.; The Hon. Jackie Kelly (Liberal) MP, Parliamentary Secretary to the Prime Minister of Australia.

NATIONAL MATERNITY ACTION PLAN

FOR THE INTRODUCTION OF COMMUNITY MIDWIFERY SERVICES IN URBAN & REGIONAL AUSTRALIA

Prepared by

Maternity Coalition

AIMS (Australia)

Australian Society of Independent Midwives

Community Midwifery WA Inc

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ABBREVIATIONS

Association for Improvements to Maternity Services	(AIMS)
Australian College of Midwives	(ACMI)
Australian Competition and Consumer Commission	(ACCC)
Australian Institute of Health and Welfare	(AIHW)
Australian Medical Workforce Advisory Committee	(AMWAC)
Australian Midwifery Action Project	(AMAP)
Australian Midwifery Act Lobby Group	(AMALG)
Australian and New Zealand Journal of Psychology	(ANZJP)
Australian Refined Diagnosis Related Group	(AR – DRG)
British Medical Journal	(BMJ)
British Journal of Obstetrics and Gynaecology	(BJOG)
Community Midwifery Program	(CMP)
Community Midwifery WA Inc	(CMWA)
Lead Maternity Carer	(LMC)
Medical Journal of Australia	(MJA)
National Health and Medical Research Council	(NHMRC)
National Maternity Action Plan	(NMAP)
New Zealand College of Midwives	(NZCOM)
World Health Organisation	(WHO)

GLOSSARY

Continuity of care	Care that is focused on the individual woman and her needs
Continuity of carer	The provision of care by a named professional or small group of professionals, throughout a woman's childbearing experience.
Midwifery-led care	Where the midwife is responsible for the delivery of care to particular women and their families and when midwives lead the development of guidelines for practice
Named midwife	A named qualified midwife who is responsible for providing midwifery care to a particular woman.
Peer review	An assessment of competence and skills by individuals, in groups of like minded equals, with the aim of improving performance.
Shared care	Antenatal care shared between the hospital and the woman's GP

NATIONAL MATERNITY ACTION PLAN FOR THE INTRODUCTION OF COMMUNITY MIDWIFERY SERVICES IN URBAN & REGIONAL AUSTRALIA

EXECUTIVE SUMMARY

The National Maternity Action Plan (**NMAP**) has been prepared by a broad coalition of consumer and midwifery representatives and organisations from across Australia. The **NMAP** outlines the rationale behind the need for major reform of maternity services, and, proposes a strategy for Federal and State/Territory governments to enable comprehensive implementation of community midwifery services in both urban and regional/rural Australia within the public health system.

The **NMAP** calls on both Federal and State/Territory governments to facilitate substantial change to the way in which maternity services are provided, by making available to all women the choice of having a community midwife provide continuous maternity care through the publicly funded health system.

Community midwifery services in the main provide continuity of midwifery led care to healthy women throughout the childbearing continuum, in collaboration with other practitioners such as general practitioners and specialist obstetricians, where indicated. Midwives are able to follow individual women across the interface between community and acute health services and to provide care to each woman from early in her pregnancy until the baby is 4-6 weeks of age.

Universal access to continuity of midwifery care will ensure savings in health dollars and bring Australia into line with international best practice in addition to meeting community demands for a range of readily accessible and appropriate maternity services.

Community midwifery is informed by international best practice standards that acknowledge midwives as “the most appropriate and cost effective type of health care provider to be assigned to the care of women in normal pregnancy and birth, including the risk assessment and the recognition of complications” (World Health Organisation, 1999, Care in Normal Birth).). In other western countries, particularly in the United Kingdom, New Zealand and Canada, midwifery is promoted and funded both as a public health and a primary health strategy, since community based care from midwives can be responsive to local needs, particularly with regard to health inequalities and social exclusion.

Continuity of midwifery care has been proven to result in fewer women needing expensive obstetric interventions, such as caesarean surgery and operative deliveries. Research also shows that such care contributes to long-term breastfeeding, improved adjustment to parenting, and may lower the incidence of post-natal depression.

Widespread access for pregnant women and their families to continuous care provided by community midwives would:

- Provide women with care that is as safe as current routine care
- Provide women with the choice of a midwife as their lead maternity carer in line with international best practice

- Improve maternal and infant outcomes
- Reduce the need for costly obstetric interventions in childbirth for the majority of pregnant women
- Be at least as, if not more cost effective than conventional models of maternity care.

The appropriate role for obstetric specialists lies in the care and treatment of women who develop medical complications during pregnancy or childbirth. Qualified and experienced community midwives should be providing primary care to pregnant women analogous to the role played by GPs in general health care: identifying and referring women to obstetric specialists as needed while providing care to healthy women for the duration of the finite episode of pregnancy and birth. This model involves close and effective collaboration between midwives and obstetricians in the care of women who develop complications. Once the baby is around 4 weeks old, women return to their GP for ongoing primary health care for themselves and their baby

It is the vision of the consumer and midwifery organisations involved in the development of this National Maternity Action Plan that within the next 5 years there will be equitable access to community midwifery programs providing continuity of care by a known midwife for all women who choose this model of care in all States and Territories.

This paper addresses the following:

- Reasons why reform of maternity services is urgently required
- What community midwifery care provides for women and babies
- Details of a successful best practice community midwifery program in Australia and how similar programs can be readily set up in other States and locations
- Recommendations to governments regarding implementation of community midwifery programs.

RECOMMENDATIONS

To ensure that Australian maternity services are able to meet the diversity and needs of individuals and the broader community in the twenty first century, the national consumer and midwifery organisations involved in preparation of this plan strongly recommend the following:

1. That Federal and State/Territory governments commit to urgent reform of maternity services with a view to ensuring all pregnant women have the option of accessing primary care from a qualified and registered community midwife throughout the childbearing continuum and within the public health system.
2. That the Federal Government introduce a Policy on Maternity Service Provision and an Implementation Framework that addresses structural reforms such as funding, legislation, standards of care and indemnification to enable planned and sustainable implementation of community midwifery programs in both urban and regional areas as a matter of priority.
3. That Federal and State/Territory governments ensure that there is effective consumer representation and participation at both policy and hospital/clinical levels to ensure that consumers of maternity services are included in the decision making processes that directly affect them.

4. That Federal and State/Territory governments further commit to ongoing expansion of community midwifery services in response to growth in consumer demand for these services.
5. That the Western Australian Community Midwifery Program, with its emphasis on community management and its provision of one-to-one continuity of midwifery care, be used as a proven and successful template for community midwifery programs to be established in all other States and Territories. Such Programs would ideally offer this type of care to women choosing to give birth in hospital delivery suites, birth centres or in the community.
6. That Federal and State/Territory governments work cooperatively to identify and eliminate policy and legislative barriers that currently limit or preclude midwives providing evidence-based and cost-effective primary health services to healthy pregnant women and their babies within the public health system.
7. That the Federal government reviews the Medicare Schedule to include midwives as legitimate experts in the provision of maternity care, and to enable women their right to choose either midwifery or medically led care. Alternatively the Federal Government should implement funding reforms in maternity provision similar to the Lead Maternity Carer arrangements that have been adopted by New Zealand.
8. That Federal and State/Territory governments implement the necessary legislative changes to enable midwives to order tests and prescribe drug therapy already commonly used in pregnancy, labour and birth.

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1. INTRODUCTION

The National Maternity Action Plan for the Implementation of Community Midwifery in Urban and Regional Australia (NMAP) has been developed through a national committee comprising representatives from peak consumer and midwifery advocacy groups. These include: The Maternity Coalition, Community Midwifery WA Inc (CMWA), the Association for Improvements to Maternity Services (AIMS), the Australian Society of Independent Midwives (ASIM).

The strategy paper was circulated widely for comment from a range of experts in maternity services across Australia. Midwifery and consumer groups were also encouraged to comment on the strategic direction outlined in the strategy.

There was strong overall consensus on the key elements of the Plan, in particular:

- That midwifery led care is the most appropriate care for the majority of pregnant women,
- That maternity services should be reformed to provide universal access to continuous care by community midwives through the public health system,
- That governments should establish community midwifery programs throughout urban and regional Australia as a matter of priority.

This paper therefore presents the rationale to support these claims and a proposed strategy for Federal and State governments to comprehensively implement community midwifery services in urban and regional/rural areas. It outlines the key elements of community midwifery, summarises the research evidence that supports this model of care as world-best practice for pregnant and birthing women, and, introduces successful examples within Australia of the use of community midwifery. It also considers the main administrative issues that would need to be addressed in establishing community midwifery programs in each State and Territory.

2. THE CASE FOR REFORM OF MATERNITY SERVICES

2.1 Australia's comparatively high intervention rates

There are about 250,000 births in Australia each year. At present the vast majority of women give birth in tertiary hospitals, mainly in 'delivery suites', which generally provide a high technology, medicalised model of maternity care.

Obstetric interventions in the labours and births of Australian women are now commonplace. An average of one in every five babies is currently born by caesarean surgery (around 50,000 per annum or 20%). Some private hospitals have rates of more than 40%¹. The World Health Organisation (WHO) recommends that caesarean sections should not be necessary for greater than 10% of women, with 15% being an upper limit for surgical intervention.² Those in favour of current rates of caesarean sections often argue that comparatively high rates reflect the higher age profile of women giving birth in Australia, especially those women who use private health insurance to access private hospitals. However recent research has shown that even low risk healthy women receive significantly greater numbers of caesarean sections

¹ This is shown in maternal and perinatal statistics published in each State and Territory.

² WHO. Care in Normal Birth: a practical guide. 1999. WHO/FRH/MSM/96.24
www.who.int/rht/documents/MSM96-24/msm9624.htm

than is recommended by WHO as best practice³. Further, it has been noted that a traumatic birth experience (often associated with unanticipated caesarean surgery) may have a significant impact on decisions regarding future reproduction⁴.

Other forms of intervention are also being widely used during the labours and births of healthy, low risk women. A study of 171,000 births in NSW found that of low risk first time mothers, labour is induced or augmented with oxytocin for one in three public patients and half of all private patients. Between a quarter (public) and a half (private) use epidural anaesthesia. Forceps procedures or vacuum extraction are used to deliver one in every five babies born in a public hospital and one in every three born in a private hospital. One in three public women and half of all private women receive episiotomy^{5 6}. Overall, less than one quarter of public first time mothers and one fifth of private patients give birth without obstetric intervention of any sort. These interventions are not always clinically indicated or in accordance with evidence based best practice.

Contrary to the current literature and statistical evidence, popular opinion in Australia still assumes that obstetric care is the safest way to manage birth for all women. The argument is commonly put that obstetric technologies and techniques have contributed to declining maternal and infant mortality in Australia as in other western countries over recent decades. Proponents of this view often overlook two important facts.

Firstly, there is strong evidence to show that improved maternal and infant outcomes have correlated with improvements in public health⁷. The ability of women to give birth to their babies without complications has been significantly improved over the past 50 years by better nutrition, housing, sanitation, hygiene and overall health. A reduction in the number of babies born to each childbearing woman, and fewer pregnancies to very young and older women has also improved both maternal and infant mortality rates.

Secondly, if high rates of obstetric intervention in childbirth deliver the best outcomes, then it follows that those countries with the highest rates of intervention would have the lowest rates of maternal and infant mortality (deaths) and morbidity (illness and injury related to childbirth). However, this is not the case. Indeed, the western countries with the lowest perinatal and maternal morbidity and mortality rates have been found to be those with comparatively low rates of obstetric intervention in childbirth, and where there is widespread use of midwives as the primary caregivers of pregnant and birthing women.^{8 9}

2.2 Failure to match international best practice

Australian rates of intervention do not currently meet international best practice, as exemplified in countries such as the Netherlands¹⁰ and New Zealand.¹¹ These countries have well established models of midwifery care with the majority (up to 80%) of pregnant women

³ Roberts, C.L., Tracy, S., Peat, B 2000 "Rates for obstetric intervention among private and public patients in Australia: population based descriptive study", *BMJ* 2000; 321:137-141 <http://bmj.com/cgi/content/abstract/321/7254/137>

⁴ Gottvall K, Waldenström U "Does a traumatic birth experience have an impact on future reproduction?" *BJOG* 2002; 109: 254-60

⁵ Roberts et al *ibid*.

⁶ Nassar N, Sullivan EA, Lancaster P, Day P. *Australia's mothers and babies 1998*. Australian Institute of Health and Welfare National Perinatal Statistics Unit, 2000 AIHW cat.no.PER15 http://www.aihw.gov.au/npsu/report_f.htm

⁷ Wagner, M 1996 *Pursuing the birth Machine, the Search for appropriate technology*. Sydney, ACE Graphics

⁸ Enkin M, Keirse JNC, Neilson J, Crowther C, Duley L, Hodnett E, Hofmeyr J. 2000 *A Guide to effective care in pregnancy and childbirth*. 3rd Ed. Oxford. Oxford University Press <http://maternitywise.org/guide/about.html>

⁹ Tew M. "Do obstetric intranatal interventions make birth safer?" *BJOG*. 1986; 93: 659-674

¹⁰ Wieggers TA, Keirse MJNC et al. "Outcome of planned home and planned hospital births in low risk pregnancies in the Netherlands". *BMJ* 1996;313:1309-13

¹¹ Ministry of Health NZ 2000, Health Funding Authority, Maternity Services: A Reference Document. November 2000 <http://www.moh.govt.nz/moh.nsf/>

receiving primary care from midwives with referral to specialist obstetric care only when necessary.

The American Public Health Association (APHA) takes a position in support of the expansion of midwifery as a key strategy to improving access to care for childbearing families for the purpose of increasing their health care options and thereby to the subsequent improvement of birth outcomes¹².

The first key recommendation of the recently published report from an Expert Advisory Group on Caesarean Section in Scotland states “all women should have the benefit of one-to-one midwifery care in labour. Such support reduces the rate of obstetric interventions including Caesarean section”¹³.

Although there are comparatively high rates of obstetric intervention in Australia the most recent maternal mortality report shows increased numbers of maternal deaths. A recent report produced by the National Health and Medical Research Council (NHMRC) finds that the rate of maternal deaths directly related to pregnancy and birth rose from 32% in the triennium 1991-1993 to 46% in the period between 1994 and 1996¹⁴. The maternal mortality rate for Australia now stands at 13 per 100,000 confinements in 1994-96 compared to 10.9 per 100,000 confinements in 1991-93. This increase reverses the trend of declining direct maternal deaths seen over the previous 15 years. There was an increase in the proportion of direct maternal deaths in which avoidable factors were considered to be possibly or certainly present from 7 (26%) of 27 deaths in 1991-1993 to 22 (48%) of 46 deaths in 1994-1996¹⁵. While further reports are needed to determine whether the 1994-1996 triennium was an aberration or indicative of a new trend, the report serves as a timely reminder that health policy for maternity services needs to emphasise and facilitate normal birth wherever possible.

There is strong evidence now that rising rates of maternal mortality in the USA and Brazil are related to their rising rates of caesarean section.¹⁶ As Wagner notes “maternal mortality even for elective (non-emergency) caesarean section is 2.84 fold or nearly three times higher than for vaginal birth.

*The normalising of the (caesarean) operation throughout society has lulled women into a false sense of security. It's only a matter of time before we have a sharp increase in maternal mortality because of Caesarean sections. We are beginning to see it happen already.*¹⁷

There is growing evidence that surgical intervention in birth also contributes to higher rates of maternal morbidity (illness and injury) eg postnatal depression.¹⁸ Research suggests the increasing use of caesarean surgery as a method of delivering babies is a major contributing factor in making women more vulnerable to postnatal depression.¹⁹ Studies have shown that

¹² American Public Health Association, Inc. 2001 Supporting Access to Midwifery Services in the United States (Position Paper) American Journal of Public Health 2001;91(3):482-485

¹³ Expert Advisory Group on Caesarean Section in Scotland. Experts Report and Recommendations to the Chief Medical Officer, Scottish Programme for Clinical Effectiveness in Reproductive Health. Expert Advisory Group on Caesarean Section in Scotland, Edinburgh . 2001. <http://www.show.scot.nhs.uk/crag>

¹⁴ NHMRC 2001 Report on Maternal Deaths in Australia 1994-96. NHMRC Cat. No. 0145246 AIHW Cat. No. PER 13 Commonwealth of Australia 2001, p.1 <http://www.nhmrc.gov.au/publications/pdf/wh32.pdf>

¹⁵ Walters W Ford J Sullivan E King J Maternal deaths in Australia. *MJA* 2002;176:413-414

¹⁶ Wagner M 2001 Fish can't see water: the Need to Humanize Birth. *Int J Gynecol Obstets* 75:25-37

¹⁷ “Caesareans linked to risk of infertility” *Guardian Unlimited* 21 April 2002 <http://www.guardian.unlimited.observer/uknews/caesareans> linked to risk of infertility

¹⁸ Fisher J, Astbury J, Smith A. “Adverse Psychological impact of operative obstetric interventions: a prospective longitudinal study”. *ANZJ Psych* 1997;31:728-38

¹⁹ Boyce PM, Todd AI. “Increased risk of postnatal depression after emergency caesarean section.” *MJA* 1992; 157:172-4

women who had spontaneous vaginal birth “were most likely to experience a marked improvement in mood and an elevation in self-esteem across the late pregnancy to early postpartum interval. In contrast, women who had caesarean deliveries were significantly more likely to experience a deterioration in mood and a diminution in self-esteem.”²⁰

2.3 *One-to-one continuous midwifery care lowers intervention rates*

Normal birth is more likely to be achieved when a woman has access to ‘continuity of carer’ or ‘continuity of care’ from a midwife who is responsible for her care throughout pregnancy, labour and birth, and the postnatal period. “The systematic review comparing continuity of midwifery care with standard maternity services including data from all Australian trials shows that continuity of midwifery care is associated with lower intervention rates than standard maternity care, and that midwifery models of care are as safe as the existing standard services”²¹. The continuity of carer model of care has been proven to reduce the use of obstetric interventions in labour and birth, including the need for pharmacological pain relief, inductions, augmentations, instrumental deliveries, episiotomies and caesarean sections.^{22 23 24}

This conclusion is strongly reinforced by the authors of *Effective Care in Pregnancy and Childbirth*. These researchers included not only an international search of all trials that met their strict criteria but all relevant medical journals from the 1950s onwards, writing to over 40,000 obstetricians in 18 countries to identify unpublished studies. Their research has been incorporated into the Cochrane database. After critical evaluation of studies comparing one-to-one continuous midwifery care with medical models of care they conclude:

*Evidence from controlled trials shows that women who had continuity of caregivers were less likely to use pharmacological analgesia or anaesthesia during labour and birth, to have labour augmented with oxytocin, to have a labour length of more than 6 hours, or to have a baby with a 5 minute Apgar score below 8. They were also more likely to feel well prepared for labour, perceive the labour staff as caring, feel in control during labour and feel well prepared for childcare*²⁵.

Chalmers et al identify continuity of care from a qualified midwife as best practice for the healthy majority of women:

*as technical advances became more complex, care has come to be increasingly controlled by, if not carried out by, specialist obstetricians. The benefits of this trend can be seriously challenged. Direct comparisons of care given by a qualified midwife with medical back-up with medical or shared care show that midwifery care was associated with a reduction in a range of adverse psychosocial outcomes in pregnancy, and with reductions in the use of acceleration of labour, regional analgesia/anaesthesia, operative vaginal delivery and episiotomy, fewer babies weighing less than 2500 grams, needing resuscitation or needing admission to special care units*²⁶.

²⁰ Fisher J, Astbury J, Smith A. “Adverse Psychological impact of operative obstetric interventions: a prospective longitudinal study.” *ANZJ Psych* 1997; 31:728-38

²¹ Waldenstrom U, Turnbull D “A systematic review comparing continuity of midwifery care with standard maternity services” *BJOG* 1998;105(11):1160-70

²² Hodnett ED. Caregiver support for women during childbirth (Cochrane Review). In: *The Cochrane Library*, Issue 3, 1999. Oxford: Update Software.

²³ Homer CSE, Davis GK, Brodie P, Sheehan A, Barclay LM, Wills J, Chapman G. “Collaboration in maternity care: a randomised controlled trial comparing community-based continuity of care with standard hospital care.” *BJOG* 2001;108:16-22

²⁴ Rowley, M, Hensley, M, Brinsmead, M, & Wlodarczyk, J. “Continuity of care by a midwife team versus routine care during pregnancy and birth: a randomised trial.” *MJA* 1995;163 (9): 289-293.

²⁵ Chalmers I, Enkin M, Kierse M 1996 eds *Effective Care in Pregnancy and Childbirth*, Oxford University Press, Oxford p.15-16

²⁶ *Ibid*, p.15

The effectiveness of midwifery continuity of care largely stems from the relationship of mutual trust built up between a midwife and a woman during the antenatal period. The establishment of this relationship, typically developed through extensive contact in the antenatal period, enables the midwife to provide care in a way that meets the individual woman's emotional, psychological, cultural and physical needs, as well as her medical needs.

This model of care has also been found to produce better outcomes for both mothers and babies, and to assist in mother/baby attachment or bonding²⁷.²⁸ Further, it has been shown that one-to-one midwifery care is beneficial beyond the birth episode, assisting in the establishment of long-term breastfeeding and reducing postnatal depression rates.²⁹³⁰³¹ Community based midwives are also more likely to identify the need to implement early intervention strategies in relation to a range of issues that may affect a family's ongoing wellbeing, as they have access to the familial environment.

Indeed, such are the demonstrated benefits of one-to-one continuous midwifery care to birthing women and their babies that Chalmers et al conclude that *"it is inherently unwise, and perhaps unsafe, for women with normal pregnancies to be cared for by obstetric specialists, even if the required personnel are available"*³².

2.4 Benefits for Indigenous women

Access for Australian Aboriginal women to one-to-one continuous midwifery care in Australia is currently very limited. Yet international evidence on the benefits of one-to-one midwifery care for Indigenous women in other countries, particularly where it is provided to women within their own communities, suggests that community midwifery care of pregnant women has the potential to significantly improve maternal and infant outcomes for Australian Aboriginal women and their babies. One-to-one continuity of care from a known midwife has the potential to provide care for Indigenous women that is more specific to their cultural needs and expectations than conventional hospital based care, particularly when an Aboriginal health worker is also involved in the care or when Indigenous midwives are able to attend other Indigenous women.

While the cultural needs of Australian Aboriginal women are distinct from those of Indigenous people in other countries, international experience indicates one-to-one continuous midwifery care is likely to be an effective model of care for improving women's experience of childbirth as well as the maternal and infant mortality and morbidity outcomes.

For example, in New Zealand, where publicly funded continuity of midwifery care has been available for the past ten years, the perinatal mortality rates for Maori women are as low as those for European/other.³³ More Maori women choose midwife only care, with more than 73% of all Maori women choosing this option in 1999.³⁴ Both the maternal mortality rates and perinatal mortality rates are lower in New Zealand than Australia, in the Indigenous populations.

²⁷ Expert Advisory Group on Caesarean Section in Scotland. Experts Report and Recommendations to the Chief Medical Officer, Scottish Programme for Clinical Effectiveness in Reproductive Health. Expert Advisory Group on Caesarean Section in Scotland, Edinburgh . 2001. <http://www.show.scot.nhs.uk/crag>

²⁸ McCourt C, Page L. *Report on the evaluation of one-to-one midwifery*. Thames Valley University, London 1996.

²⁹ Hildingsson I, Haggstrom, T. 'Midwives lived experiences of being supportive to prospective mothers/parents during pregnancy' *Midwifery* 15:82-91, 1999

³⁰ Littlewood J, McHugh N. *Maternal distress and postnatal depression: The myth of Madonna* Houndmills:MacMillan Press, 1997

³¹ Fisher J, et al op cit

³² Chalmers I, et al op cit

³³ NZ Ministry of Health. *Report on Maternity 1999*. Wellington, New Zealand. <http://www.moh.govt.nz>

³⁴ ibid

Similar initiatives have been instituted for Canadian Indigenous women. Models of midwifery care have been established which are community based, offering one-to-one continual midwifery care to Indigenous women within their own communities.³⁵ This is in response to Indigenous demands for self-determination of health - and has resulted in the development of a traditional training program and a birth centre on the land at Six Nations (on the Ontario/U.S. border) which trains First Nations women, based in their community, to care for other First Nations women there. Government education initiatives in Ontario have prioritised the integration of Indigenous midwifery students to provide community-based, continuity of care midwifery in urban and rural environments. This is in recognition of the value placed on provision of this model of care delivery³⁶ and in response to a stated desire by Indigenous communities for access to community midwifery.

Community midwifery projects have also been developed with considerable success in the remote Arctic areas of Canada, initiated in response to the devastating social effects of "evacuated childbirth" policies.³⁷ A pilot project on the east coast of Hudson's Bay has expanded to include 7 Inuit communities. Women from the Povungnituk community decided that the building of a maternity centre in 1986 needed to incorporate the training of Inuit women, selected by their community, to become community-based midwives who would care for birthing women at home, in their own community instead of evacuating all birthing women to tertiary centres in the south. White midwives were originally recruited from the south to train and work alongside the Inuit trainees. While high-risk women continue to be flown out, the vast majority (>90%) of births take place in the community. These projects have not only demonstrated good clinical outcomes for Inuit women but have also reintegrated birth and birth care back into Inuit communities.³⁸

2.5 Benefits for socio-economically disadvantaged women

The ability of one-to-one continuous midwifery care to improve outcomes for both mothers and babies is also noteworthy for socio-economically disadvantaged women, including teenage mothers, single mothers and mothers experiencing drug or alcohol problems. Results from the Albany Practice in London support this model of care.^{39 40}

In the Albany Practice in London, a group of six self employed midwives plus a practice manager/administrator work in partnership, self managing a contract with Kings College Hospital (since 1997) to provide care for 216 women per annum. Kings provides indemnity insurance for the midwives. Women are referred by local GPs in Peckham, an area of high socioeconomic inner city deprivation with the poorest quality housing (highest deprivation score of all practices at Kings). Women of all ethnicities are represented including Caucasian; African/Caribbean; and Indo Chinese women. The practice is based in the community, and the program provides midwifery cover 24 hours a day. Each midwife has an individual caseload for which she is the primary midwife.

³⁵ Coochie, C, Nabigon H, 1997 "A path towards reclaiming Nishnawbe Birth Culture: Can the Midwifery Exemption Clause for Aboriginal midwives make a difference?" in Shroff, F ed. *The New Midwifery: Reflections on Renaissance and Regulation*, Women's Press, Toronto.

³⁶ Ibid.

³⁷ Kaufert, Patricia & O'Neil, John 1988 "The Politics of Obstetric Care: The Inuit Experience." Unpublished paper, Department of Community Health Services, University of Manitoba: Winnipeg.

³⁸ Van Wager, Vicki. (2002) Personal communication regarding the Innuitsivik Maternity, Povungnituk, Quebec.

³⁹ Sandall J; Davies J; Warwick C (2001) Evaluation of the Albany Midwifery Practice: Final Report. March 2001. Florence Nightingale School of Nursing and Midwifery. London

⁴⁰ Select Committee on Health of the House of Commons. Second Report Public Health 2001. Vol. 1

<http://www.publications.parliament.uk/pa/cm200001/cmselect/cmhealth/30/3011.htm#n93>

An independent evaluation of the program⁴¹ compared outcomes with other midwifery group practices at Kings College Hospital, and found that in 1999, 89% of the women were attended by their primary midwife and that there was a lower induction rate, lower elective and emergency c/s rate, less use of pethidine and epidural anaesthesia and lower episiotomy rate. There was also a comparatively higher vaginal birth rate, more use of birthing pool, higher intact perineum rate, and higher rates of breastfeeding in the short and medium term. The women recorded very high satisfaction rates, and the majority of staff at Kings was very positive about the practice. It has become a model practice in the UK, cited in the House of Commons as an example of a public health strategy.⁴²

In Australia, improved outcomes for women 'at risk' of poor outcomes has been achieved through one-to-one continuous midwifery care provided to woman in the northern suburbs of Adelaide. Although the Northern Women's Community Midwifery Programme can only assist a small number of women each year, the outcomes for adolescent mothers have been excellent compared to similar women who receive conventional care.^{43 44}

2.6 Benefits for women in regional and rural areas

There is currently a national shortage of appropriately skilled midwives⁴⁵, as well as general practitioner and specialist obstetricians⁴⁶ in Australia. This issue has had a major impact on regional and rural centres. In rural Australia in particular, women are being forced to leave their families and communities in increasing numbers in order to access hospital based birthing services in other locations.

This situation imposes unreasonable expense and inconvenience on pregnant women and their families, especially those with responsibility for caring for older children⁴⁷. It also means that women are often without familial support during an important family event. Furthermore, the great distances that women are being required to travel in rural areas to access maternity services may be used to justify induction of labour for practical convenience rather than for medical reasons. This practice may precipitate a cascade of interventions, leading to unnecessary medicalisation of the birthing process, with its inherent risks. The WHO Safe Motherhood program asserts that "The district is the basic unit for planning and implementing [maternity care]"⁴⁸.

The withdrawal of regional maternity services can be at least partly addressed, with acknowledgment from the Federal and State/Territory governments that midwives are experts in maternal and neonatal care, and are able to care for healthy pregnant women and their babies. The widespread availability of community midwifery programs would enable the healthy majority of regional and rural women to receive primary care for pregnancy and birth in their home locality, with midwives able to identify and refer women with medical or obstetric complications to specialist care in the nearest facility. Although the provision of one-to-one continuous midwifery care within the public health system would not solve the

⁴¹ Sandall et al 2001 op cit

⁴² Select Committee on Health of the House of Commons. Second Report Public Health 2001. Vol. 1

<http://www.publications.parliament.uk/pa/cm200001/cmselect/cmhealth/30/3011.htm#n93>

⁴³ Homer C; Brodie P; Leap N(2001) Establishing Models of Continuity of Midwifery Care I Australia. A resource for midwives and managers. Centre for Family Health and Midwifery, UTS, Sydney. Page 53

⁴⁴ Church A, Nixon A (2002) An evaluation of the Northern Women's Community Midwifery Program, Adelaide IN PROGRESS

⁴⁵ Tracy S et al 2000 "Contemporary issues in the workforce and education of Australian midwives" *Australian Health Review*;23(4):78-88.

⁴⁶ AMWAC 1998 *The obstetrics and gynaecology workforce in Australia: supply and requirements 1997-2008*. Australian Medical Workforce Advisory Committee 1998.6.Sydney

⁴⁷ Kildea S 1999 *And the women said.....reporting on birthing services for Aboriginal women from remote Top End Communities*. Women's Health Strategy Unit, Territory health Services, Govt Print NT

⁴⁸ WHO 1994. Mother-Baby Package: Implementing Safe Motherhood in Countries. WHO/FHE/MSM/94.11

problem of a shortage of specialists working in regional areas, it would help to lessen the stress and inconvenience to women by providing alternative birthing services where adequate arrangements can be made for transfer to obstetric care facilities in the minority of cases where this is required.

2.7 *Limited access to one-to-one continuous midwifery care*

Despite the proven benefits, backed by reputable research, of one-to-one continuous midwifery care for all women, access of women in Australia to birthing services provided by midwives as the lead professionals (such as at birth centres and for home births) remains very limited. Since the introduction 12 years ago of reform to maternity services in New Zealand to provide access to one-to-one continuous midwifery care through the public health system, New Zealand women have been voting with their feet in ever increasing numbers, with over 70% of women now choosing to give birth with a midwife as their lead maternity carer⁴⁹. One-to-one continuous midwifery care is also a widely available option to women in the United Kingdom, Canada, the Netherlands and other European countries. In Australia, fewer than 1% of women can currently access one-to-one continuity of care from a midwife in the public health system and only in specific locations in WA, SA and the ACT.

Outside the public health system, women can only choose a midwife as their primary carer if they have the financial capacity to meet the cost of this service themselves. This option, too, is now severely diminished since the loss in 2001 of accessible and/or affordable professional indemnity insurance for privately practicing midwives. In the absence of accessible services offering one-to-one continuous midwifery care in the public health system, the demise of private midwifery services is leaving women little or no choice regarding their preferred carer or place of birth.

There have been numerous government inquiries into maternity services at both State and Federal levels over the past 15 years (see Appendix A). Despite these reports, which in the majority recommend the implementation of 'one-to-one' or 'continuity of midwifery care', the medical model of care, with the general practitioner or specialist obstetrician as the lead professional, remains the dominant maternity service model across the nation.

This situation is not in the best interest of women and babies as recipients of maternity services, and does not comply with internationally recognised best practice. It represents an overuse of precious specialist obstetric resources and the exclusion of more appropriate midwifery care.

2.8 *Benefits to consumers from enhanced choice in maternity services*

Limited access to community midwifery services is not consistent with the principles of national competition policy, which is based on the premise that consumer choice, rather than the collective judgement of suppliers (in this case doctors) should determine the range of (maternity) services that are available.⁵⁰

Current barriers to midwives being able to provide women with alternatives to medicalised care include:

⁴⁹ NZ Ministry of Health. *Report on Maternity 1999*. Wellington, New Zealand. <http://www.moh.govt.nz>

⁵⁰ Chairman, Professor Allan Fels, *The Trade Practices Act and the Health Sector*, speech to the Australian College of Health Service Executives, 7 February, 1998

- A Medicare schedule that does not acknowledge midwives as expert carers or provide a schedule for their services;
- A lack of professional indemnity insurance for community midwifery practitioners;
- Maternity services policies that are not informed by evidenced based research, or, by the recommendations of peak bodies such as the World Health Organisation⁵¹ and the National Health & Medical Research Council of Australia^{52,53}
- The long standing refusal by health departments and/or hospitals to grant access agreements to appropriately accredited midwives so that they can provide a ‘seamless’ service between the home and public hospitals, and attend their clients in public hospitals as professionals⁵⁴
- Lack of collaboration among many medical professionals in the maternity services and their failure to recognise and respect midwives as autonomous professionals, capable of safely and effectively being responsible for the care of healthy pregnant women.

2.9 *Community midwifery care is cost-effective*

A further imperative for the reform of maternity services is that widespread implementation of community midwifery has the potential to produce savings in health budgets in the medium term.⁵⁵ The ‘maternal episode’ accounts for a significant proportion of the nation’s health budget, as childbirth “is the single most important reason for hospitalisation and accounts for the highest number of occupied bed days”.⁵⁶

Rising rates of caesarean surgery and other medical interventions over the past few decades have also contributed to rising costs in the provision of maternity services per birthing woman.⁵⁷

So too, information regarding the long terms risks associated with caesarean surgery such as a higher risk of ruptured uterus in subsequent pregnancies and placental problems that can lead to infertility, as well as increased respiratory problems in babies are rarely presented to women.⁵⁸

Because primary midwifery care of healthy women has been shown to result in significantly fewer interventions, women accessing one-to-one continuous midwifery care are likely to complete the pregnancy episode at a much lower unit cost than women who are unable to access midwife led care.

Appendix B provides a comparison of the costs of standard hospital based maternity care that currently dominates Australian maternity services, with models of community midwifery care. Limits to publicly available estimates of hospital costs make comparison difficult. However, the analysis contained in appendix B is fully referenced and, if anything, a significant underestimate of the costs of medicalised childbirth services.

⁵¹ WHO (1999) Care in Normal Birth: a practical guide. WHO/FRH/MSM/96.24 <http://www.who.int/rht/documents/MSM96-24/msm9624.htm>

⁵² NHMRC 1996, National Health & Medical Research Council *Options for Effective Care in Childbirth* Australian Government Printing Service, Canberra

⁵³ NHMRC 1998 National Health & Medical Research Council *Review of Services Offered by Midwives* Australian Government Printing Service, Canberra

⁵⁴ Department of Health NSW. 1989. *Maternity Services in New South Wales. Final Report of the Ministerial Taskforce on Obstetric Services in New South Wales*. Sydney: Department of Health Publication No: (HSU) 89-007.

⁵⁵ Homer, C. S. E., Matha, D., Jordan, L. G., Wills, J., Davis, G. K. 2001. Community-based continuity of midwifery care versus standard hospital care: a cost analysis. *Australian Health Review*. 24 (1): 85-93.

⁵⁶ Senate Community Affairs Reference Committee. *Rocking the Cradle: a report of childbirth procedures*. Canberra. Commonwealth of Australia 1999. Available at http://www.aph.gov.au/senate/committee/clac_ctte/index.htm

⁵⁷ see Maternal and Perinatal statistics published by each State and Territory.

⁵⁸ Wagner M “Choosing Caesarean Section” *The Lancet* 2000:Nov;Vol356:1677-80

The estimates are based on assessments of the direct costs to acute services of standard hospital labour and birth, and do not include a range of additional related costs such as neonatal intensive care unit costs, readmission to hospital, post-natal support services, and antenatal screening services.

The actual savings from significant numbers of women birthing in the care of a known community midwife would probably be significantly greater than Appendix B suggests, primarily because of the reduced need for costly interventions that women birthing with a known midwife have been shown to have (see Section 2.4). At the very least, the analysis in Appendix B shows community midwifery models of care to be highly cost effective and to be a competitive alternative approach to maternity care for the majority of women.

Community midwifery services are also cost effective because they can be established without the need for capital expenditure. Community midwifery programs can be established in urban, regional or rural areas by utilising existing infrastructure, through developing appropriate administrative, policy and financial arrangements to support the community midwifery services.

2.10 *Community midwifery as a medium term solution to the indemnity crisis*

A final advantage to the adoption of midwifery models of care as a mainstream maternity service is that this model of care has the potential to play a major role in the medium term in addressing the problems surrounding professional indemnity insurance for maternity carers. The reasons for the current crisis in professional indemnity for obstetricians are complex.

One of the points on which there is broad agreement is that the rising frequency of obstetric litigation, together with a landmark pay out of millions of dollars to a claimant in 2001, have significantly contributed to rising premiums to unaffordable levels for both general practitioner and specialist obstetricians. Wagner has discussed in detail the issues associated with caesarean section and its overuse by medical doctors as a defence to avoid litigation and states “Defensive obstetrics violates a fundamental principle of medical practice: whatever the physician does must be first and foremost for the benefit of the patient”⁵⁹.

This circumstance has also impacted on independent midwives, who are currently unable to access any affordable professional indemnity insurance. Although litigation against midwives is rare, access to professional indemnity has virtually disappeared. The major reason for this situation is that the numbers of independently practicing midwives has been comparatively small. For example, before the withdrawal by Guild Insurance of professional indemnity insurance in 2001, there were about 80 midwifery practitioners registered with the Australian College of Midwives. Guild Insurance stated that it was not a viable number to maintain the cover.

The proven capacity of midwifery models of care to reduce the use of obstetric intervention in labour and birth while providing excellent outcomes for mothers and babies means that the widespread use of midwifery expertise in one-to-one care of pregnant women is likely to significantly reduce the overall risks to insurers involved in maternity services. Since virtually every obstetric intervention carries some degree of risk as well as benefits, lower rates of intervention are likely to lower the risks of litigation through an adverse outcome.

⁵⁹ Wagner M *ibid*

There is also strong anecdotal evidence to suggest that women who receive one-to-one care from an expert midwife they get to know well are less likely to turn to litigation in the event of an adverse outcome for themselves or their babies. This stems from the sense of responsibility which women are encouraged to take for their care, through fully informed decision-making about their options, alternatives and risks associated with their care and any treatment for complications or abnormalities. The midwife-woman relationship also typically provides women with strong support to address the emotional trauma related to an adverse outcome. While litigation remains an important right for consumers who believe there has been negligence in their care by either a midwife or a doctor, this is less likely to be the first option of a woman who has received continuity of care from a known midwife. Women in these circumstances tend to be more realistic that bad outcomes sometimes happen through no fault of their carers.

In summary, it is evident that strategies designed to reduce costs and at the same time increase the effectiveness of maternity care for women are urgently required. The anticipated benefits of widespread implementation of community midwifery models of care are:

- Cost effective, safe and highly satisfactory maternity health services for women regardless of place of residence and regardless of socio-economic or ethnic background
- Significant reductions in costly obstetric interventions where primary midwifery care (that is continuity of care *and carer*) is provided throughout the childbearing continuum)
- Reduction in the risk of maternity care through lower levels of obstetric intervention to achieve good outcomes for the majority of women and babies, thereby reducing litigation
- Early intervention to assist establishment of long term breastfeeding; reduction in rates of post natal depression requiring medical attention and/or drug therapy; and greater assistance to mothers and fathers to adjust to the demands of a new baby.

Changes to current maternity service provision are required at both State/Territory and national levels to embrace one-to-one continuous midwifery care as a viable, safe, evidence-based and cost effective service that is responsive to what women want and need.

3. THE PRINCIPLES & PRACTICE OF COMMUNITY MIDWIFERY

3.1 Principles of community midwifery care

The midwife is internationally recognised as “the most appropriate and cost effective type of health care provider to be assigned to the care of women in normal pregnancy and birth, including the risk assessment and the recognition of complications”.⁶⁰

Best practice midwifery aims to ensure that a woman and her midwife work in a special partnership, which is established throughout the pregnancy, and that the woman is then attended in labour and postnatally by her own midwife whom she knows well. This partnership is special because it is based on reciprocity and trust and a respect for the expertise of both the woman and the midwife⁶¹. Each woman's personal knowledge of her gynaecological and obstetric history and her personal understanding of self are bodies of knowledge considered to be as important within the woman/midwife partnership as that of the clinician. This continuum of care forms the basis of midwifery models of care and, as discussed in part 2.4, is widely acknowledged as ensuring that obstetric interventions are minimised, and that women have higher rates of satisfaction with their birth experience.^{62,63,64,65}

Community midwifery is informed by the following guiding principles:

- Pregnancy and childbirth are normal and significant life events
- The woman is the focus of maternity care. She should be able to feel she is in control of what is happening to her and able to make informed decisions about her care, based on her needs, having discussed matters fully with the professionals involved⁶⁶
- Midwifery care follows the woman across the interface between institutions and the community, through all phases of pregnancy, birth and the postnatal period. It therefore involves collaboration with other health professionals where necessary.⁶⁷

Community midwifery care can be provided in a woman's home, hospital or birth centre settings.

Primary midwifery care in community settings, that is community midwifery, differs in many significant ways from most current hospital based midwifery practice based on rostered shiftwork.

Firstly, the most obvious difference is the ability of the community midwife to act as the primary carer and offer each woman one-to-one care throughout the childbearing continuum. This model of care is often referred to as caseload or community midwifery. Through such continuity of carer, the midwife and the woman have the opportunity to form a relationship of mutual trust and respect throughout the pregnancy. When labour begins, the woman is confident that someone who knows and understands her needs will attend her and will remain

⁶⁰ WHO. Care in Normal Birth: a practical guide. 1999. WHO/FRH/MSM/96.24 www.who.int/rht/documents/MSM96-24/msm9624.htm

⁶¹ Guillard K, Pairman S (1995) *The Midwifery Partnership: A Model for Practice*. Department of Nursing and Midwifery Monograph Series 95/1. Victoria University of Wellington, NZ 1995

⁶² Hodnett ED. Caregiver support for women during childbirth (Cochrane Review). In: *The Cochrane Library 2000*

⁶³ Rowley, M, Hensley, M, Brinsmead, M, & Wlodarczyk, J. Continuity of care by a midwife team versus routine care during pregnancy and birth: a randomised trial. *Medical Journal of Australia* 1995;163 (9): 289-293.

⁶⁴ Enkin M, Keirse JNC et al. 2000 A Guide to effective care in pregnancy and childbirth. OUP <http://maternitywise.org/guide/about.html>

⁶⁵ Parratt J. *Trusting enough to be out of control: The Impact Of Childbirth Experiences On Women's Sense Of Self*. Masters Thesis, University of Southern Queensland, 2000.

⁶⁶ Page LA 2000 *The New Midwifery: Science and Sensitivity in Practice*. London. Harcourt

⁶⁷ Homer C, Brodie P, Leap N. 2001 *Establishing Models of Continuity of Midwifery Care in Australia: a resource for midwives and managers*. Sydney. Centre for Family health and Midwifery, UTS Sydney.

with her throughout the labour and birth. This is of great comfort to women, especially if a complication arises and they are unable to have the birth of their choice.

Secondly, midwives providing one-to-one continuous care are able to treat pregnancy and birth as a normal event that only requires intervention if a deviation from the normal occurs. This principle ensures that each woman is individually assessed in relation to her own health, social and cultural requirements. As midwives are comprehensively educated to recognise abnormalities in pregnancy and birth, they are able to refer a woman to specialist care where appropriate⁶⁸.

A midwife providing primary care on a caseload basis also works in collaboration with secondary, or specialist, levels of care to ensure the best outcome for each woman and her baby. One-to-one continuous midwifery care is most effective when good working relationships exist between midwives, medical practitioners and other hospital staff.

3.2. Community Midwifery Programs

The primary principle of community midwifery is that it is women centred and community managed, thus ensuring that the service meets the requirements of the community in which it is situated.

The emphasis of community midwifery programs is on a 'wellness' rather than a sickness model of maternal care. A wellness model of maternity care assumes, that:

- pregnancy and childbirth is, in the majority of cases, a normal life event that will proceed to an uncomplicated outcome
- women make informed choices when factual, unbiased information is readily available
- women take responsibility for their health and antenatal education
- women have ease of access to their choice of preferred carer and birth place
- birth is viewed as normal, with complications able to be readily identified and planned for, or responded to, effectively
- midwives are educated and experienced in providing primary care and diagnosing complications that require consultation with, or referral to, specialist care
- specialist obstetric care is a readily accessible secondary, rather than primary, level of care
- specialist hospital care is maintained for those women who most need it.⁶⁹

Importantly, for community midwifery programs to succeed they need to be managed by people in the community who regard pregnancy and childbirth as a normal life event and recognize the potential of a woman's birth experiences to affect not only her own life, but that of her child, her immediate family, and also the broader community.

Community management is preferable to the alternative of birthing programs being managed as part of acute health services in hospitals. The dominant paradigm within hospital services is illness, and pregnancy and birth are usually viewed as a medical (and inherently dangerous) episode.

Initiatives to establish community midwifery programs need to:

⁶⁸ Wagner M 1998 Midwifery in an Industrialised World. *J of the Canadian Society of Obstetrics and Gynecology* 20;13:1225-34

⁶⁹ Standards of Care and Protocols for Preceptorship, (2001) 2002 Community Midwifery WA Inc, Fremantle, WA

- be undertaken by a substantive community group, able to act as a management body (ie as an incorporated association);
- be focussed on the primary aims and principles of community based health services, such as preventative health; and,
- comprise consumers, midwives, medical practitioners and other community members committed to the provision of effective choices in pregnancy and childbirth care to ensure that the service reflects community needs.

There are currently two publicly funded community midwifery programs offering the option of home birth in Australia, and several other models offering some level of midwife-led care. A brief appraisal of these Programs is provided in Appendix C.

3.3 *The WA CMP: A successful model of one-to-one continuous midwifery care*

In terms of a national strategy, the Community Midwifery Program (CMP) in Western Australia provides a proven template of excellence in maternity care, and is a readily adaptable model for duplication in both urban and regional/rural locations. The CMP WA was specifically established to provide a publicly funded homebirth service. However it is not this element of the Program that makes it a best practise model for other States and localities. Rather it is the provision of one-to-one continuity of midwifery care from experienced midwives within the public health system that makes it an excellent example that is worthy of emulation in other States. It is the model of care rather than the location of birth that is of paramount importance to achieving excellent outcomes such as those delivered by the CMP.

The Community Midwifery Program (*CMP*) has been providing one-to-one continuous care from community midwives since 1996, primarily for women who meet the criteria for home birthing. The *CMP* has been independently evaluated on two occasions and shown to be both a successful model of care with good outcomes, and, highly valued by the women who utilise the service^{70, 71}.

The *CMP*'s guiding philosophy is that childbirth is, in the majority of cases, a normal life event, which, left to nature, will proceed to an uncomplicated outcome. This is underpinned by providing expert midwifery care that respects the individual needs of women and their families by supporting their emotional, social and cultural needs.

The *CMP* is fully government funded and offers primary community midwifery care to women in the Perth metropolitan area. The service provides women with the option of continuity of care and carer throughout their pregnancy, labour/birth and postnatal phases. Currently funding allows for the service to be offered to 150 women per annum, demand for 'places', however, exceeds this number.

Comprehensive standards of professional care, that meet the WA Department of Health's Homebirth Policy and Guidelines for Management of Risk Factors, have been developed to ensure that the *CMP* provides an optimal service.

⁷⁰ Thiele B and Thorogood C 1998 *Evaluation of the Community Based Midwifery Program*, 1998, Community Midwifery WA Inc, Fremantle WA

⁷¹ Thiele B and Thorogood C 2001 *Evaluation of the Community Midwifery Program, 2001, Preliminary Report* to Community Midwifery WA Inc

The service also includes a comprehensive prenatal education program offering both Preparation for Childbirth classes and half day Active Birth Workshops. The *CMP* also maintains four Information and Resource centres, staffed by midwives.

The *CMP* is managed by Community Midwifery WA Inc, a not-for-profit community organisation that aims to improve the availability of choices in childbirth. A description of the organisation and management structure is attached (Appendix D). The success of the *CMP* is assisted by the close working relationship between the Program's management and the Department of Health. For example, in response to the withdrawal of professional indemnity insurance, the Department of Health took over employment of the midwives to ensure their access to indemnity cover.

Continuity of care and carer has been shown in a number of studies to provide women with a positive and beneficial experience. A good birth experience contributes to an overall sense of wellbeing and a good start on the parenthood journey. Independent research undertaken utilising Program participants supports this view.⁷²

The fact that the Program is based in the community, ie, is community managed, has contributed to its flexibility, appropriateness, ongoing success, and growth.

4. MATERNITY SERVICES POLICY REFORM

The optimal outcome for Australian women would be the inclusion of community midwifery programs as readily accessible options within the national and State/Territory public health systems. At present, only a small percentage of women (<1%) have access to 'one-to-one' continuous midwifery care through the public health system, and mostly only in major metropolitan centres.

While some hospitals offer team based midwifery care which improves the chances that a woman will be attended by a midwife known to her, it is the caseload model of midwifery care (which in itself enables the mutual relationship to fully develop between a woman and her midwife) that research has shown to be most effective in producing the best outcomes. Less than 1 per cent of the 250,000 women giving birth each year in Australia currently have access each year to one-to-one continuity of midwifery care. The only programs offering this care through the public health system are in select localities in Western Australia, South Australia and the Australian Capital Territory.

Australian women are entitled to access best practice midwifery services. While community midwifery may not be the model of choice for every woman, all women should have the opportunity to choose a midwife as their primary or lead maternity carer. Further, the opportunity to make this choice should be available regardless of whether women reside in metropolitan, regional, or rural Australia. Both consumers (including women and their babies) and government funding agencies are disadvantaged by the current lack of choice in maternity services.

Despite the numerous State and Federal government reports over the past two decades⁷³ (as shown in Appendix A), in addition to the excellent outcomes of the Federal Alternative

⁷² Dodd, J and Reibel, T *Birth Transforms Her: A report on birth choices, adjustment to parenting, breastfeeding and postnatal depression* Community Midwifery WA Inc 2000

⁷³ See appendix A

Birthing Services Program initiative⁷⁴, virtually no progress has been made towards achieving changes to the way in which maternity services are provided. Progress across Australia towards implementation of midwifery models of care has been very limited. The current trend toward centralising maternity services in large metropolitan centres is further guarantee that increased numbers of women will receive unnecessary and costly interventions in childbirth, resulting in higher levels of morbidity for women, their babies and families. This is despite an increasing body of knowledge that shows that one-to-one continuous midwifery care is the most appropriate and sustainable model of care for the vast majority of women^{75 76 77}.

Health policy reviews at both State/Territory and Federal government levels are also required to ensure women and their families have equitable access to a complete range of midwifery and medical maternity services across Australia. In particular, governments should identify and remove anti-competitive policies that limit the capacity of midwives to provide a service comparable to medical professionals in the provision of services to healthy pregnant women.

Currently medical models of care dominate maternity services in all States and Territories. A primary reason for this situation rests with government health policy at both Federal and State level, including funding discrimination that recognises only specialist obstetricians and general practitioners as providers of primary maternity care. A review of the Medicare schedule by the Federal government is required, to include the services of midwives as expert providers of primary maternity care.

Alternatively the Federal government should implement funding reforms in maternity provision, similar to that which have been introduced in New Zealand, whereby the Lead Maternity Carer (LMC) is paid a set fee by the State regardless of whether they are an obstetrician, general practitioner or midwife. The Section 88 Maternity Notice of the New Zealand Public Health & Disability Act 2000 encompasses the arrangements relating to payments for all maternity services. With the implementation of Section 88 the NZ Ministry of Health has introduced standardised maternity contracts that enable a primary maternity provider to offer specified Lead Maternity Care and other primary maternity services, thus ensuring both price equity amongst providers (LMCs), and equity of access for all women. Since the introduction of LMCs in the early 1990s, midwives are now the Lead Maternity Carers for over 70% of women during pregnancy, birth and the postnatal phase.

The implementation of comparable maternity funding reform in Australia would also require national standards for access agreements to public hospital facilities, specialist services, diagnostic testing, and prescribing for all LMCs, including midwives. These recommendations have already been made in the 1998 National Health & Medical Research Council publication, *'A Review of Services Offered by Midwives'*.

Additionally, the need for national consistency and a coordinated national approach to address regulatory reform in midwifery is also urgently required to ensure that midwifery education and practice in Australia meets international standards. Currently in all States and Territories, midwifery is regulated under the guise of 'specialist nursing practice' within Nurses Acts that are, in themselves, inconsistent.

⁷⁴ NSW Health Department (1998) New South Wales Alternative Birthing Services Program – Evaluation Of Phase 2 – Aboriginal Strategies. 1998b. Sydney.

⁷⁵ Spitzer M. (1995) Birth Centres: Economy, Safety and Empowerment *Journal of Nurse-Midwifery* Vol. 40, No. 4 July/August pp371-375

⁷⁶ Hueston WJ, Rudy M (1993) A comparison of labour and delivery management between nurse midwives and family physicians. *The J of Family Practice* 37 (5) :449-453

⁷⁷ MacDorman M & Singh G (1998) Midwifery care, social and medical risk factors and birth outcomes in the USA *Journal of Epidemiology & Community Health*, 52(5):310-317.

Recent analysis of the various acts and regulations, “raise concerns about the capacity of the current statutes to protect the public adequately and ensure that minimum professional standards are met”⁷⁸. According to the Australian Midwifery Act Lobby Group (AMALG) adoption of national standards in education and practice should be legislated consistently in all States and Territories, as should midwifery title protection⁷⁹. In New Zealand the issue of professional self-regulation is currently being addressed via the Health Competency Standards Assurance Bill and the establishment of a Midwifery Council.

Further, the lack of available, affordable professional indemnity insurance for maternity service providers and students currently undertaking education in this field is an issue that requires urgent national policy reform and action by government. Shortages of providers in rural and regional areas is especially a cause for concern in the maintenance of maternity services outside major metropolitan centres. The cultural appropriateness of currently available services for Indigenous women also requires review, especially in light of the dramatic improvements in maternal and infant outcomes achieved through community midwifery care in New Zealand and Canada.

To summarise, the primary issues for consideration of maternity services policy review, at both levels of government, include:

- addressing the barriers that currently preclude midwives from providing women with an accessible and evidence based alternative to medical care during their pregnancies and births in the public health system,
- ensuring the availability of indemnity cover for midwives,
- ensuring hospital visiting/practicing rights/access for midwives,
- legislative reform to current funding arrangements for maternity services, including a review of acute services budgets, to ensure implementation of cost-effective community midwifery programs in both urban and rural Australia,
- legislative reform to enable nationally consistent midwifery regulation,
- addressing the urgent need to maintain maternity services in regional and rural areas of Australia,
- implementing early intervention and preventative health strategies that will benefit all women during their childbearing years.

In order to meet the needs of diverse communities the challenge for government is to recognise the changing trends in maternity service provision, with ‘consumers’ demanding more choices within the public health system. Therefore, maternity services policy reform should include:

- Establishment of community midwifery programs in all metropolitan and major regional centres in all States and Territories.
- Establishment of hospital and community based primary midwifery care programs in small rural centres.
- Establishment of additional midwife-led, and managed, birth centres or suites within existing services in both metropolitan and regional areas in all States and Territories, where the population can sustain such centres/suites.

⁷⁸ Brodie P & Barclay L 2001 Contemporary Issues in Australian Midwifery Regulation *Australian Health Review*, Vol 24, Issue 4:103-118

⁷⁹ For further details and information refer to the AMALG website at www.amalg.asn.au

- Education programs aimed at informing consumers, general practitioners, and other health care providers, of the benefits of ‘one-to-one’ continuous care from a known community midwife.

Further, health policy at both levels of government needs to provide specific directives regarding maternity services, and, funding for such programs should be quarantined to ensure that the programs remain viable and protected from less cost effective services.

With particular reference to the professional indemnity crisis currently facing the Australian health system, we would urge governments, both Federal and State/Territory, to consider reforms that address issues of system safety, open disclosure and other effective case management strategies for those involved in adverse events, rather than merely corrective justice.

We also urge the government to consider adequate funding of long-term care costs and compensation for all persons who incur injury related to childbirth. Reform with a national focus is required in the professional indemnity arena with equitable contributions from all practitioners in the maternity system.

5. IMPLEMENTING COMMUNITY MIDWIFERY PROGRAMS

It is the vision of the consumer and midwifery organisations involved in the development of the National Maternity Action Plan that within the next 5 years there will be equitable access to community midwifery programs in all States and Territories for all women who choose this model of care.

In order to ensure that services are effective and meet the needs of local communities, the development and management of community midwifery programs, should be implemented with significant input from consumers and from midwives with experience in midwifery-led care and/or community midwifery.

Essential components of each community midwifery program include:

- Adequate funding levels capable of responding to increasing demand
- Suitably qualified midwives able to demonstrate knowledge of one-to-one continuous midwifery care
- Access to appropriate educational programs to support the transition from hospital to community based midwifery practice
- Community based management with balanced representation from committed health professionals and community members
- A project community liaison officer
- Adequate administrative support
- Quality assurance mechanisms, including the capacity for analysis, continual monitoring and improvement of programs
- Facility for independent evaluation of each programs’ outcomes over a minimum period of two years for inclusion in a governmental review
- Inclusion of comprehensive antenatal education for both program participants and the wider community
- Continuing capacity for preceptorships for both registered and student midwives to ensure the ongoing availability of a highly skilled midwifery workforce.

5.1. Funding

Currently the majority of publicly funded maternity care available to women in Australia is funded through the acute hospital services budget. This takes no account of antenatal, birth and postnatal care that could be offered to women as a community based service through alternative funding sources such as public or community health. Therefore, a reasonable portion of the acute hospital services budget currently directed to hospital maternity services could be redirected to the provision of community midwifery programs within public or community health budgets.

Initially, ‘seed funding’ will be required to establish community midwifery programs in a number of locations, with recurrent funding being guaranteed. Funding is required at realistic levels to establish and maintain effective community based services and the funding source should be protected from other more costly medical services. Once established, community midwifery programs have proven to be cost effective as well as resulting in improved health outcomes.

An indication of funding needed for programs of around 100 births (or any multiple thereof) is provided in Appendix B. Funding levels would, however, be variable, dependent upon location; population of the community, and estimated demand.

There would also need to be provision for an increase in funding over time, as the programs become known and demand for one-to-one continuity of care from a community midwife increases.

The New Zealand experience where the percentage of women choosing a midwife as their lead maternity carer rose from single digits to over 70% in 12 years suggests that demand can be expected to grow significantly once women become familiar with this care option.

Importantly, any input of funding for community midwifery programs will potentially be offset by reductions in funding required for current medical based services which would otherwise service the same women. Indeed, as discussed in Part 2.8 savings to the public health budget are likely to be obtained from widespread use of community midwifery services.

Savings are, of course, unlikely to be realized for very small numbers of births, since acute care backup services for the minority of women who need them must still be provided. However, given the New Zealand experience where demand for one-to-one community midwifery care has grown to more than 70% of births and the maternity budget is now showing a trend downwards⁸⁰, savings will be achieved once significant numbers of women are able to access community midwifery services.

5.2. Workforce Issues

There is currently a national shortage of midwives willing to work in hospital based maternity services throughout Australia⁸¹. Many hospitals are not even advertising

⁸⁰ New Zealand Health Funding Authority 2000 *Improving our Health: marking our progress*. November 2000

⁸¹ Tracy S et al 2000 “Contemporary Issues in the Workforce and Education of Australian Midwives” *Australian Health Review*;23(4):78-88.

midwifery vacancies for lack of applicants. The widespread establishment of community midwifery programs has the potential to address this problem in a number of ways.

Firstly, community midwifery programs have the potential to attract experienced midwives who have chosen to work independently from acute care settings, as self-employed midwives. Until the professional indemnity insurance crisis arose in mid 2001, these midwives typically sold their services to women privately, with women paying the full cost of their services themselves. The loss of affordable PI insurance has resulted in many independent midwives ceasing practice, with an associated loss to the community of very experienced and capable midwives.

Community midwifery programs have the potential to bring an existing workforce of highly experienced and skilled community midwives into the public maternity services system.⁸² These midwives provide a valuable resource not only in caring for women, but in assisting other midwives to develop the necessary skills and confidence to provide similar services in the future.

Secondly, anecdotal evidence strongly suggests that many midwives would be encouraged to return to their profession with the advent of widespread community midwifery. Through providing a working environment that is more consistent with the education and experience of midwives in the 'wellness' model of care, it is likely that community midwifery programs would attract midwives who have become disaffected with working in acute services models of care and who have withdrawn from midwifery or moved into other professional areas of work.

Thirdly, community midwifery programs provide a valuable workplace for the education and development of midwives. They would facilitate student midwives, new graduates and qualified midwives who wish to update their skills, to obtain suitable on-the-job education from experienced community midwives. By providing wider access to mentors (or preceptors) for student and recently qualified midwives, community midwifery programs will assist with overcoming the current shortage of midwives in the medium term.

Additionally, midwives employed to provide a community based service must be appropriately supported and respected for their role as health professionals and primary carers. Therefore, their pay and conditions must reflect the circumstances of providing continuity of care and carer and being on call, and reflect the level of responsibility involved.

It is also essential that appropriate accreditation and clinical privileges to local and tertiary maternity units/hospitals are made available to community midwives. This is necessary to ensure women in their care have ready access to one-to-one continuous care from a known midwife for either hospital, birth centre, or home births and to secondary, or specialist care, as required.

Payment of midwives providing caseload care through a community midwifery program can be organized in a number of ways depending on local circumstances. An effective model is where funding is provided to a community non-profit incorporated body (for example, as in the case of Community Midwifery WA Inc, the host body for the Community Midwifery Program), with responsibility for implementation of community midwifery programs and provision of prenatal education programs and information services. As the organisation is community based there is a strong community focus. Payment of community midwives can

⁸² The Australian Midwifery Action Project Report. 2002 .In Press

then be managed through local hospital payrolls, while management of the service is maintained in the community.

The widespread establishment of community midwifery programs also has the potential to address workforce issues among medical professionals. As noted earlier, there is currently a shortage of general practitioner and specialist obstetricians in Australia⁸³. Community midwifery programs have the potential to relieve some of the pressure on obstetric and general practitioner maternity providers by caring for healthy pregnant women who do not develop complications. This would also facilitate increased work satisfaction for specialist obstetricians, through giving them the flexibility to give greater time and attention to women most in need of their care. For general practitioner providers in rural areas, the provision of expert midwifery care for healthy pregnant women would relieve the burden on these practitioners to provide maternity care alongside all their other responsibilities.

5.3. *Extended Education*

Working in the community requires a high degree of motivation and a commitment to the model of care being provided. To this end, extended education must account for the holistic role of the community midwife. The skills base of the community midwife, therefore, extends to a number of areas outside the usual clinical role of midwives working within medical models of care.

Preceptorships, where a qualified midwife works in tandem with an already experienced community midwife for a designated period, allow for a period of skills acquisition in a practical environment and under the mentorship of an experienced colleague. Such preceptorships are essential in maintaining high standards of maternal and infant care. Preceptorship schemes can be built in to community midwifery programs with relative ease. Such schemes would assist in addressing the current national shortage of suitably qualified and experienced midwives able to undertake primary midwifery care.

5.4. *Professional Standards*

All midwives who participate in community midwifery models of care should meet a clearly defined set of relevant criteria designed to measure their professional practice, and, be required to regularly submit evidence of adherence to those standards through a peer reviewed accreditation process. These standards should be based on best practice standards for midwife-led care.

The process of quality assurance for professional standards would be best achieved through the use of a credentialing body that would assess applications for accreditation for midwives as lead professionals following nationally agreed principles and guidelines.

The Australian College of Midwives Inc (ACMI) already offers accreditation of independently practicing midwives, and has recently developed national standards for the accreditation of midwifery educational programs in Australia. The College is also committed to reviewing and refining competency standards for practice with the view to establishing national guidelines for practice. Professional development and current best practice would be reviewed in relation to each local community midwifery program. At the same time, it is

⁸³ AMWAC 1998 *The obstetrics and gynaecology workforce in Australia: supply and requirements 1997-2008*. Australian Medical Workforce Advisory Committee 1998.6.Sydney

imperative that best practice midwifery and professional standards relate to a combination of practice and theory, with a greater emphasis on practice.

5.5 *Timeframe*

The introduction of community midwifery programs should not be on a trial basis. The one-to-one continuity of care utilised by community midwifery programs has been well tested and proven. Therefore, governments are urged to establish recurrently funded community midwifery programs as a matter of priority, in the interests of all women and their babies.

It may be appropriate for governments to identify targets for the introduction of these services, such as 20% of women utilizing midwifery-led care by 2004. The New Zealand experience suggests that, as women become familiar with what community midwifery care entails, the demand for this care can be expected to grow steadily but dramatically.

6. CONCLUSION

The National Maternity Action Plan for the introduction of community midwifery services in urban and regional Australia is intended to provoke rigorous debate and reform of maternity services nationally.

Children are the future of Australia, and with their mothers, deserve the best start possible to life.

The authors, and all of the individuals and organisations who have endorsed the NMAP, urge the elected members of State, Territory and Federal parliaments and those in charge of health policy and implementation to read this document with a view to ensuring that changes are undertaken in the short, medium and long term.

These changes should aim to provide universal access for Australian women to evidence-based, one-to-one continuous midwifery care as a mainstream and free option within the public health system. Such care is supported by research evidence, is cost effective, is lower risk than conventional medicalised care and produces the same if not better outcomes for women and babies. It is what women want.

7. APPENDICES

APPENDIX A

Commonwealth, and State/Territory Government Reports and Policy Documents directly relating to maternity service provision & commissioned evaluations of existing maternity services

- 1985** Aboriginal Women of Central Australia, Congress Alukura by Grandmother's Law, 1985, Model of Healthy Public Policy.
- 1989** Department of Health NSW. (1989). *Maternity Services in New South Wales. Final Report of the Ministerial Taskforce on Obstetric Services in New South Wales.* Sydney: (Shearman Report) Department of Health Publication No: (HSU) 89-007.
- 1990** Health Department of Victoria. (1990). *Having a baby in Victoria. Final Report of the Ministerial Review of Birthing Services in Victoria.* Melbourne: Health Department of Victoria.
- Health Department of Western Australia (HDWA) (1990). *Report of the Ministerial Taskforce to Review Obstetric, Neonatal and Gynaecological Services in Western Australia.* Vol. 1- 111, Dept of Health, Perth WA, 1990.
- 1991** NHMRC (1991). *Homebirth Guidelines* NHMRC, Canberra.
- 1993** ACT Department of Health, *ACT Maternity Services Review*, 1993.
- 1994** ACT Health (1994) *ACT Maternity Services Review*. Canberra. Commonwealth Department of Health and Family Services
- NSW Health Department. (1994) *Review of Aboriginal Perinatal and Maternal Morbidity and Mortality in New South Wales 1986-1991.* New South Wales Public Health Bulletin Supplement. S3
- Birthing Services Working Group, Report of The South Australian Birthing Services Working Group, South Australian Health Commission (SAHC), 1994.
- SAHC Working Party, *Models of Maternity Care Working Party Report*, SAHC Adelaide 1994
- 1995** *Selection Committee on Intervention in Childbirth Report* 1995 Western Australian Legislative Assembly
- 1996** NHMRC (1996) National Health & Medical Research Council *Options for Effective Care in Childbirth* Australian Government Printing Service, Canberra
- Evaluation of the Alternative Birthing Services Program Phase Two* for the Commonwealth and Health Department of WA, Carol Thorogood, Bev Thiele, Jan Lewis, Centre for Research for Women 1996
- 1997** Department of Human Services Victoria (DHS, Vic) (1997) *Birthing Services Program in Victoria.* Melbourne. DHS
- Dale Street Women's Health Centre (DSWHC), *Community Midwifery Project: Final Report*, South Australia, and March 1997

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APPENDIX B

The Cost Effectiveness of Community Midwifery Care.

This appendix provides an overview of available evidence on the costs of medicalised maternity services offered in maternity hospitals compared with services offering community midwifery care (ie. one-to-one continuity of care from a known midwife from 12 weeks prenatal to 6 weeks postnatal). Cost effectiveness is clearly important if community midwifery programs are to be embraced as a part of mainstream maternity services across Australia.

B.1 Methodology

It must be noted that comparison of costs is a difficult task, as there is limited published data on the relative costings of current hospital based maternity services. Hospital administrators from a number of institutions have confirmed that precise costings for hospital maternity services are difficult to estimate. Where data is available, there are often variations in the levels of estimated costs depending on the source used.

This appendix therefore offers an indication of relative costings, based on a transparent methodology that clearly identifies the sources of estimates provided. The estimates used of the costs of standard public hospital acute care are conservative, as there is a lack of available data on the costs of many interventions commonly used in labour and birth, such as epidural, induction, augmentation, instrumental delivery and episiotomy. All sources of information and support for assumptions made are referenced in footnotes to the relevant tables.

It should be noted that there has been no attempt to assess the costs to governments (particularly the Commonwealth government through Medicare rebates) of private hospital maternity care services). The immediate focus is on the cost effectiveness of government funded maternity services provided by traditional obstetric models of care vis-a-vis publicly-funded midwifery-led care of the majority of healthy pregnant women.

B.2 Estimate of costs of standard hospital care for labour and birth

Funding of hospital care is a complex area. The Commonwealth government provides resources mainly in the form of Medicare rebates that vary for each birth depending on the interventions used for individual women. The Commonwealth also indirectly funds maternity services through State grants and through incentives to individuals to hold private health insurance.

State and Territory governments fund the majority of the service provided for women accessing public hospital maternity units, and some of the costs of care given to private patients in public hospitals. Levels of funding provided vary between States and between hospitals, depending on their location and the local demand for maternity services.

Table 1 provides estimates of costs to funding agencies of standard public maternity services. The estimates have been compiled from a range of published data sources. Data published by the Australian Institute of Health and Welfare (AIHW) has been used to estimate the average cost for a vaginal birth without complications. The AIHW compiles this data from State Health department data collections, published as the Australian Hospital Statistics. They represent the national Australian figure for normal birth in hospital, including an average length of postnatal stay for 3.1 – 3.5 days. The estimates of the costs of normal vaginal birth do NOT include the antenatal episode of care, or the costs of admissions to neonatal intensive care units.

Due to the lack of nationally consistent published data on the percentages of women who receive specific interventions in their labour and births, it is not possible to provide detailed estimates of costings beyond the categories used in the first column of Table 1 (antenatal visits, spontaneous vaginal birth, vaginal birth with at least one intervention, caesarean birth and postnatal visits).

While the estimates provided are the best available, they significantly underestimate the true costs to funding agencies of the majority of healthy pregnant women receiving the medical model of care. In addition to underestimating the significant financial costs of rising levels of obstetric intervention in childbirth, the estimates do not include admission to special care nurseries of babies adversely affected by their birth. Nor are the costs included of postnatal support services that assist women long after the birth, such as those women who now suffer from postnatal depression.

Table 1 Estimated costs of standard public hospital maternity care*, Australia, 2000

	Percentage of women likely to receive this service	Estimated cost of service per woman	Cost per 100 women
Antenatal consults — 6x30 mins checks	100%	\$150	\$15,000
Labour & birth — spontaneous vaginal birth	40% ¹	\$2,470 ²	\$98,800
— vaginal birth with at least one intervention	40% ³	\$2,870 ⁴	\$114,800
— caesarean section	20% ⁵	\$4,670 ⁶	\$93,400
Postnatal consults — 3x30mins checks	100%	\$75	\$7,500
Total service (excluding neonatal intensive care)	—	—	\$329,500

*Standard hospital maternity care is taken here to refer to labour wards and delivery suites in which care is provided by midwives, nurses, obstetricians, anaesthetists, and other specialists on a roster/shiftwork basis. It does not include the examples of midwife-led care summarised in Appendix C.

¹ This figure is derived from the study of 170,000 births in NSW in the late 1990s by Roberts, Tracy & Peat (BMJ 321: 137-141, 15 July 2000) which showed that 39% of first time low risk mothers and 67% of multiparas gave birth in public hospitals as public patients without any obstetric intervention (including induction, augmentation, rupture of membranes, epidural, instrumental delivery & episiotomy). See <http://www.bmj.com/cgi/content/full/321/7254/137#T2>. However, these percentages relate only to low risk women, the focus of that study. The Victorian Perinatal Statistics of approximately 65,000 confinements in that State gives a similar picture. For example, onset of labour was spontaneous in only 40.4% of cases, the remainder being either induced or augmented or both, or there being no labour due to Caesarean section prior to labour commencing. (See Riley, M & Halliday, J. 'Births in Victoria 1999-2000, Perinatal Data Collection Unit, Victorian Department of Human Services, Melbourne 2001 <http://www.dhs.vic.gov.au/phb/topics.htm#perinatal>).

² This figure is provided by the Australian Institute of Health and Welfare. It represents the average cost for a vaginal birth without complications compiled from state health department data collections to be published as the Australian Hospital Statistics. They represent the national Australian figure for normal birth in hospital, including an average length of postnatal stay for 3.1 – 3.5 days. This does NOT include the antenatal episode of care or admission to Special Care Nursery. Based on cost by volume/ public patient separations cost statistics for all AR-DRGs version 4.1, public hospitals Australia, 1999-00; AIHW Australian Hospital Statistics 1999-00. AIHW Cat. No. HSE-14. Table. S10.1 www.aihw.gov.au/publications/hse/ahs99-00

³ The estimate that 40% of women in public hospitals receive at least one obstetric intervention in labour and/or birth is based on a number of sources. The Victorian Perinatal Data for 1999-200 shows that of the approximately 65,000 births in Victoria each year, only 40.4% of women experienced spontaneous onset of labour, while 46.4% were induced and/or augmented and the remaining 13.2% had no labour (due to elective caesarean sections). Of public patients who laboured, 23.8% had epidurals, and 16.0% had other forms of pharmacological pain relief, of all public patients, 11.1% had either forceps or vacuum extraction of their babies, and 20.6% had caesarean sections. (See Riley, M & Halliday, J. 'Births in Victoria 1999-2000, Perinatal Data Collection Unit, Victorian Department of Human Services, Melbourne 2001 <http://www.dhs.vic.gov.au/phb/topics.htm#perinatal>).

⁴ This estimate is based on the AIHW estimate of a vaginal birth without intervention, plus the AMA suggested fees for the insertion of epidural anaesthesia of \$405.00 (see AMA suggested fee: List of medical services and fees, November 2001, AMA publishing, Sydney <http://www.ama.com.au/>). Approximately one third of women who receive care in public hospitals as public patients use epidurals (34.5% of public patients in the study of 171,000 NSW births by Roberts, Tracy & Peat, BMJ 321:137-141, 15 July 2000) It therefore seems appropriate to use the fees for epidural as a preliminary indication of the additional costs involved in the care of women who receive interventions in labour and birth. However, this is undoubtedly a significant underestimate. As the Roberts, Tracy & Peat article shows, once one intervention is used, such as epidural or induction, there is a cascade effect where there is a high likelihood that other interventions will become necessary. A lack of published statistics on costs of various interventions and their frequency precludes more detailed estimates of these costs here.

⁵ The latest AIHW Mothers and babies 1999 Report records the national caesarean section rate as 21.9% with variation between states: South Australia (24.9%) had the highest caesarean rate in 1999 and the Australian Capital Territory (19.6%) the lowest. Caesarean rates were higher among older mothers, those having their first baby, and those who were private patients. AIHW National Perinatal Statistics Unit report; *Australia's mothers and babies 1999*. Canberra 2001 <http://www.npsu.unsw.edu.au/ps11high.htm>

⁶ Based on cost by volume/ public patient separations cost statistics for all AR-DRGs version 4.1, public hospitals Australia, 1999-00; AIHW Australian Hospital Statistics 1999-00. AIHW Cat. No. HSE-14. Table. S10.1 www.aihw.gov.au/publications/hse/ahs99-00

B.3 Estimate of costs of midwifery-led care for labour and birth

There are a variety of midwifery led models of care currently offered in Australia, as outlined in Appendix C. Many of these are based on teams of midwives providing care on a rostered shift-work basis. The estimates provided below do not cover these services. Rather they refer to the practice of care where midwives provide primary care to women from 12 weeks of pregnancy through birth to around 6 weeks postpartum on a caseload basis— providing continuity of care on a one-to-one basis and working on call 24 hours a day, 7 days a weeks, for around 46 weeks a year. This model of care is here termed ‘community midwifery’.

Community midwifery care has consistently been found to involve similar or lower cost on a per birth basis compared to standard medicalised maternity care There are several reasons for this. Research shows that compared with women who access standard medicalised maternity services, women who receive continuous care from a known community midwife:

- 3 use fewer interventions to give birth to a healthy baby,
- 4 are less likely to request pharmacological pain relief
- 5 occupy hospital beds for fewer days
- 6 give birth to fewer underweight babies and their babies are less likely to require neonatal intensive care
- 7 have less need of postnatal support services, such as counselling for post-natal depression

Estimating the costs of community midwifery care is necessarily affected by the fact that historically there has been considerable variation in the remuneration received by community midwives. The fees charged have depended on the location in which community midwives work, whether they work in private practice or a government-sponsored program, and the demand in their local area for their services. The failure of most private health insurance companies, until quite recently, to provide consumers with rebates for private midwifery services has also contributed to pressure to keep midwifery fees low.

One comparative study of midwifery and obstetric care found a range between \$1,400-\$1,600 per birth for community midwifery (see Homer et al 2001). Midwives working for the WA Community Midwifery Program receive around \$1,800 per birth (see CMP WA Community Midwifery Program, Western Australia based on 1999-2000 cost analyses). The Australian Society of Independent Midwives advises that its members have received between \$1,500 and \$3,500 per birth for their service, depending in particular on whether the midwife works in an urban or regional location.

The World Health Organisation recognises midwives as the most appropriate and cost effective caregivers for the majority of pregnant women. At the same time, community midwifery by definition, requires midwives to provide a service on call 24 hours a day, 7 days a week, 46 weeks a year. Estimating the cost of community midwifery programs must take these issues into account, as well as the fact that the skills and experience of midwives have historically tended to be undervalued in the employment marketplace, alongside other female-dominated professions, such as nursing. Given the nature of the care provided, remuneration of around \$2,500 to \$3,000 per birth is now widely considered to be appropriate.

Table 2 assumes a rate of \$3,000 per birth for community midwives. Importantly, even at this level of remuneration, the cost effectiveness of the midwifery-led model is retained in comparison to routine obstetric care services, notwithstanding the fact that the estimates of standard medical care contained in Table 1 are undoubtedly lower than the real cost per birth.

Table 2 Estimated costs of community midwifery maternity care*, Australia, 2002

	Percentage of women likely to receive this service	Estimated cost of service per woman	Cost per 100 women
Antenatal consults 8 7-10x60mins, monthly from 12-28 wks, fortnightly to 36 wks, weekly 36 wks to birth	100%	included	—
Labour & birth 9 spontaneous vaginal birth	80% ¹	included	—
10 vaginal birth with at least one intervention	10%	provided by existing acute care services	—
11 caesarean section	10% ²	provided by existing acute care services	—
Postnatal consults 12 4-6x60mins in early newborn period to 6 weeks	100%	included	—
Total service (excluding neonatal intensive care)	—	\$3,000 ³	\$300,000

* Community midwifery maternity care is taken here to mean care provided by midwives in a one-to-one, caseload relationship with women, where the same midwife provides care on call 24 hours/day, 7 days/weeks to pregnant women, and provides all antenatal education, attendance and professional supervision at the birth, and postnatal support to 6 weeks postpartum.

¹. It is internationally accepted that 80-85% of women will experience healthy pregnancies and have the ability to give birth to their babies without complication Enkin M, Keirse JNC, Neilson J, Crowther C, Duley L, Hodnett E, Hofmeyr J. 2000 A Guide to effective care in pregnancy and childbirth. 3rd Ed. Oxford. OUP Research cited in the body of this document indicates that midwifery continuity of care provided to women on a one-to-one basis reduces the use of obstetric interventions.

². The World Health Organization recommended that the caesarean section rate should not exceed 10% in any OECD country, with a very upper limit of 15% See: WHO. World Health Organisation, Care in Normal Birth: a practical guide. 1999. WHO/FRH/MSM/96.24 www.who.int/rht/documents/MSM96-24/msm9624.htm See also Wagner 1996, *Pursuing the birth Machine: The Search for Appropriate Technology*. Countries with national caesarean section rates at 10% or lower have strong models of midwifery-led care available to the majority of women as the primary model of care. A 10% caesarean section rate has also been confirmed in the experience of IPMs in Australia.

³. The per birth remuneration for independently practising midwives in Australia has varied between midwives and between States and Territories from around \$1,400 to \$3,500 (see Homer Caroline S Matha Deborah V, Jordan Lesley G, Wills Jo, Davis Gregory K. Community -based continuity of midwifery care versus standard hospital care: a cost analysis. *Australian Health Review* 2001; 24(1):85-93). The Community Midwives Program in WA has remunerated midwives at the rate of \$1,800 per birth in the past and is seeking a revision of this rate to \$2,500. Given the on call 24 hours a day, seven days a week, 10-11 months per year nature of the care provided, remuneration of around \$2,500 to \$3.00 per birth seems appropriate. Even at the higher end of this scale, the cost effectiveness of the midwifery-led model is retained in comparison to routine obstetric care services..

B5 Conclusion

There is real potential for significant improvements in maternity services—as measured by consumer satisfaction and the health and well being of women and babies immediately following birth and in the first year afterwards—without the need for increased outlays in maternity services. Governments should be called upon to support access to one-to-one continuity of care from a community midwife as a mainstream and cost-effective option in maternity services.

APPENDIX C

Examples of existing publicly funded programs offering some level of midwifery-led care

The following are examples of existing publicly funded programs that offer variable levels of midwifery-led care.

The first two examples, the Community Midwifery Programs in Western and South Australia, are the only publicly funded models currently available anywhere in Australia that offer autonomous primary midwifery care in a community based setting with the option of either a home or hospital birth. Both these Programs are also community managed.

All other examples are hospital based and managed, with some community based ante and postnatal care incorporated into the model. Generally, only those programs offering caseload care of women by individual midwives are able to provide the one-to-one care throughout the entire maternal episode (pregnancy, birth and postnatal), that research has demonstrated to be most effective in reducing rates of intervention and increasing maternal satisfaction with the birth experience and outcomes.

Community Midwifery Program, Western Australia

Births per annum (WA): 25,000

Program Capacity: 150 per annum

Operating since 1996. Offers one-to-one community based care for pregnancy, birth and postnatal continuum, mainly for homebirths. Primary midwifery care, with medical backup and hospital booking. Care continues in all circumstances. Midwives are employed by Department of Health for insurance reasons, but management is undertaken by Community Midwifery WA (not-for-profit, community based organisation). Program covers the whole of the metropolitan area.

Northern Women's Community Midwifery Programme, South Australia

Births per annum (SA): 18,000

Program Capacity: 120 per annum

Operating since 1998. Offers one-to-one community based care for pregnancy, birth and postnatal continuum, for either hospital, birth centre or home births. The Programme targets young women, Aboriginal women and socio-economically deprived women in the northern suburbs. Primary midwifery care, with medical backup and hospital booking. Care continues regardless of risk factors. Midwives are employed by the Department of Human Services at the Northern Women's Community Health Centre, and manage the Programme in consultation with the Centre's Team Leader.

Canberra Community Midwifery Program, ACT

Births per annum (ACT): 4,700

Program Capacity: 540 per annum

Operating since 1997. Offers diverse models of care for birth centre and hospital births. The Program cares for 540 women per year (on a first come basis), with all women being allocated to North or South midwifery teams. Northside midwives operate on a one-to-one caseload basis: southside midwives operate as a team providing care on a roster/shift basis. Antenatal care provided mainly in the birthcentre or community centres. Early labour care at home; labour and birth and immediate postnatal care in birth centre or delivery suite; overnight stay in birth centre if mother and baby well and space available; postnatal care at home up to day 10-13, longer if needed. The Program has recently been given government approval to provide a limited number of homebirths each year.

The St. George Outreach Maternity Program (STOMP), New South Wales

Births per annum (NSW): 88,000

Program Capacity: 720 per annum

Offers team midwifery for community based antenatal clinic care, hospital intrapartum care and combined hospital and home based postnatal care. The model is able to cater for women who develop risk factors during their pregnancy, thereby retaining care within the team in collaboration with obstetricians. STOMP midwives cover 12 hour periods on call to respond to the needs of STOMP Program women in labour or requiring telephone advice during their pregnancy.

The Mackay Midwifery Model, Queensland

Births per annum (in region):

Model Capacity: 1,000 per annum

Diverse model offering birth centre and hospital births. The birth centre caters to 192 women per year (on a first come basis), with all other women being allocated to North or South midwifery teams. Midwives operate on a caseload basis. A hospital-based team operates on roster/shift basis to maintain other normal services and support. Both high and low risk women are included, with some shared care with GPs. Midwives work in all areas, covering antenatal clinic, classes, delivery suite, ante and postnatal ward and home visiting.

Community Midwife Program, Wangaratta, Victoria

Births per annum (in region): 63,000

Program Capacity: 120 per annum

Operating since 1997, offers midwife only care, shared care or obstetric care with midwife support, all for hospital births. Antenatal care undertaken in a Community House located on the hospital grounds, with early discharge and home based postnatal care available. Midwives carry a caseload of women for ante- and postnatal care and share a rotating on call system for labour.

Source: Establishing Models of Continuity of Midwifery Care in Australia: A resource for midwives and managers Homer, C., Brodie, P., Leap, N. 2001

APPENDIX D

Organisation and management structure of the Community Midwifery Program, WA

The Community Midwifery Program commenced in 1996 as a pilot program funded by the Federal Alternative Birthing Services Program, and administered by the Western Australian Department of Health. The program was funded to assist 70 women per annum for either a home or hospital (domino) birth in the South Metropolitan region of Perth in addition to providing antenatal education.

In 1997, the management of the Community Midwifery Program was taken over by Community Midwifery WA Inc (formerly Fremantle Community Midwives), a not-for-profit community organisation formed to promote greater choices in childbirth. The organisation implemented a board of management from the membership, which accepted financial and overall management responsibility for the Program. The board of management operated as a two layer structure, but this has since been modified to reflect a more efficient management strategy.

In 1998, a business case was approved by the Department of Health for an increased and expanded service. The Program changed to a midwifery caseload model, offering sub-contracts to midwives who were accredited as Independently Practicing Midwives with the Australian College of Midwives (ACMI). The majority of these midwives had their accreditation facilitated through the preceptorship component of the program. In all other respects the midwifery led model of care originally implemented remains the same, although the midwives are now employed by the Department of health, through the metropolitan Health Service to meet professional indemnity requirements.

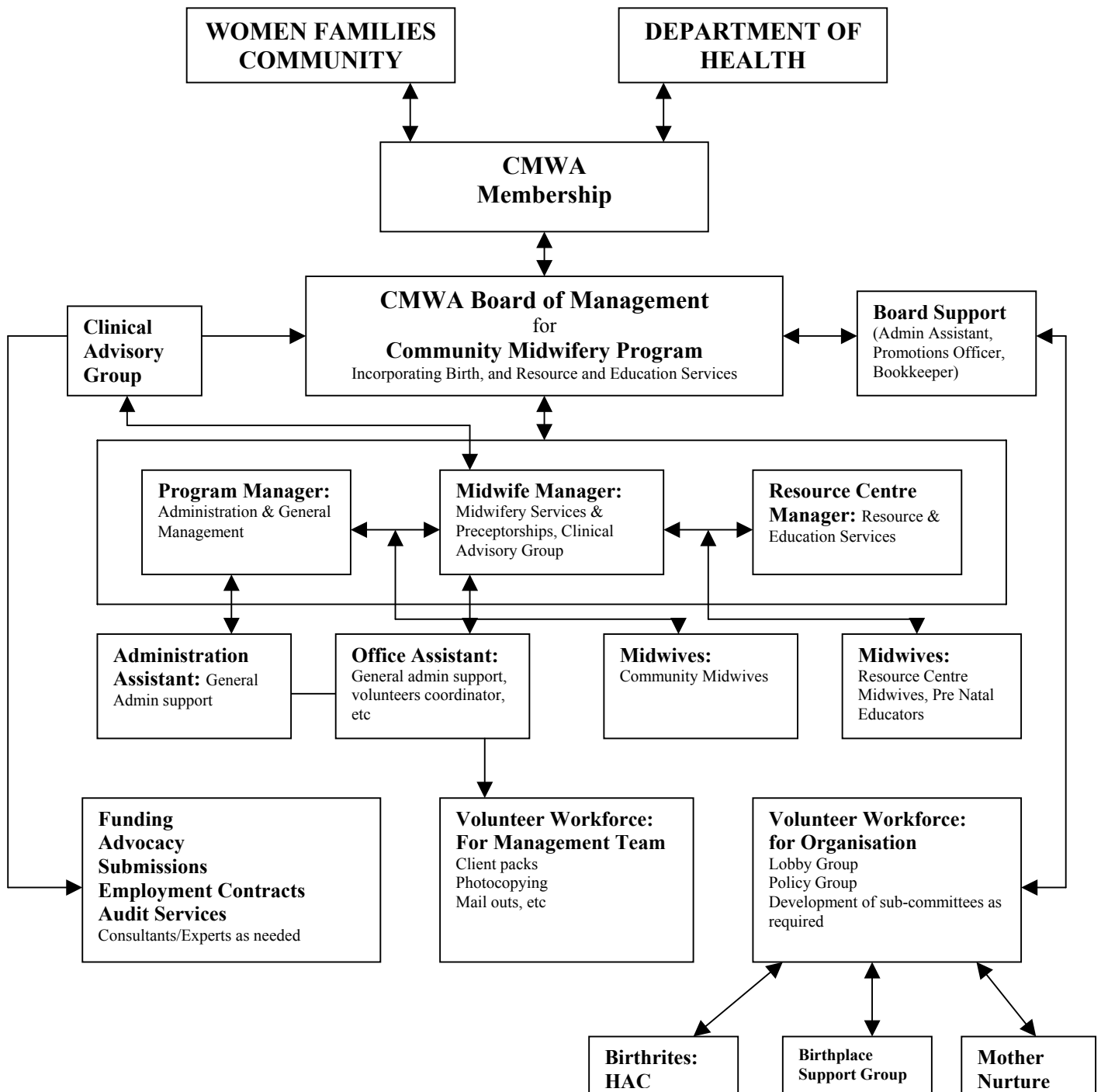
The Program's midwifery service is now available to 150 women within the boundaries of the greater Perth metropolitan area and has been recurrently funded since 1999. The Program also has an extended Prenatal Education Program and four metropolitan Resource Centres providing information and lending libraries , available to the whole community.

The board of management consists of a range of professionals, consumer representatives, and other interested parties all of whom have a common will to maintain a safe and cost effective model of community based midwifery led care.

There is also a Clinical Advisory Group consisting of an obstetrician, general practitioner, independent midwife, the Program midwife manager and a Program midwife. This Group meets regularly and provides advice on policy and clinical review of some cases where requested by either a client or a midwife, or considered necessary by the midwife manager.

Community Midwifery WA provides strong networking advocacy for a range of birth and parenting related consumer groups and opportunity for professional development for all midwives in the community. The organisation also works in collaboration with these groups in a range of promotional and educational activities. This provides the impetus to create good community networks where people are motivated to assist each other. At the same time , the broader community is able to have an input into the Program's services through representation on the board of management and through community consultation processes.

Despite the sudden withdrawal of professional indemnity insurance for independently practicing midwives in July, 2001, CMWA successfully negotiated a resolution with the WA Department of Health to ensure that the service could continue. AS, mentioned above, the Department of Health now directly employs the midwives with indemnity being provided through the State's own insurer (RiskCover) to minimize risk for Program clients in the event of an adverse outcome. The payroll is managed at one of the hospital services. All other aspects of the program remain within the control of the CMWA and Community Midwifery Program with regular reporting to the Department of Health.



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Implementing Community Midwifery Across NSW

**A program outline
for the implementation of caseload midwifery
care in the public health sector**

Prepared by: The Maternity Coalition Inc

November 2002

Glossary

<u>ACMI</u>	Australian College of Midwives Inc.
<u>ALSO</u>	Advanced Life Support in Obstetrics
<u>AHS</u>	Area Health Service
<u>ASIM</u>	Australian Society for Independent Midwives
<u>Caseload Practice</u>	The midwife is ‘responsible for, and provides most of the care for a number of women and their families through the whole process of pregnancy, labour and birth, and during the early weeks after the baby is born. Implicit in the term is the sense of the midwives organising their own practice, being responsible for setting and monitoring standards.’ ¹
<u>CMWA</u>	Community Midwifery Western Australia
<u>GP</u>	General Practitioners
<u>IPM</u>	Independently Practicing Midwife
<u>MGP</u>	Midwifery Group Practice
<u>NSW</u>	New South Wales
<u>NZCOM</u>	New Zealand College of Midwives
<u>RANZCOG</u>	Royal Australian and New Zealand College of Obstetricians and Gynaecologists

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Executive Summary

This document outlines how the National Maternity Action Plan (NMAP)² would be implemented in NSW and should be read in conjunction with it. It proposes that the government establish a statewide midwifery program, to be managed by NSW Health as part of the Families First initiative. The objective of the proposed NSW Community Midwifery Program (NSW CMP) would be to provide NSW women with the option of receiving primary care from a known midwife on a one-to-one basis throughout their pregnancy birth and postnatal time.

The key elements of the proposed Program are entirely consistent with the NSW Government's Families First Initiative³, the NSW Framework for Maternity Services⁴ and the principal objectives of the NSW Maternity Services Advisory Committee⁵. We envisage that it would be implemented consistent with these initiatives. The proposed Program provides for women anywhere across NSW to have the option of maternity care "that ensures choice, control, continuity of care and safety for all women in all phases of pregnancy and birth."⁶ The Program proposes that women would access caseload midwifery care within the public system, regardless of whether the midwives are contracted or employed. In some settings, caseload care may be offered through a hospital based delivery suite or birth centre. In areas outside the immediate geographic area of such hospital based programs it will be imperative that services are offered through contracting midwives either as a midwifery group practice or as a sole provider to provide caseload care wherever there is a demand for it.

Collaboration and teamwork are the central components of this program. It envisages that all women would have the option to choose a midwife to provide caseload care across the continuum of maternity care. Where indicated, in the care of women with specific medical needs or complications, effective collaboration with relevant medical practitioners would occur. A suggested framework outlining the consultation process is outlined as Appendix A. These referral guidelines are based on a best practice framework, and are in use in Ontario, Canada. They confirm the midwife as a primary carer with specific reference to backup midwives, General Practitioners (GP's) and Specialist Obstetricians. It is therefore envisaged that midwives will form strong links with other maternity service providers. The primary health focus will promote positive links within the service networks outlined in the Families First 'interagency planning process'⁷ at the conclusion of the postnatal episode. These links with General Practitioners, and/or child and family health nurses facilitate a seamless transfer of care after the midwives role is complete. The Ontario referral guidelines should provide the framework within which caseload midwifery services are delivered across the state.

It is essential that the government uses experienced caseload midwives to establish these programs and to precept wishing to move into caseload practice. Although one to one care requires considerable dedication on behalf of the midwife, it

² National Maternity Action Plan launched nationally on the 24th September 2002. www.maternitycoalition.org.au

³ *Families First*: a coordinated strategy sponsored by the NSW Government to increase the effectiveness of early intervention and prevention services in helping families to raise healthy, well adjusted children.(Nossar 2002)(NSW Health Department 1998)

⁴ *NSW Framework for Maternity Services (NSW health 2000)*: providing structure and direction for the future development of maternity services.

⁵ *NSW Maternity Services Advisory Committee*: convened in 1997 to develop a collaborative approach and strategic direction for providing maternity services over the next five years.

⁶ See Terms of Reference; NSW Maternity Services Advisory Committee (NSW Health 2000.p4)

⁷ See Families First implementation strategies

provides considerable job satisfaction, and particularly good outcomes for both woman and child.

One to one midwifery care should be accessible to all women. Regardless of their health profile, research has shown that all women can benefit from one to one care. The critical element of this care is the integration of a high degree of continuity in which a named midwife provides most of the hands-on care. In planning care together with the woman, a trusting relationship is formed between the woman and the midwife. A safe, high quality service that is accessible to any woman who chooses a midwife as her lead maternity carer must have an element of flexibility. Midwives would:

- ✓ Have experience in offering caseload care or be precepted by midwives with experience of caseload care
- ✓ Be credentialed by the Australian College of Midwives Midwifery standards for practice.
- ✓ Practice within the state wide referral guidelines (outlined in Appendix A)
- ✓ Be contracted by NSW Health and covered by state government Professional Indemnity cover.
- ✓ Be paid on a per birth payment, to ensure a consistent service of high quality and to prevent midwife burnout and allow part-time work.
- ✓ Provide their own business infrastructure, this would include cars, communication equipment and birthing equipment.
- ✓ Be contracted by NSW Health either as a sole provider or as a Midwifery Group Practice.

We are not proposing that a pilot program be established because this caseload midwifery model of care has been proven to be safe and effective. One of the requirements of any reform in maternity policy and practice must be rigorous evaluation. The Maternity Coalition would strongly recommend that all statistics and the evaluation of practice outcomes for both women and babies be implemented at the outset of the program, with regular reviews and peer review processes established.

Introduction

The National Maternity Action Plan was endorsed by several hundred organisations and consumers across Australia, and by several eminent International experts on maternity care. This was bolstered by a 10,000 strong petition supporting greater access to midwifery care.

In NSW there is strong support for community midwifery. The Maternity Coalition has 6 branches in NSW in the following locations:

- Penrith /Blue Mountains
- Western Sydney (Campbelltown/Camden)
- Central Coast/Hunter
- Illawarra and Shoalhaven
- New England

As an umbrella organisation, Maternity Coalition also has strong and regular contact with local based birth support groups across NSW.

Activities of the Maternity Coalition are consumer driven. There is consensus across the membership that universal access to the care of a known midwife is the primary focus of the organisation.

Equity For All Women

In the past innovative programs have been established largely in metropolitan centres. Rural and regional women have few options in maternity care. NSW Community Midwifery is committed to providing one to one midwifery care for women birthing in hospitals, birth centres and at home regardless of where they live.

Currently many women are forced to travel for pregnancy and birth care. This is of particular concern when there are other siblings and the family is disjointed, sometimes for several weeks, even months. The lack of choice also necessitates private transport and extra costs that can place an additional burden on low-income families.

The NSW Community Midwifery Program will enable women to remain within their communities without leaving their families at such an important time. The support provided to pregnant women by their family and community cannot be underestimated, as a key factor contributing to positive health outcomes.

Current Health Policy

The NSW Maternity Framework for Maternity Services⁸ adopted the following philosophy statement for developing maternity services.

NSW Health recognises pregnancy, labour, birth and parenting as significant and meaningful life events and acknowledges the right of consumers to access safe maternity care and quality in maternity services.

Continuity of care and consistent information is essential to the provision of care that is culturally sensitive and appropriate

Collaboration between health workers at all levels plus the development of a competent and flexible workforce are critical factors in ensuring safe services and the availability of a range of models of care

Best Practice Care

Community midwifery is informed by international best practice standards that acknowledge midwives as “the most appropriate and cost effective type of health care provider to be assigned to the care of women in normal pregnancy and birth, including the risk assessment and the recognition of complications”.⁹ In other western countries, particularly in the United Kingdom, New Zealand and Canada, midwifery is promoted and funded as a public health strategy as community based care from midwives can be responsive to local needs, particularly with regard to health inequalities and social exclusion.

⁸ NSW Health (2000) p3

⁹ World Health Organisation (1999) Care in Normal Birth

Continuity of midwifery care has been proven to result in fewer women needing expensive obstetric interventions, such as caesarean surgery and operative deliveries. Research also shows that such care contributes to long-term breastfeeding, improved adjustment to parenting, and may lower the incidence of post-natal depression.

Universal access to continuity of midwifery care will ensure savings in health dollars and bring Australia into line with international best practice in addition to meeting community demands for a range of readily accessible and appropriate maternity services.

Cultural Diversity/Special Need

While the cultural needs of Australian women are diverse, international experience indicates one-to-one continuous midwifery care is likely to be an effective model of care for improving women's experience of childbirth as well as the maternal and infant mortality and morbidity outcomes.

The NSW perinatal mortality rate in babies born to Aboriginal and Torres Strait Islander mothers was 17.4 per 1000, about double the rate of 8.9 per 1000 for NSW overall. Currently NSW Health is piloting a number of care options for Aboriginal women. Only one of these models has continuity of care. The critical need for many Aboriginal women to birth on their own land with their people seems to have been somewhat overlooked. The NSW Community Midwifery Program would address this need.

Midwifery care ensures a holistic approach to pregnancy, birth and parenting. The woman must be 'the focus of maternity care. She should be able to feel she is in control of what is happening to her and be able to make decisions about her care, based on her needs, having discussed matters fully with the professionals involved'¹⁰.

The proposed program is structured to be flexible to ensure the needs of women are met and the commitment and professionalism of midwives is recognised. As such the program remunerates the midwife with a per birth payment. This remuneration will also attract midwives that are able to assist with less than 40 births a year. According to their other commitments (eg family, study) or the fluctuation of birthing women in some areas, 40 births per year per midwife is generally considered a full-time-equivalent for a caseload midwife, with an allowance for annual leave. ACMI accreditation standards will ensure midwives assist with an adequate number of births to maintain professional standards of care.

The 'per birth payment' recognises the consistent commitment from midwives regardless of their caseload allocation, numbers, and the restrictions of being on call. The requirement for midwives to provide their own business infrastructure (cars, communication equipment etc) will enable more midwives working in more locations across the state without the logistical problems of the Department of Health resourcing motor vehicles, telephones and other on-costs. Programs that require this resourcing are often confined to metropolitan centres. The focus of the program without these problems is directed where needed with providing women greater choice in maternity care.

Two key principles underpin this approach:

- Firstly the woman accesses a caseload primary care midwife who provides the continuity of care through the antenatal, intrapartum and postnatal period,

¹⁰ Page (2000) p127

collaborating as necessary with other practitioners according to the needs of the women. This may be further complemented by additional services (eg those operating under Families First), non-government organisations, social institutions and networks where necessary.

- Secondly, wherever possible, services are community based, to provide maximum continuity for women. This means that antenatal and postnatal care is provided in women's homes and or in community centres. Location of the birth is the choice of the woman and her family in consultation with the midwife. Birth at home should always be an option. This approach is designed to actively and effectively engage women as partners in their care and more adequately prepare them for parenting. Community based services also entail involving consumer representatives in the management of services including setting policy parameters, protocols, evaluation and peer review.

NSW Community Midwifery Program (NSWCMP)

This Program proposes a model of central funding and referral service or a network that would provide access to one to one midwifery care in a variety of settings. This model would provide a safe, high quality service across the entire state. The call for centralisation is to ensure parity of service delivery across the state. If implementation was the responsibility of any one single AHS, it is likely to be achieved in a small number of progressive AHS only. The Maternity Services Framework (NSW Health 2000) confirms this risk. It cites a major recommendation of the Shearman report was to accredit IPM's for visiting rights. The responsibility was then delegated to AHS. It states that 8 of the 17 AHS report the existence of protocols in some of their facilities. In fact visiting rights were enacted in only 3 AHS.

The NSWCMP will provide:

- A highly professional workforce with recent caseload skills, providing a safe, and accountable service;
- Use of experienced caseload midwives to foster a larger workforce of midwives skilled in caseload care.
- Provide women with a choice of best practice midwifery care across the state.
- Mobile, responsive team practice well integrated into local health and community services; and
- Service of sufficient size to produce a quality service with low administrative and overhead costs.
- Effective collaboration between midwives as primary carers and GP and specialist obstetricians as guided by the agreed referral guidelines. (Appendix A)

Antenatal Care

- The relationship between the woman and the professional is based on the woman's needs and how the midwife or other nominated caregiver can meet these to preserve safety and build on the woman's own confidence and capacity.
- Guidelines for care, including screening protocols will be evidence based (e.g. Cochrane, NZCOM *Handbook for Midwives 2002*). Educative elements will be integrated with clinical care strengthening the connections between communities

and families by drawing on community resources to assist the woman preparing for childbirth and parenting.

- Community antenatal care aims to address underlying social determinants such as isolation, and lack of social support, by being sensitive to the unique characteristics and circumstances of families and providing sustained contact with suitably trained and supported staff.
- The frequency of visits for most women depends on physical or social health status determined on the basis of comprehensive consultation and assessment. In populations with higher needs there will be more episodes of care as required.
- Antenatal care will be provided from tertiary institutions when necessitated by investigations or specialist medical skills and otherwise occur in the community or the home.

Intrapartum Care

- As the model is based on continuity, the primary midwife and her backup midwife will be known to the woman and her family. By comprehensively addressing her need for safety and providing a continuum of care in partnership with the woman the midwife facilitates the woman's preparation for motherhood and early parenting.
- The focus is the biophysical and social safety of mother and infant. Evidence based care and monitoring, consultation between the woman and the midwife, and the focus of attention on the range of the woman's and infant's needs will be the priority. The skills and expertise of other professionals will be accessed as necessary in consultation with the woman.
- A range of locations and professionals will be available for childbirth according to the woman's preference and health status.

Postnatal and newborn care

- This will be community focused and support and strengthen the woman's ability to mother. It will be achieved by introducing midwifery led postnatal care for a period of up to four to six weeks as necessary.
- Referral to Early Childhood services and/or the GP on discharge is the critical primary health link between postnatal midwifery care and Families First. This aims to effectively integrate women into systems and programs that build family and community capacity.
- The content of care will be designed to encourage maternal confidence and self-efficacy and build on social support, according to each woman's needs. Health outcomes such as puerperal health, infant feeding, family functioning, infant health and social and emotional needs including social isolation and fatigue will be evaluated.
- Increasing evidence shows the problems of 'ward' based postnatal care and services are not meeting either women's needs or optimal professional standards. The proposed model emphasises home and community focused midwifery care, for the healthy woman and neonate, for birth and/or as soon as possible after birth.

Summary

Successful implementation of the NSWCMC requires:

- The recognition of the midwife as the most appropriate primary caregiver for women in pregnancy and childbirth consistent with international standards.
- The recognition of the midwife as a critical link between pregnancy, birth and postnatal care and effective community services that strengthen and maintain healthy children and mothers.
- Pooled funding arrangements across acute care and community according to numbers of births and families who receive services
- The education of student midwives to be integrated and centred on quality rather than volume and in ways that treat the women as a respected partner who participates in the process.

Considering the limited skills and experience of one to one midwifery care in any setting within AHS and hospitals, this model must incorporate experienced caseload midwives formerly from the private sector. The service or referral network would manage itself and be responsible for the contracted midwives within its service. It could also provide an information source for consumers and assist hospitals and AHS in introducing other innovative or flexible models of birthing services.

Management / Organisational Arrangements

The NSWCMC would provide a central location for the coordination, management of and referral to caseload midwifery care. The service would be responsible for monitoring agreed standards and providing on-going professional development and the collection and analysis of data for the purposes of process and outcome evaluation. The service would be self-managing but require strong effective links to AHS and hospitals. The AHS and hospitals must provide 'visiting rights' for the midwives attached to the service.

Program Coordinator

As this program is innovative and progressive it is essential that the program co-ordinator has considerable commitment, expertise and experience in one on one care and in particular homebirth. The position would also demand a background in research to ensure quality evaluation.

Midwifery Workforce

A major advantage of the program is the utilisation of caseload midwives that have existing business infrastructure. Essentially a service can be provided wherever there is a midwife who meets the program criteria. As midwives would take responsibility for most of their on-costs the service would not be burdened by administrative tasks such as payroll, and the organisation of cars and mobile phones. In many cases midwives will have forged links within their local communities, the formal recognition of a state funded program could only enhance these relationships.

Their contract can include responsibilities for preceptoring caseload midwives into caseload work.

In the case of a Midwifery Group Practice (where a number of midwives form a business practice), The NSW Health Department sub-contracts the total care package to the group practice that is providing the service, or to the sole provider who is providing the service (an individual midwife can be offered a contract). The group practice would be self-managing and responsible for paying all members and for covering absence including sick, annual and maternity leave. The midwives would plan their work so that they have appropriate annual leave. It would be necessary to negotiate a means by which the personnel within the group practice are paid and to have one person who coordinates the transaction and is a single point of contact between the group practice and the NSW health department. The Midwifery Group Practice negotiates funding from the NSW health Department for the group practice.

In this model a formally constituted group of midwives contract their services to the NSW Health Department through the nominated Midwifery Group Practice (MGP) for a specified number of women per year (usually 40 per full time caseload midwife). The group practice would be self-managing.

Midwives provide care during the antenatal period, during labour and birth and postnatal care up to six weeks postpartum, with appropriate backup from other midwives in the practice. The group practice takes full responsibility for the care of these women and for ensuring women are referred to appropriate medical carers if the need arises. The responsibility and the contract are with the Midwifery Group Practice rather than individual midwives. The group practice would be responsible for employing and replacing staff as necessary.

The per birth payment should be adequate to accommodate provisions for leave, superannuation and workers compensation arrangements. The contract would be based on an agreed service level and tied to cases managed.

Equipment, consumables, car, and mobile telephone are costs that the midwives will need to cover from within their per birth payment fee. If the midwives choose to operate from a community-based location for antenatal visits and/or groups rental will need to be negotiated by the MGP through the relevant AHS and the midwives. The rental would need to be accommodated within the negotiated per capita fee.

Other costs, such as superannuation and workers compensation would be arranged by the midwives themselves and would also need to be built into any per birth payment.

Individual or groups of midwives providing services would be located, in metropolitan, regional and/or rural areas where there is a demand for services and where they choose to work.

Risk Management

Indemnity arrangements need to be agreed between government and insurance providers. The group practice and/or the sole provider would be covered by vicarious liability from within the public health system, negotiated by NSW Health.

In addition to this, there would be a mechanism for resolution of complaints. See Figure 1.

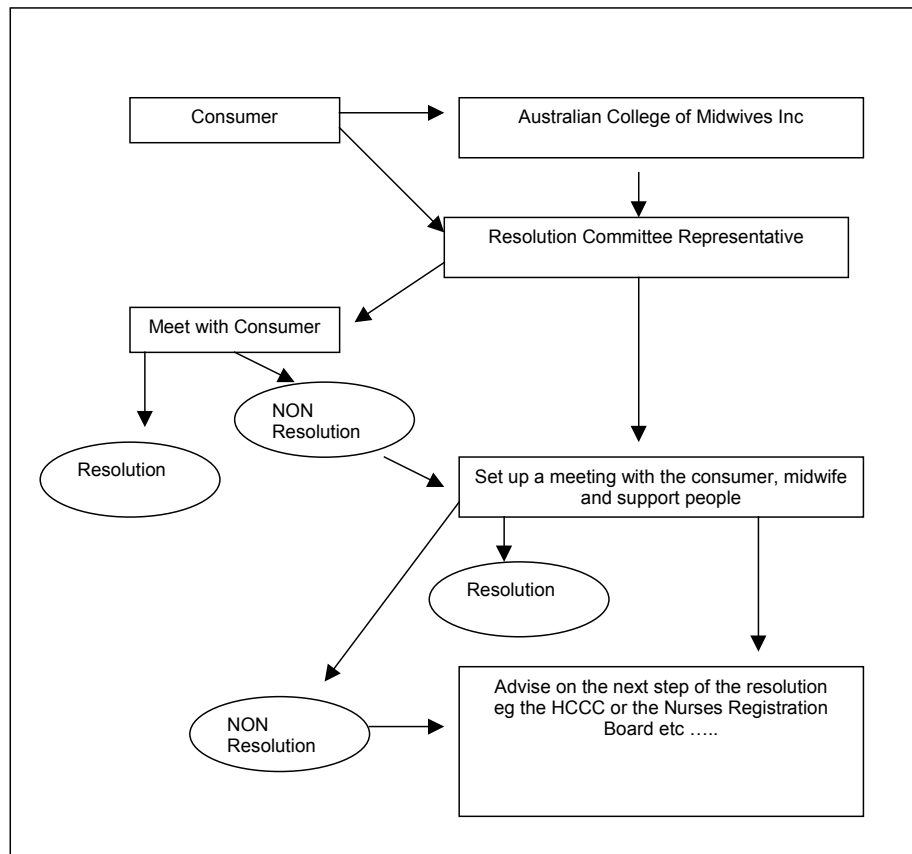
Professional isolation and burnout remains a potential disadvantage with this form of practice, although this is addressed through support provided by members of

the group practice to each other. Midwives would be well linked to their closest AHS to facilitate involvement in educational programs and opportunities for professional support, clinical standards review and debriefing.

In order to achieve a safe service the provision of care and program management must come from health professionals with a background of providing the required care. In response to the insurance crisis, Community Midwifery WA Inc (CMWA) approached the West Australian Health Department and state insurer, WA Risk Cover. These parties were convinced that the success of the program lie with the community management and operation and the autonomy and skill of the experienced midwives. As such WA Risk Cover have provided vicarious liability for the program on the condition that it has no direct affiliation with an acute care setting.

All midwives working in the program will additionally be required to undertake Advanced Life Support in Obstetrics (ALSO) training. This ensures safe, consistent, collaborative care standards.

Figure 1. A Proposed Complaints Mechanism for the NSW Community Midwifery Service



Source: Based on a similar model, the current NZCOM model from The New Zealand College of Midwives *Handbook for Practice*, 2002.

Evaluation

One of the requirements of any reform in maternity policy and practice must be accompanied by rigorous evaluation. The Maternity Coalition would strongly recommend that all statistics and the evaluation of practice outcomes for both women

and babies be implemented at the onset of the program, with regular reviews and peer review processes established. This would require a level of funding from the NSW Health Department for the establishment of a process for review and evaluation. The evaluation would combine measurable or quantifiable outcomes such as the ability to adhere to standards for practice, the costs involved and the extent to which the model or care was achieved (organisational effects) with an analysis of the effects of the change on women and midwives. A suggested framework for evaluation may be the following:

Aims:

- To assess safety, clinical outcomes and clinical standards
- To assess and describe the process of organisation change
- Compare the cost effectiveness of the new system with the existing service
- To describe the personal experience of both women and midwives with regard to their satisfaction and well being following the system change

Design:

- Audit evaluation - to measure and monitor the performance of the new model against specified targets and clinical standards. (This replaces an 'experimental randomisation' approach which would allow a level of causal inference to be made, with an evaluative description of system change).
- Comparative studies to determine the clinical outcomes and the cost comparisons between the different models of care. (Once again this will not eliminate bias and system error – but is methodologically acceptable to illustrate the effect of a system change). For example comparison between the cohort of women with community midwifery care against those not receiving this form of care and historical controls for both.
- Descriptive studies to evaluate the women's and midwives' perceptions of the new service.

Maternity Coalition would be available for further consultation with regard to evaluation.

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APPENDIX A: Indications for Mandatory Discussion, Consultation and Transfer of Care

Developed by the Ontario College of Midwives (2000) and used with permission.

(Effective June 15, 2000)

As a primary caregiver, the midwife together with the client is fully responsible for decision-making. The midwife is responsible for writing orders and carrying them out or delegating them in accordance with the standards of the College of Midwives.

The midwife discusses care of a client, consults, or transfers primary care responsibility according to the *Indications for Mandatory Discussion, Consultation and Transfer of Care*. The responsibility to consult with a family physician/general practitioner, obstetrician and/or specialist physician lies with the midwife. It is also the midwife's responsibility to initiate a consultation within an appropriate time after detection of an indication for consultation. The severity of the condition and the availability of a physician(s) will influence these decisions.

The informed choice agreement between the midwife and client should outline the extent of midwifery care, in order to make clients aware of the scope and limitations of midwifery care. The midwife should review the *Indications for Mandatory Discussion, Consultation and Transfer of Care* with the client.

Category 1: Discuss with another midwife or with a physician

It is the midwife's responsibility to initiate a discussion with or provide information to another midwife or physician, with whom the care is shared, in order to plan care appropriately.

Category 2: Consult with a physician

It is the midwife's responsibility to initiate a consultation and to clearly communicate to the consultant that she is seeking a consultation. A consultation refers to the situation where a midwife, in light of her professional knowledge of the client and in accord with the standards of practice of the College of Midwives, or where another opinion is requested by the client, requests the opinion of a physician competent to give advice in this field. The midwife should expect that:

- The consultation involves addressing the problem that led to the referral, an in-person assessment of the patient, and the prompt communication of the findings and recommendations to the patient and the referring professional.
- Following the assessment of the patient by the consultant(s), discussion can occur between the health professional and consultant regarding future patient care.
- The consultation can involve the physician providing advice and information and/or providing therapy to the woman/newborn or prescribing therapy to the midwife for the woman/newborn.
- Consultation must be documented by the midwife in her records in accord with the regulations of the College of Midwives.
- After consultation with a physician, primary care of the client and responsibility for decision-making together with the client either:
 - a) continues with the midwife, or
 - b) is transferred to a physician.
- Once a consultation has taken place and the consultant's findings, opinions and recommendations are communicated to the client and the midwife, the midwife

must discuss the consultant's recommendations with the client and ensure the client understands which health professional will have responsibility for primary care.

- Where urgency, distance or climatic conditions make an in-person consultation with a physician not possible, the midwife should seek advice from the physician by phone or other similar means. The midwife should document this request for advice, in her records, in accord with the requirement of the College of Midwives and discuss with the client the advice received.
- The consultant may be involved in, and responsible for, a discrete area of the client's care, with the midwife maintaining overall responsibility within her scope of practice. Areas of involvement in client care must be clearly agreed upon and documented by the midwife and the consultant.

The College of Midwives has agreed that:

One health professional has overall responsibility for a patient at any one time and the patient's care should be coordinated by that health professional whose identity should be clearly known to all of those involved and documented in the records of the referring health professional and consultant. Responsibility could be transferred temporarily to another health professional, or be shared between health professionals according to the patient's best interests and optimal care; however, transfer or sharing of care should only occur after discussion and agreement among patients, referring health professionals, and consultants.

Category 3: Transfer to a physician for primary care

When primary care is transferred, permanently or temporarily, from the midwife to a physician, the physician, together with the client, assumes full responsibility for subsequent decision-making. When primary care is transferred to a physician, the midwife may provide supportive care within her scope of practice, in collaboration with the physician and the client.

Indications: Initial History and Physical Examination

- Category 1**
- adverse socio-economic conditions
 - age less than 17 years or over 35 years
 - cigarette smoking
 - grand multipara (para 5)
 - history of infant over 4500 g
 - history of one late miscarriage (after 14 completed weeks) or preterm birth
 - history of one low birth weight infant
 - history of serious psychological problems
 - less than 12 months from last delivery to present due date
 - obesity
 - poor nutrition
 - previous antepartum haemorrhage
 - previous postpartum haemorrhage
 - one documented previous low segment caesarean section
 - history of essential or gestational hypertension
 - known uterine malformations or fibroids

- Category 2** current medical conditions for example: cardiovascular disease, pulmonary disease, endocrine disorders, hepatic disease, neurologic disorders
 family history of genetic disorders
 family history of significant congenital anomalies
 history of cervical cerclage
 history of repeated spontaneous abortions
 history of more than one late miscarriage or preterm birth
 history of more than one low birth weight infant
 history of gestational hypertension with proteinuria and adverse sequelae
 history of significant medical illness
 previous myomectomy, hysterotomy or caesarean section other than one documented previous low segment caesarean section
 previous neonatal mortality or stillbirth
 rubella during first trimester of pregnancy
 significant use of drugs or alcohol
 age less than 14 years
- Category 3** any serious medical condition, for example: cardiac or renal disease with failure or insulin dependent diabetes mellitus

Indications: Prenatal Care

- Category 1** presentation other than cephalic at 36 completed weeks
 no prenatal care before 28 completed weeks
 uncertain expected date of delivery
- Category 2** uncomplicated spontaneous abortion less than 12 completed weeks
 anaemia (unresponsive to therapy)
 documented post term pregnancy (42 completed weeks)
 fetal anomaly
 inappropriate uterine growth
 medical conditions arising during prenatal care, for example: endocrine disorders, hypertension, renal disease, suspected significant infection, hyperemesis
 placenta previa without bleeding
 polyhydramnios or oligohydramnios
 gestational hypertension
 isoimmunization
 serious psychological problems
 sexually transmitted disease
 twins
 vaginal bleeding other than transient spotting
 presentation other than cephalic, unresponsive to therapy, at 38 completed weeks
- Category 3** cardiac or renal disease with failure
 insulin dependent diabetes
 multiple pregnancy (other than twins)
 gestational hypertension with proteinuria and/or adverse sequelae
 symptomatic placental abruption
 vaginal bleeding, continuing or repeated
 placenta previa after 28 completed weeks

Indications: During Labour and Birth

- Category 1** no prenatal care
non-particulate meconium
- Category 2** breech presentation
preterm labour (34 - 37 completed weeks)
prolonged active phase
prolonged rupture of membranes
prolonged second stage
retained placenta
suspected placenta abruption and/or previa
third or fourth degree tear
twins
unengaged head in active labour in primipara
preterm pre labour rupture of membranes (PPROM) between 34 and 37 completed weeks
particulate meconium
gestational hypertension
- Category 3** active genital herpes at time of labour
preterm labour (less than 34 completed weeks)
abnormal presentation (other than breech)
multiple pregnancy (other than twins)
gestational hypertension with proteinuria and/or adverse sequelae
prolapsed cord or cord presentation
placenta abruption and/or previa
severe hypertension
confirmed non-reassuring fetal heart patterns, unresponsive to therapy
uterine rupture
uterine inversion
haemorrhage unresponsive to therapy
obstetric shock
vasa previa

Indications: Postpartum (Maternal)

- Category 2** suspected maternal infection e.g. breast, abdomen, wound, uterine, urinary tract, perineum
temperature over 38° C (100.4° F) on more than one occasion
persistent hypertension
serious psychological problems
- Category 3** haemorrhage unresponsive to therapy
postpartum eclampsia
thrombophlebitis or thromboembolism
uterine prolapse

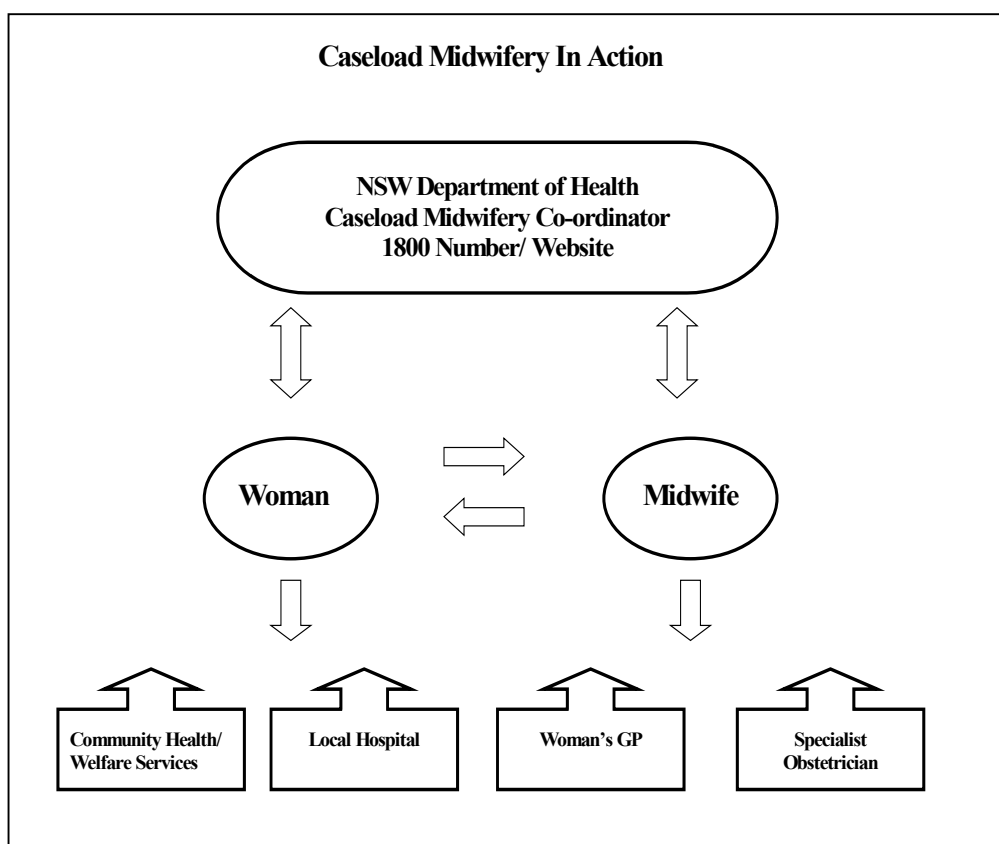
Indications: Postpartum (Infant)

- Category 1** feeding problems¹¹
failure to pass urine or meconium within 24 hours of birth

- Category 2**
- 34 to 37 weeks gestational age
 - infant less than 2,500 g
 - less than 3 vessels in umbilical cord
 - excessive moulding and cephalhematoma
 - abnormal findings on physical exam
 - excessive bruising, abrasions, unusual pigmentation and/or lesions
 - birth injury requiring investigation
 - congenital abnormalities, for example: cleft lip or palate, congenital dislocation of hip, ambiguous genitalia
 - abnormal heart rate or pattern
 - abnormal cry
 - persistent abnormal respiratory rate and/or pattern
 - persistent cyanosis or pallor
 - jaundice in first 24 hours
 - suspected pathological jaundice after 24 hours
 - temperature less than 36° C, unresponsive to therapy
 - temperature more than 37.4° C, axillary, unresponsive to non-pharmaceutical therapy
 - vomiting or diarrhoea
 - infection of umbilical stump site
 - significant weight loss (more than 10% of body weight)
 - failure to regain birth weight in three weeks
 - failure to thrive
 - failure to pass urine or meconium within 36 hours of birth
 - suspected clinical dehydration
- Category 3**
- APGAR lower than 7 at 5 minutes
 - suspected seizure activity
 - major congenital anomaly requiring immediate intervention, for example: omphalocele, myelomeningocele
 - temperature instability

APPENDIX B

Fig 2. A Flowchart outlining the lines of contact/communication involved in caseload/community midwifery



NOTE: Contact is made by the woman to the Department of Health. An 1800 number and website access should allow for easy referral to local caseload midwives. The woman is then put in touch with a local midwife and is assessed.

The midwife continues as the primary carer regardless of the health/socio profile of the woman. Consistent with the referral guidelines the midwife will consult with other maternity providers as appropriate. In the event of necessary referral during pregnancy the midwife will still maintain the primary care link to provide ongoing support. It is this collaborative care approach that will provide the best outcomes. The midwife remains the central link to other agencies to ensure high quality care and support and a seamless transfer to a primary care model after the midwife episode ceases at 6 wks post partum.