Understanding the implementation of community case management of childhood illness in Indonesia: families' and primary health care workers' perspectives

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Certificate of original authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Candidate:

Date: 14 July 2014

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Pictures from the Field

I was pictured doing a home visit with a PHCW to assess a newborn

I observed the assessment of a newborn by a PHCW in the family home

I am pictured outside a community health centre (*Puskesmas*)

PHCWs training

Roads in villages were muddy when wet

Some villages were separated by rivers and straits

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List of Abbreviations

BASICS	Basic Support for Institutionalizing Child Survival
BOK	*Biaya Operasional Kesehatan* (Operational Health Funding)
CCM	Community Case Management
CHW	Community Health Worker
C-IMCI	Community Integrated Management of Childhood Illness
CKMC	Community Kangaroo Mother Care
DTPS	District Team Problem Solving
FGD	Focus Group Discussion
HIC	High Income Country
HREC	Human Research Ethics Committee
ICN	International Council of Nurses
ID	Interpretive Description
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IPKKI	Ikatan Perawat Kesehatan Komunitas Indonesia (Indonesian Community Health Nurses Association)
IPNC	Integrated Postnatal Care
Jamkesda	*Jaminan Kesehatan Daerah* (Local Health Insurance)
Jamkesmas	*Jaminan Kesehatan Masyarakat* (Community Health Insurance)
JHPIEGO	A non-government organisation affiliated to John Hopkins University
JSI	John Snow Institute
KMC	Kangaroo Mother Care
LMIC	Low and Middle Income Country
MAWG	Multi Agency Working Group

MCH	Maternal and Child Health
MCHIP	Maternal and Child Health Integrated Program
MDG	Millennium Development Goal
MNCH	Maternal Neonatal and Child Health
NGO	Non-Governmental Organisation
PHC	Primary Health Care
PHCW	Primary Health Care Worker
Posyandu	*Pos Pelayanan Terpadu* (Integrated Health Clinic)
PPNI	*Persatuan Perawat Nasional Indonesia* (Indonesian National Nurses Association)
Puskesmas	*Pusat Kesehatan Masyarakat* (Community Health Centre)
RDT	Rapid Diagnostic Test
RUTF	Ready-to-Use Therapeutic Foods
SBMR	Standard-Based Management and Recognition
SIPP	*Surat Izin Praktek Perawat* (the permission letter for nursing practice)
UI	*Universitas Indonesia* (University of Indonesia)
UN	United Nations
UNICEF	The United Nations Children's Fund
USAID	United States Agency for International Development
UTS	University of Technology Sydney
WHO	World Health Organization

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Abstract

Indonesia is striving to achieve the Millennium Development Goal 4 target of less than 23 infant deaths per 1000 live births by 2015. In order to reach this target, a community case management (CCM) model, was introduced by the American funded Maternal and Child Health Integrated Program (MCHIP) and the Indonesian Ministry of Health (MoH) in 2011. Little is known about how CCM has been delivered and there is no research that examines the factors that contribute to the successful implementation of CCM in Indonesia. The aim of this research was to gain insight into how CCM was implemented in the Kutai Timur district, East Kalimantan, Indonesia from the perspective of primary health care workers (PHCWs): community nurses, midwives and community health workers; and from the families who received care.

Interpretive description was used to gain insight into participants' perceptions and experiences. This method allowed me to generate knowledge about the implementation of CCM and to gain an understanding of the experience of the participants involved and the impact on health and health care practice. Data were collected following PHCWs training and the initial phase of implementation. Interviews were conducted with six key informants from MCHIP, MoH, the district health office and *Puskesmas* (community health centres), three program supervisors, 15 PHCWs and seven mothers. PHCWs were observed while delivering interventions to families. One focus group discussion was conducted with PHCWs and documents related to the CCM implementation were analysed.

Five main themes emerged: improved family wellbeing; enhanced PHCWs' practice; barriers to CCM implementation; enablers of CCM implementation; and cultural influences. It was reported that families' access to care improved, along with the family's satisfaction of care, compliance with care plans and health literacy. In addition, it was found that the program had increased PHCWs' family and child health knowledge and professional confidence to deliver evidenced-based practice, in conjunction with improved clinical reasoning and more structured clinical intervention.

Despite the reported success of the CCM program, a number of barriers and concerns highlight the need for programs to be better tailored to the socio-cultural context. An integrated model of community child health delivery that emphasises the importance of health system strengthening; the improved alignment of child health programs with maternal, newborn and reproductive programs; PHCWs support; and community participation is proposed. This model can be used to guide the implementation of community case management models in the rural Indonesian context.

Chapter 1 - Introduction

Everyday approximately 19,000 children under the age of five die worldwide and about 13,000 of them die before reaching the end of their first year of life, particularly in low and middle income countries (LMIC)[1] (UNICEF 2012). Poor infant and child health outcomes are an impediment to a country's development and addressing the determinants of infant and child mortality remains a central concern of governments world-wide (Bhutta et al. 2012). This research considers the efforts underway to improve child health in one such country: Indonesia. It presents the findings of a qualitative research study conducted with primary health care workers (PHCWs) [2] including community nurses, midwives, community health workers (CHWs)[3], and families to understand the process of implementing a new model of care in the diverse LMIC context of Indonesia.

Specifically, this research investigates the experiences of PHCWs and families regarding the implementation of a community case management (CCM) model of care that was aimed at treating childhood illnesses in the rural area of the Kutai Timur district, East Kalimantan. An investigation into provider and community experiences of models of care is an important component of assessing the merit of health services and documenting lessons learnt so that they can inform policy decisions and sustain improvements in practice and ultimately child health outcomes. The research provides a deep understanding of how the community case management program was implemented in the Kutai Timur district, providing insight into the attainment of overall program goals as well as

[1] The term to classify low and middle income countries with Gross National Income of between USD1,035 or less, and USD4,085 per capita (The World Bank 2012).

[2] Someone who delivers universally accessible first-level services that promote health, prevent disease, and provide diagnostic, curative, rehabilitative, supportive and palliative health services. This group is made up of a range of formal health workers i.e doctors, nurses and midwives, and informal/ voluntary health workers i.e Community Health Workers (Humphreys et al. 2007).

[3] Community members that have received some training to promote health or to carry out some health care service, but are not a health professional (Lewin et al. 2010).

highlighting ways forward to build PHCWs' capacity for better practice and enhance community engagement for determining their own health care. Perhaps most importantly, conducting this research is significant as it is difficult to evaluate case management efficacy without a current description of practice (Forbes 1999).

In this introduction, I briefly outline the problem of child health globally and in Indonesia, as well as the initiatives that seek to improve child health. I outline the context of Indonesia, providing a brief description of the geographical and cultural setting, and the health system. Finally, I present the research question and objectives along with a description of the expected significance of the study. The chapter concludes with a brief outline of the central elements of the thesis.

Background

Setting the Scene

The focus of this work is on the implementation of a community-based model of care as a means of reducing the infant mortality rate (IMR) and improving child health care in Indonesia. IMR is the number of infants dying before reaching one year of age per 1,000 live births in a given year (WHO, UNICEF & World Bank 2012). Child health care refers to a universal child health service from birth to school age and includes families by focusing on the promotion of healthy development, prevention, early detection of, and intervention for physical, emotional and social factors (WHO 2013b).

Global Infant Mortality and Child Health Initiatives: An Overview

The high IMR in various countries has remained a global health issue in the last decade. Every year almost seven million children die before reaching their fifth birthday, 73% of them occurred within the first year of life (WHO 2013c). High IMR reflects global income inequity (Loaiza, Wardlaw & Salama 2008). In 1990, the IMR in high-income countries (HIC)[4] was nine deaths per 1,000 live births, 20

[4] The term to classify countries with Gross National Income per capita of USD12,616 or above (The World Bank 2012).

times less than that reported by Sub Saharan Africa and South Asian countries (LMIC), which were 180 per 1,000 live births in the same period. Ten years later, the rates decreased in both HIC and LMIC to six and 175 per 1,000 live births respectively (Cabral, Soares de Moura & Berkelhamer 2012). Although these figures show improvement, they demonstrate a wider gap between HIC and LMIC, showing that the IMR in LMIC was 29 times higher than that in HIC.

Health inequity exists throughout the world, between countries and within countries (Marmot et al. 2012), including Indonesia. Inequity refers to differences in health status among populations defined by specific characteristics (Reutter & Kushner 2010). One factor that determines poor health status is living in a rural area. In contrast, health equity "reflects the principles of social justice or fairness related to equitable allocation of 'resources' in the broadest sense" (Reutter & Kushner 2010 p. 272). One of the determinants that can cause health inequity is limited access to health care.

A number of initiatives have been proposed to narrow the gap of inequity in health. Primary health care, the principles of which are outlined in the Alma Ata Declaration (WHO 1978), is regarded as the best way to achieve "health for all", or universal health coverage (WHO 2008c). Health for all means equal access to opportunity for all people, whether they differ by geography, race, age, gender, language or functional capacity (McMurray 2007). Narrowing health inequity in health therefore means improving community access to health care.

Although there has been significant progress in the improvement of child health following the Alma Ata Declaration—where country members expressed a commitment to essential PHC action to protect and promote the health for all (WHO 1978)—improvement is reported as remaining concentrated in the HIC members only. Infant mortality in the world decreased from 15 million in 1978, when the Declaration was adopted, to 13 million by 1990, and to 9.2 million by 2007 (Loaiza, Wardlaw & Salama 2008). More than 80% of the 9.2 million infant deaths occurred in Sub Saharan Africa and South Asian countries, including Indonesia (WHO 2011).

The current underlying causes of global infant mortality include pneumonia, prematurity, birth asphyxia and birth trauma, diarrhoea, measles, malaria and malnutrition (WHO 2013a). The causes of infant mortality are illustrated in Figure 1.1 below.

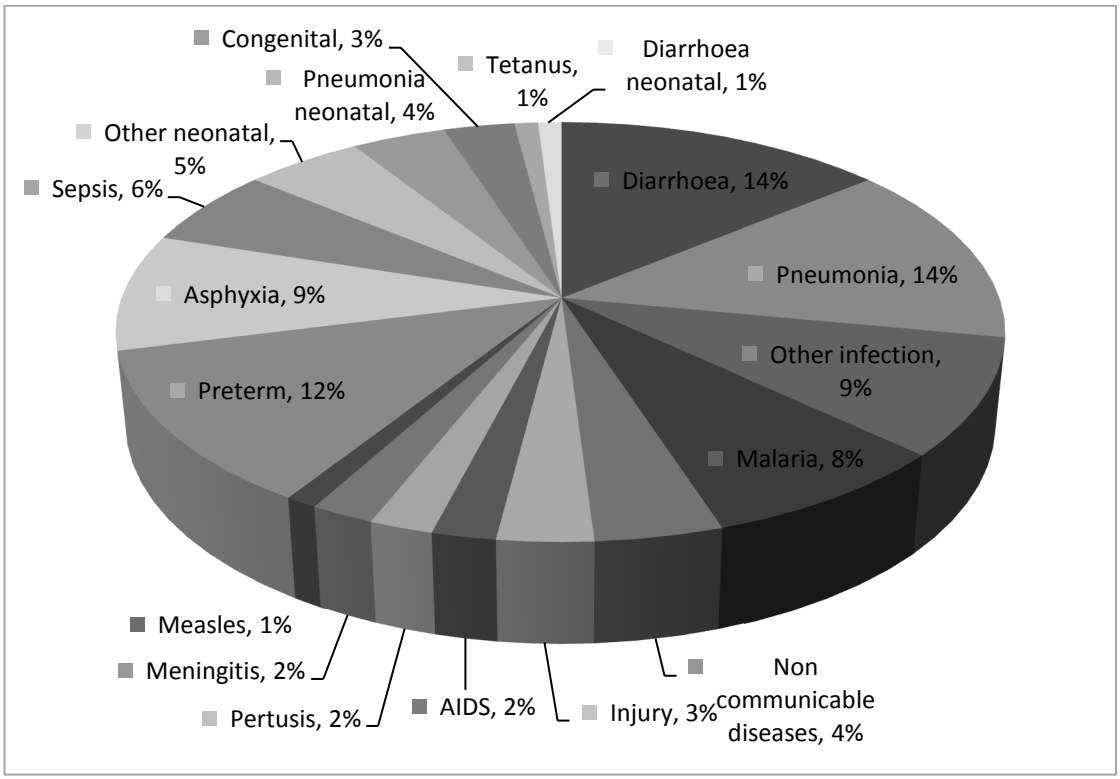


Figure 1.1 Causes of global infant mortality (WHO 2013a)

As described in Figure 1.1, in 2011 it was reported that the infectious diseases of pneumonia, diarrhoea, malaria and other infections accounted for almost one-third of infant mortality, whereas prematurity, birth asphyxia and birth trauma were reported as the leading causes of newborn deaths (WHO 2013a). Malaria is still the major killer in Sub Saharan Africa, causing about 14% of infant deaths in the region, while pneumonia is the leading cause of infant death in South Asian countries (WHO 2013a). In addition, malnutrition was reported to account for 50% of infant death worldwide in the same period (Cabral, Soares de Moura & Berkelhamer 2012).

In 2000, 189 countries endorsed the United Nations (UN) Millennium Declaration, where eight goals were set to be achieved by 2015; these goals are known as the Millennium Development Goals (MDGs) (United Nations 2008).

Under this declaration, UN countries committed themselves to eliminate extreme poverty and promote improved standards of living for people worldwide. There are eight MDG targets that the countries aim to achieve in 2015. These include: to eradicate extreme poverty and hunger (MDG 1); to achieve universal primary education (MDG 2); to promote gender equity and empower women (MDG 3); to reduce child mortality (MDG 4); to improve maternal health (MDG 5); to combat HIV/AIDS, malaria and other diseases (MDG 6); to ensure environmental sustainability (MDG 7); and to develop a global partnership for development (MDG 8) (United Nations 2008). Despite these encouraging targets to improve the wellbeing of people worldwide, concern has arisen about the absence of a clear action plan for how the goals should be obtained, and about the lack of attention on issues of inequity (Bryce, Victora & Black 2013).

MDG 4 is the goal that is most relevant to this research. MDG 4 gives specific attention to child health with a target of reducing child mortality by two-thirds between 1990 and 2015. The indicators of this target are: under five mortality rate (probability of dying by age five per 1000 live births); infant mortality rate (probability of dying by age one per 1000 live births); and proportion of one-year-old children immunised against measles (percentage of one-year-olds fully immunised against measles) (United Nations 2008). This MDG 4 target has been critiqued by Bryce et al. (2013) who question the rationale for proposing a reduction of two-thirds in child mortality. The authors argue that most countries are not able to achieve such a target, given that the baseline measures informing this target were taken a decade before the goals were established in 2000 and no progress had been made over this decade. The authors also question the inclusion of measles vaccination as a coverage indicator when measles was, and is, responsible for noticeably fewer deaths than pneumonia, diarrhoea, malaria, or neonatal diseases.

To date, significant progress has been made in reducing infant mortality, globally. Infant mortality has declined by 47% from a high number of 90 per 1,000 live births in 1990 to 48 deaths per 1,000 live births in 2012 (WHO 2013d). The rate of decline has also accelerated in recent years from 1.2% per year between 1990 and 1995, to 3.9% per year between 2005 and 2012 (WHO 2013d). Despite the

global efforts to improve child survival, many countries, especially LMIC, do not seem to be on track to achieve the goal in the targeted time (Bhutta et al. 2010a).

In order to support the global effort to achieve MDG 4, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) established a policy that highlights the importance of community-based treatment and enhancement of quality service at primary care level to reduce infant mortality. One of the initiatives that came from this policy was the development of Integrated Management for Childhood Illnesses (IMCI) in 1992 by WHO and UNICEF (Gove et al. 1997). IMCI is a strategy to reduce mortality and morbidity in children by improving the management of common illnesses at a primary care level. The foundation of the IMCI strategy is the use of evidence-based clinical guidelines that enable health workers to use a series of algorithms to assess and manage a sick child and provide health counselling to carers (Gove et al. 1997).

Since 1996, IMCI has been implemented in more than 100 countries (WHO 2007b). A number of studies report that IMCI has improved health service quality as well as a reduction in child mortality and health care costs (Ahmed, Mitchella & Hedta 2010; Arifeen et al. 2004; Bishai et al. 2008; Schellenberg et al. 2004; Tanzania IMCI Multi-Country Evaluation Health Facility Survey Study Group 2004). It was also reported that IMCI has improved child health by strengthening health workers' skills and training, the health system—processes for delivery—and family practices (Amaral et al. 2004; Lambrechts, Bryce & Orinda 1999). Despite the reported successful implementation of IMCI, there have been some concerns associated with the constraints in achieving adequate coverage to improve child survival and the implementation remained suboptimal (Bryce et al. 2003; Horwood et al. 2009). The constraints include poor health worker performance, problems associated with training, weak health systems and poor national policy support (Ahmed, Mitchella & Hedta 2010).

In order to overcome the constraints and to obtain high and equitable coverage of child health intervention, Bryce et al. (2003) argue that there is a need to tailor the service provision to consider community-based initiatives to extend the

delivery of intervention in areas where access to health service is a challenge. An example of this type of initiative is the extension of an IMCI program called Community Integrated Management of Childhood Illnesses (C-IMCI) (Winch et al. 2002). C-IMCI is the activities undertaken at community level to promote community practices that are important to support the implementation of IMCI (Winch et al. 2002). In C-IMCI health professionals work together to improve partnerships between health facilities and the community they serve, increase appropriate and accessible care and information from community-based providers, and promote family practices essential for child health and nutrition (Winch et al. 2002).

Community case management (CCM) is a further initiative in the development of a community-based model to improve children's survival, and was introduced by a consortium of non-governmental organisations (NGOs) that are concerned with child health issues, including a CORE Group: a group of health professionals that work on helping children survive through a community-based approach (CORE Group 2010). These health professional groups include BASICS (Basic Support for Institutionalizing Child Survival), JHPIEGO (affiliation of John Hopkins University) and Save the Children; with the main support from the Maternal and Children Integrated Program (MCHIP) provided by the United States Agency for International Development (USAID). CCM is a strategy to deliver lifesaving, curative interventions for common childhood illnesses, in particular where there is little access to facility-based services (CORE Group et al. 2010, p. 1). The target of CCM is to address health conditions that cause the most childhood death in LMIC, including pneumonia, malaria, diarrhoea, and neonatal illness (CORE Group et al. 2010).

CCM is similar to IMCI in the way that the model focuses on managing common childhood diseases that cause mortality using clinical algorithms. The notable difference of CCM compared to IMCI is the setting where the care is delivered and the human resources involved in the implementation. The CCM model of care focuses on delivering interventions at household level, whereas IMCI focuses on

delivering intervention at the facility level. Moreover, CCM involves CHWs in the implementation, while IMCI involves only community nurses and midwives.

The uniqueness of CCM is the delivery of a relatively straightforward curative intervention and the health workers that are involved as the frontline of the program implementation. CCM relies on evidence-based child survival interventions (Wardlaw, Johansson & Hodge 2006), which include antibiotics for pneumonia, oral rehydration therapy and zinc for diarrhoea, and antimalarials for malaria. In 2007, the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and other international organisations called for the urgent addition of ready-to-use therapeutic foods (RUTF) to the list of cost-effective, evidence-based interventions suitable for CCM of acute severe malnutrition (CORE Group et al. 2010).

The lifesaving interventions in CCM are delivered by trained, supervised community members that vary depending on the local context. Community members may include Ministry of Health outreach workers, professional health workers, and private sector workers (CORE Group et al. 2010). In Indonesia, the health workers included in the implementation of CCM are the PHCWs (Humphreys et al. 2007): that involved trained community nurses, midwives, and CHWs. The inclusion of any of the PHCWs in the implementation of CCM may however be problematic as they have limited authority to prescribe or dispense the medicines required in the implementation, such as antibiotics (more especially the CHWs); this issue is therefore currently under review in the country's health policy (Trisnantoro et al. 2010).

As an outcome-based intervention model, the success of CCM in reducing infant mortality relies on both strategic and intermediate outcomes. The relationship between outcomes is illustrated in the result framework in Figure 1.2.

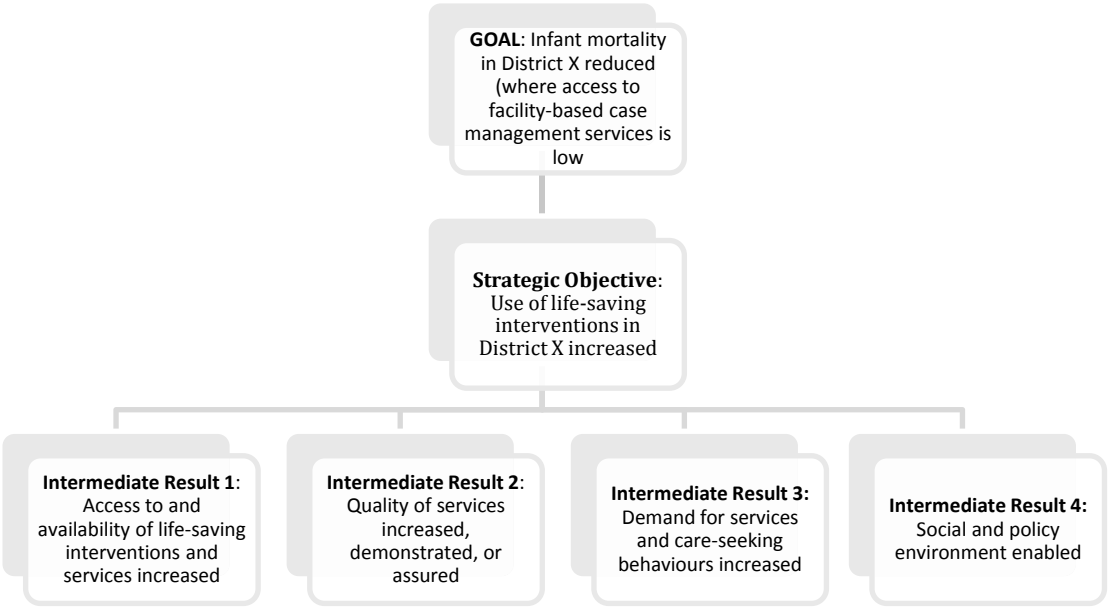


Figure 1.2 Result framework for CCM (CORE Group et al. 2010, p. 15)

Figure 1.2 identifies the ultimate goal of CCM and how this goal can be obtained. The goal of CCM is to reduce infant mortality in a particular district. Therefore, the figure helps identify the reason 'why' CCM is implemented. The strategic objective explains 'what' kinds of interventions are used to obtain the goal. In this context, the lifesaving interventions include antibiotics for pneumonia, oral rehydration therapy and zinc for diarrhoea (United Nations 2013). 'How' the strategic objective could be met is illustrated by strengthening the intermediate results.

The intermediate results are explained in the guide for program managers (CORE Group et al. 2010) and can be described as follows:

- Intermediate result one concentrates on increasing access to intervention and services by minimising barriers such as geographical and social.
- Intermediate result two aims at increasing and assuring the quality of care delivery service provided by the PHCWs.
- Intermediate result three focuses on increasing community awareness of CCM service so that the community's demand for the service increases and the community's home management of sick children improves.

- Intermediate result four focuses on enabling an environment where social and political factors, from community to national level, encourage and support CCM.

The strategies include policy advocacy, capacity building, and financial planning. Understanding the implementation of CCM in Indonesia, as stated in this study's objectives earlier, may shed light on the degree of achievement of the intermediate results of the proposed CCM implementation and the mechanisms that facilitate and constrain these achievements.

Indonesia: The Context

The Republic of Indonesia is the largest archipelago country in the world, located between the Asian and Australian continents, consisting of nearly 17,000 islands with 33 provinces (Ministry of Health 2009b). With a population of nearly 230 million, Indonesia is becoming the country with the highest population density in the region (WHO 2007a). In the early 1970's Indonesia was one of the poorest countries in the world, with 60% of the population living below the poverty line (World Bank 1996). The successful industrialisation process in the following two decades has brought the country a period of impressive economic growth. In early 1998, Indonesia experienced financial difficulty along with the economic crisis in Asia. The economic recovery started in 2000 and was accompanied by the decrease in poverty rates (Shields & Hartati 2003).

Indonesia is now striving to achieve the MDGs. For MDG 4, Indonesia has been demonstrating progress in reducing the IMR in the last three decades. In 2005, the country had successfully reached a figure of 37 infant deaths per 1,000 live births from a staggeringly high 125 per 1,000 in 1980 (Statistics Indonesia & Macro International 2008; WHO 2006). To achieve the MDGs target, the country has to reach the goal of no more than 23 infant deaths per 1,000 live births in 2015 (WHO 2006). This requires a reduction of approximately 3% per year for the period of 2005 to 2015.

A number of reports note that the causes of the infant mortality in Indonesia are numerous (Hernani et al. 2009; Ministry of Health 2008; Statistics Indonesia &

Macro International 2008; WHO 2006). Most childhood mortality in a country occurs during infancy due to neonatal problems such as respiratory failures, low birth weight, premature births, and neonatal infections (Hernani et al. 2009). The cause of infant death in Indonesia is illustrated in Figure 1.3 below:

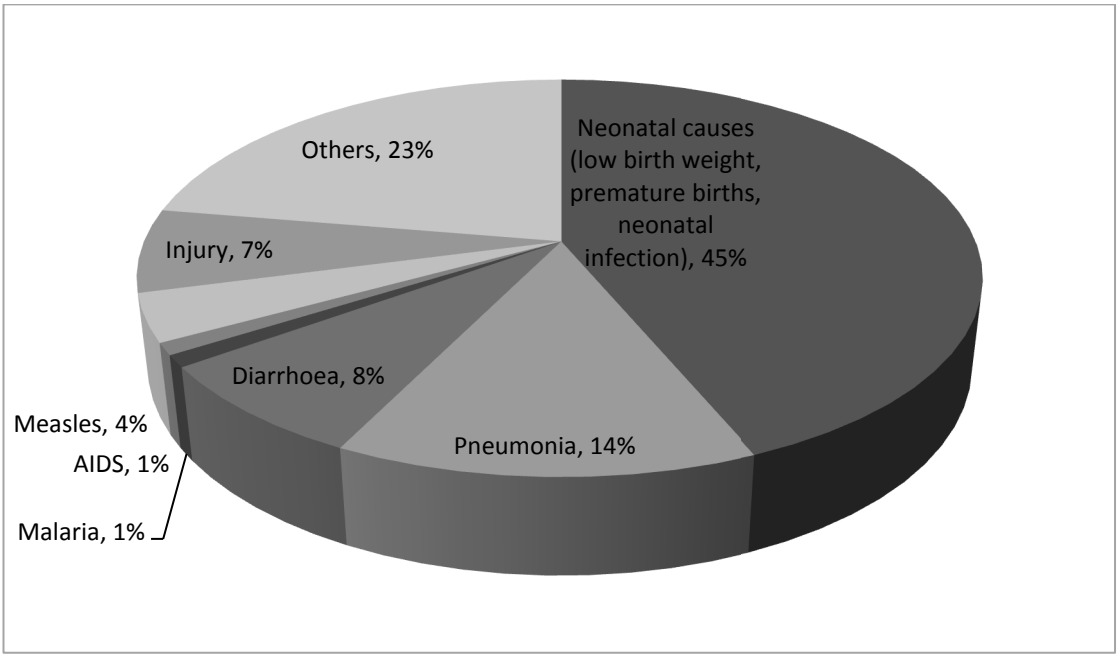


Figure 1.3 Causes of child mortality in Indonesia (UNICEF 2013)

In neonates (0–28 days of life), 78.5% of deaths occur in the first week of life (Ministry of Health 2008). In infants (one–11 months) and children (one–four years old), diarrhoea and pneumonia are considered the most common causes of death (Ministry of Health 2008). Diarrhoea and pneumonia accounted for 35% and 27% of infant deaths respectively, while in children these two diseases contributed to 25.2% and 15.5% respectively (Ministry of Health 2008).

Despite the success story in reducing the IMR, Indonesia is concerned with the issue of health disparities. Infant mortality in the poor regions of the country is 3.6 times that in the wealthy regions (WHO 2009a). For example, infant mortality in the West Sulawesi province was 96 in comparison to 22 per 1,000 live births in the Jogjakarta province, in the same time period (Statistics Indonesia & Macro International 2008). These figures highlight the huge health gap across the country, and indicate the challenge to address equity issues. The equity problems include the scarcity of human resources for health in rural areas (Barber, Gertler

& Harimurti 2007), as well as limited community access to health services (Trisnantoro et al. 2010).

Accelerating the reduction of the IMR in Indonesia requires a focus on alleviating the main causes of infant and child deaths, as well as addressing the problem of inequity in health service delivery. In order to enhance the accessibility of health services, which focus on addressing diarrhoea, pneumonia and newborn sepsis in infants and children, CCM was introduced to two pilot sites in the country in early 2011.

The Indonesian Cultural Context

Before discussing how the CCM may be adapted in the distinct cultural context of Indonesia, it is important to comprehend the nature of Indonesian culture. This section provides an overview of Indonesian culture, particularly in relation to health, and a review of the health delivery system in the country.

Geographically, Indonesia is located across the equator, north-west of Australia. The archipelago is on the crossroad between the Pacific and Indian oceans and bridges two continents: Asia and Australia. This strategic position has influenced the cultural, social, political and economic life of the country (Ministry of Health 2009b).

Indonesia is inhabited by hundreds of cultural and ethnic groups, with various religions (Ministry of Health 2009b). Javanese, the ethnicity of people who live on the island of Java, which is the main administrative centre of the government, are the majority ethnic group. In terms of religion, the majority (about 87%) of the people are Moslem, while others are Christian, Catholic, Hindu, and Buddhist (Ministry of Health 2009b). Despite the diversity of cultures and languages, Indonesia is united by one language, *Bahasa Indonesia*, and by the national philosophy of *Pancasila*, based on belief in God, humanism, universal justice, national unity and democracy (Shields & Hartati 2003). The Indonesian motto of "Unity in diversity" reflects the country's heterogeneity.

The differences in ethnicities and religions have a strong influence on people's beliefs and the way they undertake health practice. For example cultural traditions and religious norms for breastfeeding practices have urged mothers to breastfeed their infant until two years of age (Greta et al. 2002; Pollit et al. 2000). This practice, however, has been changing, particularly for those women who are in paid employment (Pollit et al. 2000).

Assan et al. (2009) reported that the presence of strong cultural factors and beliefs also influences Indonesian people's choice of care. The study conducted in rural Indonesia, reveals that participants viewed traditional practitioners as having more important roles than trained health professionals because they are readily available, cheaper and culturally more acceptable (Assan et al. 2009). However, the authors also argued that despite cultural beliefs, the lack of access to health care services in rural areas is affected by social and economic inequality (Assan et al. 2009). Thind (2005) also noted that the family's choice of health care is strongly associated with religion, along with mother's age and education in that younger mothers with poor educational levels are less likely to access care.

Family and Children in Indonesia

In Indonesia, social support is important in daily life (Goodwin & Giles 2003). The family offers social support for individuals, and plays a pivotal role in looking after family members (Sahar, Courtney & Edwards 2003; Schroder-Butterfill 2004). The members of the family, including children, are highly valued and respected (Shields & Hartati 2006). Pollit et al. (2000) reported that in rural areas, childcare is mainly a mothers' duty, although fathers, other siblings and neighbours also participate when both members of the couple are employed out of the house. Besides looking after the children, mothers are responsible for most household maintenance tasks such as cooking and cleaning, whereas fathers are in charge of earning most of the family income (Pollit et al. 2000; Shefner-Rogers & Sood 2010).

In extended families, other family members such as grandparents, also provided childcare (Pollit et al. 2000; Schroder-Butterfill 2004). It is common that in some

households, particularly young couples, grandparents still provided practical and financial family support (Pollit et al. 2000; Schroder-Butterfill 2004), resulting in their strong influence in family decision making (Pollit et al. 2000).

Child health is an important contributor to the overall country's health status and is reflected in all of the MDGs. To accelerate the reduction of infant mortality in Indonesia, the government has put more emphasis on alleviating the main causes of mortality including respiratory infection (pneumonia), diarrhoea and newborn sepsis (Statistics Indonesia & Macro International 2008). The effort includes enhancing immunisation programs and improving families and communities' access to health care. Given the family oriented culture, any activities in relation to improving child health status should include family in the community, (Ministry of Health 2008; Statistics Indonesia & Macro International 2008), as the family is considered the keystone for the implementation of primary health care (Shields & Hartati 2006).

Primary Health Care in Indonesia

Like other countries in the region, Indonesia utilises a primary health care (PHC) framework that prioritises the goal of ensuring that health care services are accessible to the people (Mahendradhata, Utarini & Kuntjoro 2004). Within the framework, the government funds PHC facilities (Shields & Hartati 2006). In the mid-1990s, the government promoted an extension of private sector organisations in health care to encourage self-selection out of public facilities among those who were able to pay (Barber, Gertler & Harimurti 2007). In 2007, the government owned 51% of hospitals while the private sector owned the rest (Ministry of Health 2009b).

Child Health Service Delivery

The Indonesian Government has allocated health facilities based on population ratios, with one centre per 3,000 people, and one auxiliary centre for each 10,000 (Barber, Gertler & Harimurti 2007). Each subdistrict has at least one centre, known as *Puskesmas* (*Pusat kesehatan masyarakat* - community health centre). *Puskesmas* is the backbone of the delivery of primary health care services in the

subdistricts that provides a comprehensive package of health services, including maternal and child health services. The centre functions as the primary care facility and delivers the health program determined by the central and provincial government. The core program of the centre includes medical care, health promotion, communicable disease control, child and maternal health, environmental health, and nutrition. Each centre may also have other development programs depending on the needs and resources provided (Info Seputar Puskesmas 2009). The services include in-building activities and community outreach such as health surveillance and home visits.

Besides *Puskesmas*, there are also community level health clinics called *Posyandu (Pusat pelayanan terpadu* – integrated health clinic). The services provided in the clinics includes family planning, immunisation, and maternal and child health care. These services are delivered by visiting community nurses and midwives from nearby *Puskesmas* (Shields & Hartati 2006), and this service is free for the poor. Due to the geographical barriers to access to the *Puskesmas* and *Posyandu* in some rural areas, the '*Bidan di Desa*' (village midwives) have been assigned by the local government through the district health office to provide maternal and child health in villages including antenatal care and birth delivery (Trisnantoro et al. 2009).

Social Health Insurance

Spending on health is low in Indonesia, accounting for less than 3% of the Gross Domestic Product (GDP) (Chee, Borowitz & Barraclough 2009). This figure is far below other countries in the region such as Thailand and Sri Lanka that spent about 6–7% of the GDP in the same period (WHO 2010). In 2001, most government departments, including health were decentralised to the provinces, with each provincial government responsible for raising one-third of its income independently of the central government (Hennessy et al. 2006; Shields & Hartati 2003). This has harsh implications for all public utilities, particularly health services (Ministry of Health 2009b). Trisnantoro et al. (2009) reported that local government have not supported, prioritised and sufficiently funded a maternal and child health agenda. The key policy challenge is therefore to improve the

'ownership' of child health by the local government and mobilise the local resources.

The government of Indonesia is burdened with people who live under the poverty line, which accounts for about 17% of the population (Ministry of Health 2009b). For this group of people, the government provides a type of social health insurance (Thabrany 2003). For those who are able to pay, commercial insurance is offered by private companies. This private insurance accounts for less than 5% in the national health expenditure (WHO 2007a).

Specifically for social health insurance, the Indonesian Government introduced a health insurance scheme for the poor called *Jamkesmas* (*Jaminan Kesehatan Masyarakat*/community health insurance) (Trisnantoro et al. 2009). *Jamkesmas* is funded by the national government through a complex fund channelling mechanism. In order to cover more vulnerable populations that are not covered by *Jamkesmas*, local governments in various provinces and districts launched a local health insurance scheme called *Jamkesda* (*Jaminan Kesehatan Daerah*/local health insurance) (Trisnantoro et al. 2009). These health insurance schemes that support all health services, including maternal and child health services have been reported to lead to an increase in the use of health services (Mukti 2008). Despite the increase, non-medical expenses, such as transport, still hinder the sick gaining access to care, particularly in remote areas. In addition, a considerable proportion of the population still remains without insurance coverage (Trisnantoro et al. 2009).

Child Health Policy

The broad policy direction in health development planning between 2010 and 2014 is aimed at improving health financing, responding to demographic and epidemiological transitions, strengthening promotional and preventative health services, and adopting a cross-sectoral approach to address health problems (Trisnantoro et al. 2009). Specifically, in terms of child health, the policy is reflected by efforts that are aimed at obtaining MDG 4 which is to reduce infant mortality from 34 to 23 per 1,000 live births (Ministry of Health 2012). The efforts include enhancing national and local governments' commitment to

strengthening human resources, the availability of medicines and health equipment, financing and good health governance (Ministry of Health 2012). In addition, the policy also emphasises the importance of involvement of professional organisations and partners or non-governmental organisations (NGOs) to achieve the MDG target, including the NGOs delivering CCM such as MCHIP.

In 1997, Indonesia adopted the IMCI program as the main strategy to reduce childhood mortality and morbidity (Trisnantoro et al. 2009). The program has been implemented across the country and is reported to have positive impacts on the delivery of essential health interventions to sick children (Nurhayati 2007). However, there is no study investigating its impact on the decrease in childhood mortality in the country (Trisnantoro et al. 2009). There are some challenges that hinder the successful implementation of the program. These include the lack of human resources capacity, and a lack of supervision and monitoring (Hafizah 2007).

Another key program to improve child health in the community is The Healthy Start Program (Trisnantoro et al. 2009). The program is designed to ensure that a newborn, aged one to seven days is visited by midwives or nurses to receive essential care, such as immunisation, and teach the benefits of exclusive breastfeeding. The program is also aimed at building capacity of midwives and nurses to provide newborn care, empowering families and communities, and strengthening the functions of the district health office. One of the key elements in CCM is case finding, which can be done through home visits. The Healthy Start Program complements and could be integrated with the CCM program as midwives and nurses may identify sick infants in their Healthy Start Program visits.

Human Resource for Health at Primary Health Care Level

Primary Health Care Workers (PHCWs) refer to those who deliver universally accessible first-level services that promote health, prevent disease, and provide diagnostic, curative, rehabilitative, supportive and palliative health services (Humphreys et al. 2007, p. 10). In Indonesia, PHC services are predominantly

provided by professional PHCWs such as doctors, nurses and midwives (Shields & Hartati 2006). While doctors mainly provide medical services at PHC centres like *Puskesmas*, community outreach activities are mainly conducted by community nurses and midwives. Based on the 2009 report, there was an appropriate improvement in the ratio of nurses and midwives per 100,000 populations in the last decade with figures of 62 and 50 respectively in 2006. However, the overall ratio still lags behind other countries in the region (Rokx et al. 2009). The other concern was the unequal distribution of the health workers in urban and rural areas, as well as affluent areas and poor areas (Trisnantoro et al. 2010).

Nurses and midwives in Indonesia are educated in nursing and midwifery schools with the majority of the schools offering a diploma education (academy) level (Ministry of Health 2009a). Lately, the Indonesian National Nurses Association (PPNI) has been lobbying for a higher qualification for nurses as reflected in the growing number of schools offering a bachelor degree (S1) program in nursing. Recently, 25.5% of all nursing schools offer an S1 education (Rokx et al. 2009). The nursing and midwifery schools were producing a thousand midwives and 34,000 nurses per year (Ministry of Health 2006). However, the data is unclear about the proportions of these graduates who are employed annually by the public sector and it was likely that most of them worked in private facilities or may even have opened their own private practice (Rokx et al. 2009). To date, there is no central registration of nurses and midwives (Hennessy et al. 2006; Rokx et al. 2009). Consequently, it is challenging to regulate the profession, to impose quality standards and to ensure congruence between the level of training and clinical activities (Hennessy et al. 2006).

As noted earlier, PHCWs are predominantly community nurses and midwives and hence they play important roles in community programs associated with reducing infant mortality in the country. According to the Indonesian Community Health Nurses Association (IPKKI) (2013), a community nurse is a person who graduates from a formal nursing education and has additional training and/or education in community nursing practice. Community nursing practice is an

application of a combination of nursing knowledge, skills and public health knowledge that emphasises health promotion and prevention that aims at improving the health status of individuals, families and communities (Indonesian Community Nurses Association 2013).

According to the guidelines of the Ministry of Health (2006), the role of community nurses includes case finder; caregiver for individuals, high risk groups and communities; health educator; care coordinator; counsellor; and role model in health related practice. In undertaking these roles in the community, nurses and midwives have facility-based activities in the community health centre (*Puskesmas*). Their main task in *Puskesmas* is providing health services to patients. These involve assisting medical doctors in providing treatment to patients, providing nursing care for those who are hospitalised, delivering health promotion and education to patients, and undertaking administrative work and nursing documentation at the centre. Besides facility-based activities, nurses and midwives also have community outreach activities including home visits to high risk families, conducting monthly integrated health clinic (*Posyandu*) in villages for immunisation, and implementing other *Puskesmas* programs (Ministry of Health 2006).

Despite the assigned roles, nurses working in the community, particularly in rural areas often undertake medical roles, such as prescribing medication to patients (Purwaningsih 2006). This is due to the lack of medical doctors available in the community, and unclear nurse job descriptions (Purwaningsih 2006).

As mentioned earlier, nurses and midwives in Indonesia have various educational background levels. A community nursing specialist at master level education was introduced in Indonesia in 2003 (Universitas Indonesia 2008). Despite the introduction of community nursing in higher education, the majority of nurses and midwives who work in the community are educated at diploma level (Ministry of Health 2008).

In addition to nurses and midwives, health service delivery at community level is also supported by CHWs, who are called *Kader* in the Indonesian language. CHWs

have been established in Indonesia since early 1970 and there has been the growing utilisation of these voluntary health workers along with primary health care strategies to improve community health (Berman 1984; Cherrington et al. 2010). CHWs usually volunteer their time to assist the people in the community where they live in a variety of activities related to improved health and nutrition, often as part of programs managed by *Puskesmas*. The involvement of CHW reflects the local Indonesian values of *gotong royong* or mutual aid for community benefit (Munawaroh 2006). CHW are acknowledged and selected by the community (Ministry of Health 1999).

CHWs often participate in short training programs ranging from a few days to a few weeks depending on the need. In relation to child health, their tasks are some or all of the following (Ministry of Health 2010):

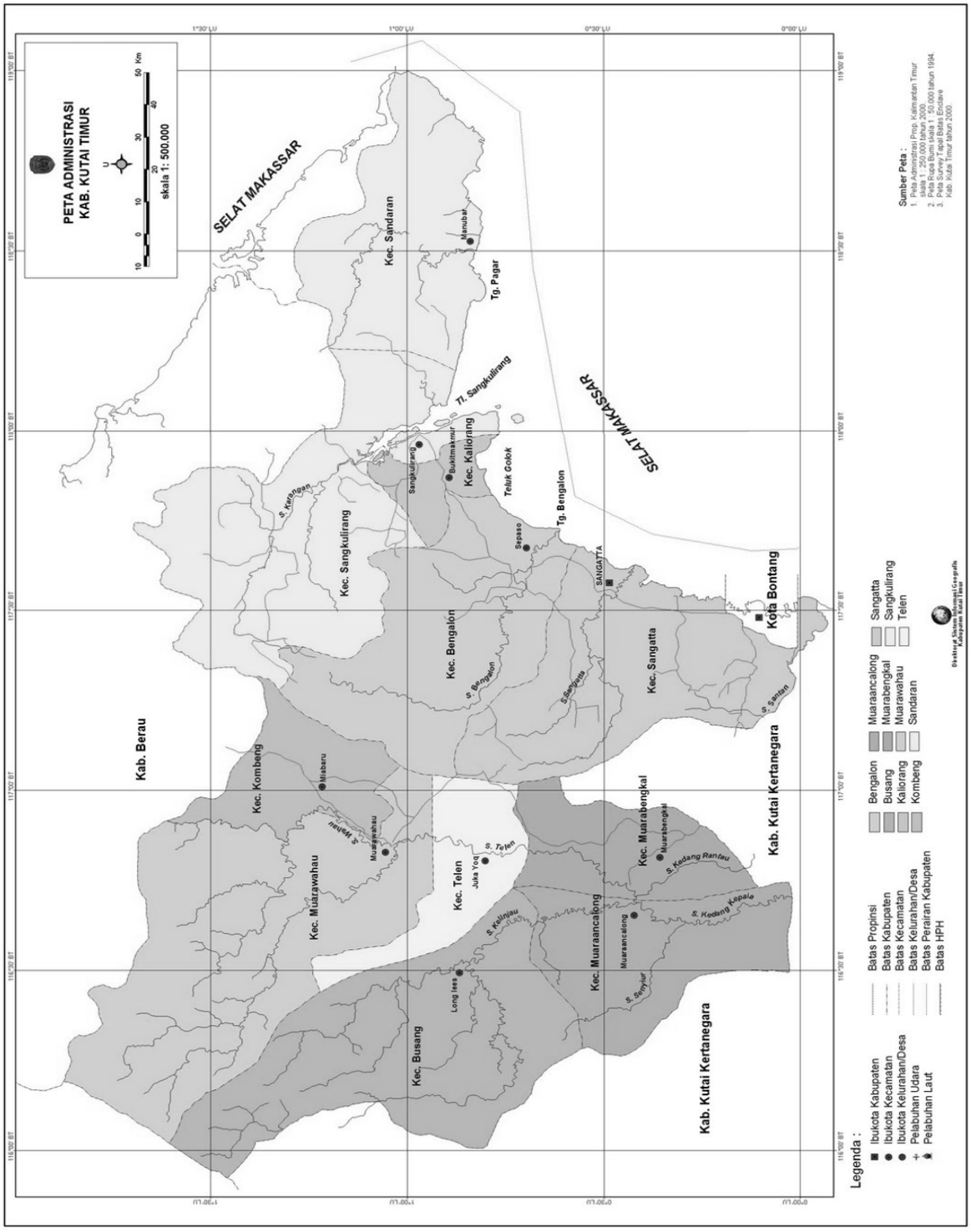
1. Treatment of a limited number of common illnesses using a small kit of drugs, usually medicines available in villages such as electrolytes for diarrhoea.
2. Monthly weighing of children under five years of age in *Posyandu* to monitor growth, accompanied by growth chart and nutrition education for mothers.
3. Nutrition, family planning, and health education, including environmental hygiene and sanitation.
4. Referral of serious cases to health centres.
5. Organisation of supplementary feeding session in the villages, and distribution of selected drugs and supplements such as vitamin A.

These tasks are mainly conducted in monthly *Posyandu* at villages. In undertaking their tasks in *Posyandu*, CHWs are supervised by nurses or midwives from *Puskesmas*. Besides providing health services in *Posyandu*, CHWs are urged to undertake home visits. The visit aims to motivate the families to bring their children to attend *Posyandu* and to identify families who have health risks to be reported to *Puskesmas.* The utilisation of these health workers has rolled out across the country, including the Kutai Timur district, East Kalimantan where this study was conducted.

The Study Context: Kutai Timur District, East Kalimantan

As mentioned earlier CCM was introduced in two pilot districts: the district of Bireun, Aceh province, Sumatra Island; and the district of Kutai Timur, East Kalimantan province, Kalimantan Island. For the purpose of this study, the district of Kutai Timur was chosen as the research site. The reason for the selection of this district is because it is more representative of a rural area compared to the other area, which has rural characteristics, such as limited community access to care that fits with the characteristics for CCM implementation (CORE Group et al. 2010). In Kutai Timur, the PHCWs involved in the CCM implementation include community nurses, midwives and CHWs which is important as it demonstrates the range of health workforce recognised in CCM; and finally the CCM implementation phase in the district matched the timeframe feasibility for this study. Figure 1.4 illustrates the Kutai Timur district.

Figure 1.4 Kutai Timur district (Source: Kutai Timur Government 2010)



Kutai Timur is located in the province of East Kalimantan, Kalimantan Island; the biggest island in Indonesia. With a size of 35,747 km^2, the district is inhabited by 253,847 people (Kutai Timur Government 2010), or approximately seven people

living in every km^2. The figure grows by about 4% every year as the result of the increase in the number of births, and the number of people who come to work and migrate due to the government transmigration program. Kutai Timur consists of 18 subdistricts with 135 villages. The subdistrict of Sangatta is the capital city of Kutai Timur. The Kutai Timur region mainland consists of a cluster of mountains covered by thick tropical rainforest, whereas the coastal fringe of the island includes beaches, rivers and lakes. The district is located across the equator, with a tropical climate like that in other regions in the country, which is mostly dry and humid throughout the year with some rains predominantly between the months of October and April.

The district contributes some of the biggest natural resources in the country: mining and rainforest (Kutai Timur Government 2010). The biggest coal mining company in South Asia and several national coal-mining companies are operating in the district, attracting a number of working migrants to the region. Besides working for mining companies, the other main employment options include plantation work (mainly palm), agriculture and fishery work. Despite these economic resources, almost 12% of the population were living in poverty (Ministry of Finance 2012; Statistics of Kutai Timur 2012). The literacy level of the population is high, with more than 95% of people aged ten years old and above literate. However, most of the people (more than 75%) do not continue with school after the age of ten (Kutai Timur District Health Office 2010; Statistics of Kutai Timur 2012).

In Kutai Timur most of the population is Moslem (83.3%), while the others are Christian, Catholic, Hindu and Buddhist (Statistics of Kutai Timur 2012). A number of places for worship can be found in villages across the district including mosques, churches and temples. Like the people in other districts in the East Kalimantan province, the majority of the people in Kutai Timur are from the distinct ethnic group of Kalimantan Island including *Dayak, Kutai,* and *Banjar*. However, as more people from other islands migrated to the district, the ethnicity and cultural background of the population has become more varied in recent days (Ministry of Finance 2012). The beliefs and cultural background are reportedly influencing how people engage in health behaviour and practice, for

example the preference of some families in utilising traditional remedies and practices instead of modern health services (Kutai Timur District Health Office 2010).

In terms of population health delivery, Kutai Timur is managed by a district health office, with one public hospital and 19 *Puskesmas* (community health centres) (Kutai Timur District Health Office 2010). According to the Kutai Timur district health office profile, of the 19 *Puskesmas* in 2010, 18 were operating 24 hours a day with a hospitalisation service, where patients with certain conditions can be admitted for a few days. In addition, there were reportedly 96 *Posyandu* in villages, but not all were in operation due to a shortage of resources and staff (Simkes UGM 2007).

Health services are provided by 682 health staff comprising, 17% medical doctors and 65% nurses and midwives. The remaining health workers include pharmacists, nutritionists, sanitation and public health staff (Kutai Timur District Health Office 2010). In general, the ratio of health workers per population meets the national standard where 25 doctors and more than 300 nurses served 100,000 people. However, only 40 midwives served 100,000 people, as opposed to 117 per 100,000, which is the national standard. This poor level of midwifery health professionals is further exacerbated by the lack of distribution of the health workers, where not all villages had either a doctor, a nurse or a midwife in residence (Kutai Timur District Health Office 2010). Besides these health workers, the people in villages also utilised health services provided by traditional healers and traditional birth attendants called *Dukun* (Kutai Timur District Health Office & MCHIP 2011).

Accessing a health facility is a challenge for the community in most villages. Based on observations during fieldwork, this is mainly due to the geographical challenges, which are a feature of the district and are exacerbated when combined with the poor availability of transport. Although the main roads in the capital district were sealed, most of the roads in villages were dirt and very dusty in dry weather. When the weather was wet, the roads became slippery and muddy so that it was difficult to travel any distance, if not impossible. As

mentioned, the travel conditions were made worse by the absence of public transport in villages. Travelling from one place to another is considered expensive in the district. In some villages, the price of petrol is up to twice the price set by the government. The high price of petrol is due to several factors: namely, no petrol stations are operating in the area and petrol is sold in containers or cans and bottles in small shops along the road forcing up the cost. Petrol availability is dependent on deliveries from the district capital city. Some villages are separated from the main island by a sea strait and others by rivers. To get to a number of the villages from *Puskesmas*, people often need to hire a boat, which is also expensive. To hire a boat from *Puskesmas* to a village it may cost Rp.750,000 (approximately AUD75), which is very expensive by local community standards. According to the Kutai Timur Statistics (2011), the average household expenditure in the district was Rp.778,503 (approximately AUD78) per month.

The access to health services is also associated with the budget allocated for the service. The allocation fund for health expenditure in the Kutai Timur district was 1.09% of the total local government budget. Of this figure, only 1.17% was allocated for maternal and child health (MCH) programs (Kutai Timur District Health Office & MCHIP 2011). This is far below the requirement of the Indonesian Ministry of Health, that mandates at least 10% of the district government budget should be allocated for health development (Ministry of Health 2009b). This is exacerbated by the fact that only 43% of the population are insured in the district (Kutai Timur District Health Office 2010).

The Health Status in Kutai Timur

The life expectancy of the district people was 68 years old in 2010, slightly below the overall Indonesian figure which was 71 years old at the time (Statistics Indonesia 2013). For infant mortality, the rate was 27 per 1,000 live births in 2009, slightly below the national figure which was 29 at the same period (The World Bank 2013b). The leading causes of infant mortality in the district in 2010 included conditions such as low birth weight and infection. Diarrhoea and acute respiratory infection were also reported as the common illnesses that cause

mortality in children under five years of age (Kutai Timur District Health Office & MCHIP 2011), which is similar to the common illnesses that cause child mortality in the country (Statistics Indonesia, National Population and Family Planning Board & Ministry of Health 2012). In addition, maternal mortality is considered high in the district, accounting for 352 deaths per 100,000 live births (Kutai Timur District Health Office 2010). This is far above the national figure which was 220 per 100,000 live births in the same period (The World Bank 2013a). The causes of maternal mortality included haemorrhage, infection, high blood pressure, and complication in pregnancy. Haemorrhage is an underlying cause of maternal death, and is related to assistance by unskilled birth attendants, poor nutritional status of the mother, poor midwifery competence of the health workers, poor attendance at antenatal care, and the lack of a tool to measure haemoglobin (Kutai Timur District Health Office & MCHIP 2011).

District health offices have set up MCH programs to improve maternal and child health services in the district. However, health outcomes remained suboptimal (Kutai Timur District Health Office & MCHIP 2011). One of the initiatives to enhance the improvement of maternal and child health outcome is encouraging the involvement of non-government organisations (NGOs) as per national government policy. An NGO that was engaged in the maternal and child health program development in the Kutai Timur district was the Maternal and Child Health Integrated Program (MCHIP). MCHIP is the USAID Bureau for Global Health's flagship maternal, neonatal and child health (MNCH) program, which focuses on reducing maternal, neonatal and child mortality and accelerating the achievement of MDGs 4 and 5 (MCHIP 2013). In Indonesia, MCHIP project funding was awarded to a group of NGOs consisting of JHPIEGO (an NGO affiliated to the John Hopkins University in the US), JSI (John Snow Institute), and Save the Children. One of the MCHIP's projects aimed to improve maternal, neonatal and child health in the Kutai Timur district in the period of 2010 to 2012 (MCHIP 2012).

MCHIP worked in association with the district health office, especially with the Division of Maternal and Child Health. The role of MCHIP was to provide technical assistance to the DHO in the area of maternal and child health and

provide funding support for the program through strengthening the health system at the district level (Kutai Timur District Health Office & MCHIP 2011). In the initial phase of partnerships, MCHIP and the district health office conducted an assessment in 2010. Based on the assessment, a number of programs were instigated to enhance maternal and child health services in the district. The programs were focused in three main areas: health facilities, health management, and the community. In the area of health facility, the programs included the improvement of infant and child health services in hospital, *Puskesmas* and infection control in hospital and *Puskesmas* and the maintenance of health worker's (nurses and midwives) performance using standard-based management and recognition (SBMR). In the health management area, the programs included a maternal and child health audit, and advocacy for the generation of maternal and child health support policy. In the community, the programs included mother class[5], midwife – *Dukun* partnerships[6], *Desa Siaga*[7] (alerted villages) and integrated postnatal care (IPNC) that consists of the CCM and Community - Kangaroo Mother Care (CKMC) program.

Significance of the Research

This study was focused on the implementation of one of the programs by MCHIP, which was the introduction of CCM in the Kutai Timur district. The critical issue that arose from the introduction of the CCM in the district was the lack of knowledge concerning the implementation evidence by the local PHCWs as care providers for families as the care recipients. In addition, there was no research that examined the factors that contribute to the successful implementation of CCM in Indonesia. Investigating this issue is important as this study may provide information upon which decisions about child health care could be made, thereby informing both health care practice and policy, and improved health outcomes.

[5] Monthly health education sessions for a group of pregnant mothers run by a nurse/ midwives at villages (Kutai Timur District Health Office & MCHIP 2011).
[6] A program aimed at cooperation between midwife and *Dukun* (traditional birth attendant), which is mutually beneficial to the principle of openness, equality and trust in an effort to save the mother and baby (Affandi 2007).
[7] A program aimed at increasing community awareness of the risks of pregnancy and childbirth, and supporting pregnant *mothers* with funding and transportation for emergency obstetric assistance (Hill et al. 2013).

Moreover, a comprehensive understanding of how the program was implemented might also be useful for PHCWs in particular, in terms of building their capacity for better practice, which eventually would positively affect the achievement of overall program goals.

Research Aim and Objectives

The overarching aim of the study was to gain an understanding of the implementation of a CCM model in Indonesia from the perspectives of families and primary health care workers. To obtain this aim, the objectives were to:

1. Explore the impact of the implementation of CCM on family's wellbeing.
2. Explore the impact of the implementation of CCM on the practice of primary health care workers.
3. Investigate the barriers, constraints, and enablers of CCM implementation.
4. Examine the influence of culture on the implementation of CCM.
5. Develop recommendations to improve child health care in Indonesia based on the research outcomes and relevant literature.

This study was not designed to evaluate the ultimate outcome of CCM or to determine whether it is an effective approach to reduce the IMR in Indonesia. Rather it sought to gain better understanding of the factors that impact the delivery of the model in the Indonesian context including cultural, social and health system factors. This might be constructive in establishing the achievement of intermediate outcomes.

In order to meet the research aim and objectives, a descriptive qualitative approach was used. To get an insight into how CCM was implemented in Indonesia, I interviewed PHCWs, key informants and families. Observation and focus group discussion with PHCWs and document analysis was also undertaken. My background and experience as a community nurse strongly influenced the way the data were interpreted and this is further elaborated in chapter 3.

Thesis Outline

Chapter Two discusses the relevant literature outlining conceptual and methodological underpinnings that inform this research. This chapter examines the complexity of concepts selected as the focus in this research. This includes an examination of the concept of case management and its evolution in the community context and a discussion in the literature regarding the implementation of CCM in various countries. Chapter Two leads to the identification of the state of knowledge regarding the implementation of CCM in various contexts and hence gaps in extant knowledge and thus provides the rational of this research to bridge the gap.

Chapter Three explores the methodology, and methods used in the current research. This examines 'interpretive description' as an appropriate methodology for a study of this type. The chapter includes a discussion of the ontological and epistemological foundations for the methodology as well as an account of why such an approach is congruent with the aims and values of the study presented in this thesis. This chapter also outlines the methods consistent with an interpretive descriptive methodology, and describes how data were generated, managed and analysed.

Chapter Four presents the findings of the study that resulted from an analysis of the interviews and focus group data, and information accrued from observation and participation in the field. The findings are presented as a narrative description of the themes as they emerged and were constructed from the data.

Chapter Five discusses the findings in relation to other related literature. This includes dialoguing the findings with other relevant research to yield information regarding the authenticity and applicability of the findings in the context of current knowledge. Furthermore, this raised questions about the barriers that may affect the sustainability and achievability of this model of CCM in similar geographical, geopolitical, social and cultural contexts.

Chapter Six seeks to address one of the implicit aims of this doctoral project, which had always been to establish recommendations for successful implementation of accessible and equitable child health care in a LMIC. This

chapter presents the implications of the study and concludes with recommendations towards an improved model of care for child health service delivery in a rural context in Indonesia and how this proposed model could be realised in practice.

Summary

This chapter has introduced the challenges associated with high infant mortality worldwide and the problem of inequality in access to healthcare that remains a concern for governments and communities, especially in the LMIC. Global initiatives to address this concern, particularly the establishment of Millennium Development Goals, have also been illustrated. It concluded that a community-based approach is the most promising strategy to reduce infant mortality (MDG 4) by increasing access of the community to health care. A successful strategy that has been introduced in a number of countries is CCM. The nature of the model has been outlined in this chapter.

As a UN member, Indonesia has been following the framework of MDG and is striving to obtain the MDG 4 target. In order to accelerate the action of reducing infant mortality in the country, CCM was introduced in two pilot districts. This study focuses on the implementation of CCM in the Kutai Timur district. From the context outlined in the chapter, it can be seen that the introduction of the new model may provide benefit for the community in such rural areas in Indonesia in terms of increasing access to health care, in particular access to lifesaving interventions for sick children. This chapter concludes that understanding CCM implementation, from the perspectives of PHCWs and families, is a significant and worthwhile undertaking. To gain more understanding about the knowledge gap that this research seeks to fill, it is important to examine the knowledge outlined in the literature associated with CCM, particularly its implementation to address infant mortality in various contexts.

Chapter 2 - Literature Review

The aim of this study was to gain an understanding about the implementation of a CCM model in Indonesia from the families' and primary health care workers' perspectives. This chapter will examine the concept of CCM of childhood illness and scrutinise what is known about its implementation in various contexts.

The review is presented according to key issues discussed in the literature that are relevant to the delivery of CCM implementation in LMIC and in line with the research question and objectives. This will begin with the examination of literature regarding case management in general to gain a basic understanding of the concept. This will also involve a critical analysis of published research that has investigated the outcome of the implementation as well as the barriers, constraints, and cultural influences affecting the delivery of CCM. The contribution of primary health care workers (PHCWs) (who are community nurses, midwives, and CHWs) to child health delivery at the community level will also be explored, particularly in relation to their involvement in CCM implementation. The review will conclude with the analysis of literature related to community participation in primary health care and cultural influences in such community-based health projects.

Literature was searched using the databases of CINAHL (EBSCO), ProQuest Central, Cochrane Library, PubMed, Science Direct, databases of the World Health Organisation and Google Scholar to retrieve references following which articles were reviewed. Key words used were a combination of: community, case management, child health, implementation, and primary health care. The search was limited to articles in the English language. The timeframe was not limited to anticipate any seminal literature relevant to the key issues.

What Is Community Case Management?

To understand the notion of CCM, it is first essential to examine the concept of 'case management'. Case management is defined in various ways in the published literature and depends on the context where the health service is delivered.

Many terms are used to describe the concept, including care management (Fisher & Raphael 2003), case coordination (Wideman, Pizzello & Lemke 2008), continuity coordination (Rieve 2001), and service coordination (Parker et al. 1990). Despite a variety of definitions, the common fundamental principle of case management is the description of a systematic process that involves assessment, planning coordination, monitoring and reassessment through which the multiple service needs of clients are met (Parker et al. 1990). The core elements of case management include participative processes (Moreo & Llewellyn 2005), service access and coordination (Wetta-Hall et al. 2004b). Case management is identified as an outcome-oriented approach that improves self-management skills and health care access (Sherrod & Richardson 2003; Wideman, Pizzello & Lemke 2008). This approach can be applied in both hospital and community settings (Parker et al. 1990; Schraeder & Britt 2001).

A number of studies have focused on case management in community settings. For example, Smith and Newton (2007), and Rosen and Teesson (2001) examined a case management approach to the management of psychiatric patients in Australia and the United Kingdom. Bray et al. (2005) investigated the effectiveness of case management for diabetes care in a rural area in the United States, and Ghimire, Pradhan and Maskey (2010) looked into the community-based intervention for children with diarrhoea and acute respiratory infections in Nepal. These studies generated evidence that case management can have benefits when targeted to vulnerable populations which have limited access to care, including those in rural areas (Wetta-Hall et al. 2004b; Wideman, Pizzello & Lemke 2008). Many problems encountered by rural health care providers and consumers also exist in urban settings (Parker et al. 1990). However, the critical challenges to the rural environment, particularly in Indonesia, are retaining health care providers (Barber, Gertler & Harimurti 2007; Rokx et al. 2009), keeping hospitals and primary health care centres in operation, and ensuring access to health care services (Ministry of Health 2008).

A discussion of how CCM has evolved over the last century is provided by systematic reviews conducted by Smith and Newton (2007) and Rosen and Teesson (2001). Although these reviews focused on mentally ill patients in

Australia and the UK and are therefore different to the focus and context of this study, they provide useful insight into the notion of case management in terms of its importance for vulnerable populations in community settings.

Historically, case management was established as a result of a shift in the health care delivery system from hospital-based to community-based services. In Australia and the UK, this change was driven by political and financial factors (Smith & Newton 2007). This is similar to the situation in the US where a number of factors such as health care inflation, legislative initiatives, employer benefits, the increasing prevalence of chronic diseases, and the prioritisation of prevention initiatives caused a growth in case management strategies (Wetta-Hall et al. 2004b). Furthermore, new technology, consumer expectations, the rise of managed care and its cost-control mechanisms, and government reimbursement reductions and regulations presented additional factors that brought about changes (Wetta-Hall et al. 2004b; Wideman, Pizzello & Lemke 2008). As a potential solution to these challenges, case management continues to develop to address issues facing a more demanding health care environment with increasing financial pressures (Rieve 2001; Rosen & Teesson 2001; Wetta-Hall et al. 2004b).

Rosen and Teesson (2001) describe that case management was introduced in community care to provide a system to coordinate the often fragmented community services available to individuals with severe mental illness, once discharged from hospital. The approach provided greater stability in the community for this subpopulation resulting in less 'revolving-door' admissions, less hospital days, and improved quality of life. While Rosen and Teesson (2001) suggest that case management is an effective and efficient approach to manage certain cases in the community. Smith and Newton (2007) argue that questions remain as to whether case management can significantly improve patients' clinical conditions and their quality of life. From the 60 studies the authors examined, they found some weaknesses, mostly related to methodology, which led to the conclusion that despite the widespread implementation of case management, there remains intense debate fuelled by contradictory findings, regarding the effectiveness of this approach. In spite of the differences in the

findings and the limitation of the studies, both reviews had a similar conclusion. The authors conclude that community case management is widely accepted as an appropriate approach and is preferable to hospital-based care.

The use of case management is evident in community health nursing practice. Forbes (1999) highlights a framework that could be utilised by a professional nurse for case management in the community. In this framework, the relationship between nurse case managers and the client was identified as a central theme of professional practice. The relationship allows the nurse and the client to collaboratively identify patterns that may improve the client's health and allow them to make more informed health care decisions. Forbes (1999) examines the process of case management from the perspectives of patients as "growing as insider-expert". This involves a situation where clients move from perceiving the nurse as the insider-expert to perceiving themselves as the insider-expert, with the skills and knowledge to manage their own health care. This concept is congruent with other studies (Wetta-Hall et al. 2004b; Wideman, Pizzello & Lemke 2008) that emphasise one of the fundamental characteristics of nurse case management in the community, that is to develop self-care management skills. In terms of the application of a community nurse case management framework, these studies may not be completely relevant to the Indonesian context as the model requires a sufficient number of professional nurse specialists to work collaboratively in the community (Forbes 1999). In Indonesian rural communities, as noted earlier, health workers are scarce and the family is central to the care of its members. The importance of the notion of "growing as insider-expert" which may have particular applicability to the Indonesian context is where CCM positions the family at the centre of practice, and it is the family who are endorsed to improve their self-management skills.

Another central theme in case management is the relationship between the case manager and the client. The relationship between local staff and the client provides benefits (Parker et al. 1990) as they are engaged in relatively long periods of time within community settings. Health professionals may also live within the same community and are likely to know the client and their family. As a result of this extensive contact, staff can therefore provide consistent care and

effective follow-up. Yet, because of the close and frequent contact, confidentiality may easily be compromised in a small rural setting where anonymity may be nearly impossible (Parker et al. 1990).

Community Case Management of Childhood Illness

As noted earlier community case management (CCM) in this research refers to a model developed by a collaboration of non-government development organisations (NGOs). CCM is defined as a strategy to deliver lifesaving curative interventions for common childhood illnesses, in particular where there is little access to facility-based services. The target of CCM are conditions that cause the greatest number of childhood deaths in LMIC, including pneumonia, malaria, diarrhoea, and low birth weight (CORE Group et al. 2010).

CCM to address childhood illnesses has been implemented in a number of countries. A study conducted by Marsh et al. (2008b) in 57 Asian and African countries with the highest rates of child mortality in the world revealed that CCM for pneumonia by PHCWs is a feasible, effective strategy to complement facility-based management for areas that lack access to facilities. The findings of the study, however, need to be interpreted with caution, as the method used in the investigation was an electronic survey to stakeholders and policymakers involved in the implementation of the program. Marsh et al. (2008b) also noted methodological limitations, particularly in the use of the terminologies PHCWs and CCM for pneumonia that may have been interpreted in various ways by the study participants and potentially resulted in biases. Despite its limitations, the study found that one of the main challenges to the implementation of CCM is the lack of policy support.

CCM Outcomes, Barriers and Constraints

A considerable amount of literature has been published that identifies that CCM implementation has resulted in improved community health outcomes in some circumstances. This literature is summarised in Table 2.1 below using the CCM result framework that was introduced in Figure 1.1. The table and figure demonstrate the focus of the work and efforts to achieve the targeted CCM

results, goals and objectives. The individual studies are then discussed in the following pages.

Table 2.1 Studies reflecting the CCM evaluation framework. Adapted from Marsh et al. (2012)

CCM Success	Studies
Ultimate goal: child mortality reduced	Chinbuah et al. (2012) Mortality impact of CCM in Ghana Mukanga et al. (2012) CCM for malaria in Burkina Faso, Ghana and Uganda Sazawal and Black (2003) Meta-analysis of CCM to address pneumonia in neonates, infants and children in Asian countries Theodoratou et al. (2010) Systematic review of effect of CCM on childhood mortality in LMIC
Strategic Objective: the use of life saving interventions increased	Rutebemberwa et al. (2012) Use of CCM in eastern Uganda Kalyango et al. (2012) Increased use of community medicine in Uganda
Intermediate Result 1: access to and availability of life saving interventions and services increased	Guenther et al. (2012) Access to CCM in Africa George et al. (2012) PHCWs providing CCM Strachan et al. (2012) Interventions to improve PHCWs performance
Intermediate Result 2: Quality of services increased, demonstrated, or assured	Mukanga et al. (2012) CCM for malaria in Burkina Faso, Ghana and Uganda Awor et al. (2012) Private sector in CCM in Uganda Cardemil et al. (2012) Assessing CCM performance Chandani et al. (2012) factors affecting CCM availability
Intermediate Result 3: demand for services and care seeking behaviours increased	Nanyonjo et al. (2012) Community acceptability and adoption of CCM in Uganda Seidenberg et al. (2012) Effect of CCM on care seeking in Zambia
Intermediate Result 4: social and policy environment enabled	Young et al. (2012) WHO-UNICEF joint statement on integrated CCM Sadruddin et al. (2012) Cost of CCM in Pakistan

Reduced Child Mortality

In the first row of Table 2.1, four studies illuminate how CCM was utilised to reduce infant mortality and morbidity. A randomised control trial conducted by Chinbuah et al. (2012), investigating the impact of adding the antibiotic amoxicillin to the antimalarials Artesunate and Amodiaquine for treating pneumonia and malaria among children aged two–59 months at home by trained PHCWs in Ghana. This found that the intervention significantly reduced child mortality by 44%. The authors highlight that the use of integrated intervention for pneumonia and malaria at community level by trained health workers is beneficial for child survival, given the difficulty health workers have in differentiating malaria from pneumonia, and the problem of access to care. The study, however, may have been more meaningful if the authors considered a longer time period for the study to evaluate the consistency of the impact of the intervention on reducing infant mortality.

In addition, Mukanga et al. (2012) reported the effect of using the rapid diagnostic test (RDT) and integrated CCM package on the clinical outcome and the quality of the use of medicines for children with pneumonia and malaria in three rural districts of Sub Saharan African countries. The study reveals that the use of RDT and the intervention package that was conducted by PHCWs improved the rational use of the medicines and reduced the inappropriate use of antibiotics at community level. Despite the encouraging finding, the study does not provide clear evidence on the clinical effect of the intervention.

A meta analysis conducted by Sazawal and Black (2003) that investigated the effect of CCM on childhood mortality from pneumonia in nine Asian countries, revealed that CCM had considerable impact on reducing neonatal, infant, and child mortality. The study reports that the utilisation of CCM has reduced neonatal, infant and child mortality from pneumonia by 42%, 36% and 36% respectively. A similar conclusion is reached by Theodoratou et al. (2010) who conducted a systematic review of literature examining the effect of CCM on mortality of childhood pneumonia. The study found that CCM could result in a 70% reduction in mortality from pneumonia among children aged zero–five

years old. Both studies emphasise the importance of community awareness, active case finding, and maternal education for the long-term success of CCM implementation. The studies propose that CCM should be incorporated into the existing health systems of the countries. Another indication of successful CCM implementation based on the CCM evaluation framework is the increased use of lifesaving intervention at community level by health workers.

Increased Use of Lifesaving Interventions at Community Level

The use of lifesaving interventions reportedly increased following CCM implementation in two studies in Uganda (Kalyango et al. 2012; Rutebemberwa et al. 2012). The increase in the use of the lifesaving interventions is indicated by the high number of families who use PHCWs to treat pneumonia and malaria for their children in rural communities after the employment of health workers in their villages. Rutebemberwa et al. (2012) compared the use of PHCWs by the community in urban and rural areas. The study found that rural areas are likely to utilise PHCWs for treating sick children compared to those in urban areas. An interesting finding of the study is that the poorest households used less PHCWs because the families preferred to use herbs and therefore they are likely to seek help from private providers instead of PHCWs. The authors recommended considering the involvement of other providers in CCM implementation to accommodate the poorest in rural areas.

In addition, Kalyango (2012) reported a cross sectional study, comparing the use of community medicine distributors and medicines used under CCM and home based management strategies in children in eastern Uganda. The study shows that the use of medicine under CCM delivered by PHCWs in the intervention areas was higher compared to that by other health workers in control areas. The studies indicate that with the increase in the use of PHCWs and medicines in rural areas that the community received improved access to care following CCM implementation.

Increased Access to Care

The notable outcome reported in the literature following CCM implementation is the increase in community access to care. As shown in the third row of Table 2.1, Guenther et al. (2012) found that CCM implementation in rural areas of Malawi, Zambia and Mali resulted in increased community access to child health interventions in areas where there were geographical challenges, limited numbers of trained staff and the availability of essential medicines. This study is also supported by George et al. (2012) and Strachan et al. (2012) who emphasised the employment of trained community members to ensure that the community can get better access to care. The study, however, only included geographical factors, and the availability of health staff and medicines, as the elements that influence community access to care. It might have been more comprehensive if the authors had examined financial factors affecting care delivery. Financial constraints are considered a barrier for community to access a health service (Graves 2008).

CCM and Quality Assurance

A growing body of literature has also investigated the area concerning quality assurance in association with CCM implementation. The fourth row of Table 2.1 shows four studies that relate to quality assurance in CCM implementation. The studies focus on the rational use of medicines, the importance of involving partnerships and improving standards, the performance of staff who are involved in the implementation, and the quality of medicine and equipment supply chain.

A study conducted by Mukanga et al. (2012) found that although CCM had positive outcomes in treating sick children, the liberal prescription and dispensation of antibiotics by PHCWs remained a serious concern. In order to overcome the problem associated with overuse of antibiotics, the authors note the need for improved PHCW supervision and training so that PHCWs are better able to comply with drug guidelines. In addition, Awor et al. (2012) note that there is a need for improved partnerships between the public and private sectors to develop the standard of care for common childhood illnesses in rural districts

in eastern Uganda. This action is required as the families relied upon private sector drug pharmacies to treat pneumonia, diarrhoea and malaria in children, which was considered far from meeting the required standard (Awor et al. 2012).

The quality assurance in CCM also includes the performance of PHCWs who are involved in the implementation. Cardemil et al. (2012) propose direct observation and re-examination to assess PHCWs clinical competence following the training. The authors however realised that the method might not be feasible and therefore they suggest the use of the methods that are tailored to the local context. In addition to the quality of PHCW's performance, the successful implementation of CCM is also strongly related to the quality of supply chain management to ensure that required medicines and equipment are available for use (Chandani et al. 2012).

Changes in Community Behaviour

The care seeking behaviour of the community has been reported to increase upon the adoption of the CCM model to address pneumonia and malaria in Uganda and Zambia (Nanyonjo et al. 2012; Seidenberg et al. 2012). Using a qualitative approach, Nanyonjo (2012) investigated the acceptability and adoption of CCM in Ugandan communities. The participants of the study indicated that following the adoption of CCM, there was an increase in the use of PHCWs to treat sick children at household level and at the same time, the referral of sick children to health facilities decreased. One theme that emerged from the data reflects a change of community behaviour was 'compatibility', where participants note that the service provided by PHCWs was compatible with their needs. The needs include free service, adequate supply of the right medicines, a good quality service, and qualified health staff who delivered the service. Despite reported changes in community health seeking behaviour, the study also found that community aggression towards PHCWs often rose if their expectations were not met. This aggression was fuelled by the perception that PHCWs are paid health workers and therefore they have to perform as competently as formal health workers at other levels of health care.

Another study that specifically examines the impact of CCM on health seeking behaviour was conducted by Seidenberg et al. (2012). The cross sectional survey involving 440 women in a rural district in Zambia found that there was a significant increase (approximately 35%) in the proportion of mothers who sought care from a CHW between the pre- and post-study survey. At the same time, the proportion of mothers who sought care from health facilities decreased as expected by about 23%. Nevertheless, the findings need to be interpreted with caution as the study used different survey participants at baseline and post study. In addition, the authors noted that there was a potential bias for mothers completing the surveys, and there were no survey questions investigating why mothers changed their health seeking behaviour overtime.

The Policy Environment

The other intermediate outcome that reflects the successful implementation of CCM as shown in the last row of Table 2.1 (Intermediate Result 4) is to enable a supportive social and policy environment. Two studies that examine the importance of policy support for CCM implementation are outlined by Young et al. (2012), and Sadruddin et al. (2012). Young et al. (2012) present the justification for CCM to be utilised by countries to accelerate the achievement of the MDG 4 target. The paper, which is documented as a WHO-UNICEF joint statement, emphasises a set of benchmarks that the countries need to consider for CCM implementation. The benchmarks focus on the area of coordination and policymaking, costing and financing, supply chain management, service delivery and referral, communication and social mobilisation, supervision and performance quality assurance, monitoring and evaluation, and health information system. In the element of policymaking, the authors highlight the importance of having in place supportive national policies and guidelines to ensure that CCM objectives can be reached.

The second element in benchmarks proposed by Young et al. is costing and financing. Sadruddin et al. (2012) note that the consequence of policy support is reflected in the amount of funding allocated to support the program implementation. The study shows that management of severe pneumonia with

oral amoxicillin at community level in a rural district in Pakistan offers a lower cost treatment (about $0.25 per household) compared to referring the case to a health facility (about $7.51 per household). The study has proven that expanding the pneumonia treatment at community level could significantly reduce household costs and improve access to treatment.

Most of the studies presented in Table 2.1 recommend that supportive policy should be in place for successful CCM implementation. This is critical as policy is the instrument for government to direct public resources (Althaus, Brigman & Davis 2007). Therefore, supportive policy is central to ensuring that any community health project is sustained by appropriate resources. Likewise, lack of policy support along with other barriers would impede the achievement of the project objectives.

Barriers and Constraints to the Implementation of CCM

Despite the discussed literature identifying the elements associated with the favourable outcome of CCM implementation, studies on barriers to CCM implementation have also been published (Blanas et al. 2013; Gill et al. 2013). Blanas et al. (2013) outline that the main barriers to CCM implementation were transportation challenges, lack of training for PHCWs, and lack of supply chain management. A study conducted in Senegal found that the absence of transportation had impeded community access to care. It was also reported that PHCWs were not able to apply their skills soon after training, affecting the quality of care they would deliver. This situation was exacerbated by the poor management of the medicine and equipment supply chain; as a result medicines were not available at the time they were needed.

In addition, a study reported by Gill et al. (2013) summarised a number of barriers to the reduction of childhood pneumonia and diarrhoea mortality. Although the study did not specifically investigate the barriers in relation to CCM implementation, it focused on an examination of problems addressing these diseases at primary care level in poor resource settings. The study was conducted with a qualitative methodology involving 360 participants including

academics and public health, governmental and private sector stakeholders who were involved in projects to reduce pneumonia and diarrhoea in 36 countries. Six barriers were identified including: absence of national coordination between ministries and other stakeholders to deliver interventions, insufficient financial resources, inadequate training and support for health workers, poor system for monitoring and assessing key programmatic indicators, and a weak medicines supply system. Although the findings are beneficial in anticipating the solution, the argument relies too heavily on qualitative analysis from stakeholders who were not directly involved in the program implementation. Additional data from frontline health workers involved in the implementation may have provided richer insight into challenges and possible solutions.

A number of articles outline that in order to overcome barriers and to optimise the achievement of CCM implementation objectives, strengthening of the health system is required (Callaghan-Koru et al. 2013; Kayemba et al. 2012a; McGorman et al. 2012). McGorman et al. (2012) present a framework for implementing CCM using a system approach that is developed through interagency consultation and review. The authors argue that CCM must be designed from a health system perspective to be successful. They further argued that ignorance of this evidence-based approach may result in uneven roll out and a disappointing result. The health system perspective includes a list of complementary indicators for program managers to use in planning, implementing, and evaluating CCM. The indicator components include consideration of the coordination and policy setting, costing and financing, human resource, supply chain management, service delivery and referral, communication and social mobilisation, supervision and performance quality assurance, and monitoring and evaluating health information systems.

The health system approach proposed by McGorman et al. (2012) reflects the concept of health system framework outlined by WHO, known as 'the building blocks' (WHO 2009b). The building blocks illustrate the components that construct the health system. The components are:

- *service delivery,* which includes safe, effective and qualified health interventions that are provided to those in need with a minimal waste of resources;
- *health workforce* that is responsive, fair and available in sufficient numbers;
- *health information* that includes the production, analysis, dissemination, and use of timely and reliable information on health determinants, health system performance, and health status;
- *medical technologies*, including medicines, vaccines, and other technologies of assured quality, safety, and cost effectiveness;
- *health financing* that raises adequate funds for health so that people can afford to use needed services; and
- *leadership and governance* that ensures strategic policy frameworks combined with effective oversight, accountability, regulation, incentives and attention to health system (WHO 2009b).

This health system approach may serve as a convenient tool to understand the health system and the effects of interventions upon it.

Along with the outcomes and barriers of CCM implementation and the importance of the health system approach for successful implementation, particular attention must be paid to the role of the PHCWs whose important part in CCM implementation is noted in the literature.

The Roles and Contribution of PHCWs to Child Health Service Delivery at Community Level

As noted earlier, the PHCWs involved in CCM implementation in Indonesia include community nurses, midwives and CHWs. This section scrutinises literature examining the involvement and contribution of these health workers in achieving MDG 4 (United Nations 2008) of reducing mortality and improving child health care delivery in the community setting, particularly in the context of rural communities in LMIC.

A growing body of literature examining nurses' and midwives' roles and contribution to obtain MDGs targets has been published. For example, Amieva and Ferguson (2012) outline the role of nurses to accelerate the achievement of MDG 4 and 5 in particular and offer a set of strategic actions for nurses to contribute to the framework proposed by the WHO's *Strategic Directions for Strengthening Nursing and Midwifery Services 2011-2015* (Anderson et al. 2010). The strategic actions include collaborating with midwives and local CHWs, ensuring equity in obtaining the UN's MDGs, helping to bridge the research gaps, and being active in policy advocacy.

In order to reduce infant mortality by providing lifesaving intervention to the greatest number of children, and to promote community ownership and empowerment, it is important for nurses to partner with midwives and local CHWs. Nurses need to work with midwives in community child health because although they are discrete professions, nurses and midwives have overlapping but complementary roles and scopes of practice (Anderson et al. 2010). The examples of partnership between nurses and midwives in the community setting are presented in the implementation of Community Integrated Management of Childhood Illness (C-IMCI) (Winch et al. 2002). C-IMCI is part of IMCI described earlier in the introduction chapter. C-IMCI is the community level activities to promote household and community practices that are necessary to support the implementation of IMCI (Winch et al. 2002). In C-IMCI nurses and midwives work together to improve partnerships between health facilities and the community they serve, increase appropriate and accessible care and information from community-based providers, and promote family practices essential for child health and nutrition (Winch et al. 2002). Literature shows that the contribution of both nurses and midwives has benefited the health outcomes of children following C-IMCI implementation in India (Dongre, Deshmukh & Garg 2010), Yemen (Basaleem & Amin 2011) and Tanzania (Prosper, Macha & Borghi 2009).

Amieva and Ferguson (2012) assert that nurses also need to work in partnership with local CHWs. CHWs play important roles in the effort to reduce infant mortality and improve child health status (Lewin et al. 2010). By working with

CHWs, nurses can share their knowledge and provide technical guidance to ensure that CHWs deliver the care at the required standard to ensure patients' safety. This is important as one of the core nursing principles is to ensure the quality of care and the safety of patients (Amieva & Ferguson 2012). As CHWs often come from the community they serve, the partnership between nurses and CHWs will help nurses in implementing programs in the community as well as increasing community awareness and participation in the programs (Rifkin 2009).

The second role of nurses in achieving MDGs target noted by Amevia and Ferguson (2012) that aligns with the WHO's strategic direction is to ensure equity in achieving the UN's MDGs. It is recognised that despite the progress that has been made towards the achievement of MDGs target, there is still a wide gap between countries and between the urban and rural areas within countries (Pérez et al. 2011; Stuckler, Basu & McKee 2010). The role of nurses in this context is declared by the International Council of Nurses (ICN) and used in the theme of the 2011 International Nurses Day: "Closing the Gap: Increasing access and equity" (Sunny 2011). Talukder and Rob (2010) note that nurses can increase the community access to care by ensuring that a reasonable ratio of nurses to people in the population they serve is maintained, and their numbers in urban and rural areas is equitably distributed. In addition, Green (2006) emphasises that nurses and midwives can improve community access to care by increasing their capacities in delivering care needed by the community. Despite the idealistic role outlined for nurses in these two articles, the authors need to more thoroughly examine how these goals might be achieved within any real-world policy and funding context, which constrains nursing practice.

In addition to the above roles, nurses are also urged to contribute in closing research gaps. To overcome the barriers associated with the effort in reducing infant mortality, there is a need to build an evidence base of reliable data so that decisions about interventions are appropriately made (Anderson et al. 2010). As nurses are often the first point of contact with the community, they can gather accurate data and report on the progress of any community-based program.

Recording accurate data will not only be beneficial for program implementation, but also for advocacy efforts and policy development (Amieva & Ferguson 2012). Anatole et al. (2012) present an example of a study that examines how the provision of accurate data by nurses is beneficial for community health outcomes. The study found that accurate reporting and documentation by nurses as the result of mentorship programs can produce evidence that can improve the quality of care delivery in rural Rwanda.

The other contribution that nurses can make to improve child health in the community is through engaging in policy development and advocacy. As the largest occupational group in the health care industry, nursing is an inherently political profession (Sunny 2011). As such, nursing needs to position the profession to inform, guide, and lead the much required development and change in health systems. Webber (2011, p. 451) notes that nurses "have valuable experience in the professional domains of education, research, practice and administration. Nurses' expertise, if harnessed, could contribute substantially to development of accessible, quality, and cost-effective health services".

Despite their contribution to community health, nurses are not often identified as key stakeholders at the health policy table (Anderson et al. 2010). A study conducted by Kulig et al. (2004) examining the involvement of rural nurses in policy found that nurses are in a unique position to assist the community they serve because of their intimate knowledge of their communities and their informal position as community leader. The challenge to such involvement included lack of skills and knowledge associated with policy development and advocacy. The authors emphasise the importance of incorporating theoretical content and practical opportunities related to health policy into nursing education curriculum.

Involvement of Community Health Workers (CHWs)

As noted earlier, the distinct feature of CCM is the involvement of CHWs in the implementation. Lewin et al. (2010) define a CHW as a community member that

has received some training to promote health or to carry out some health care service, but is not a health professional.

The participation of CHWs in health care delivery can help to alleviate the shortage of human resource crisis for health, which is one of the factors that underlies the poor performance of health workers' efforts to deliver effective, evidence-based interventions to address priority health problems (Bhutta et al. 2010b). In addition, the critical shortage of human resources for health is recognised as one of the factors that impede the community's access to appropriate health services.

The involvement of CHWs in the provision of PHC has been demonstrated in a number of countries for several decades, and there is evidence showing their contribution to the improvement of health, particularly in settings where the number and distribution of motivated and capable health professionals is a challenge (Bhutta et al. 2010b; George et al. 2012; Ingram et al. 2012; Lewin et al. 2010). A systematic review conducted by Bhutta et al. (2010b) investigated the experiences of the countries that involved CHWs in delivering health related MDG programs. The review concluded that CHW's role in promoting health is significant in reducing maternal and infant mortality in the communities they served. In order to maintain and improve CHWs' performance, the authors suggest that appropriate supervision and refresher training should be considered.

Other authors have also reached similar conclusions. Lewin et al. (2010) for example found that the engagement of CHWs in delivering health interventions provided a promising advantage in reducing child morbidity and mortality, when compared with usual care, as they reside in the communities. However, there are some constraints to scaling up the CHWs involvement in health related programs. Lewin et al. (2010) note that the constraints include insufficient training and supervision; insecure funding, equipment and medicines; failure to integrate CHWs with the formal health system; poor planning; and opposition from health professionals.

The employment of CHWs in CCM implementation is outlined in the literature (George et al. 2012; Rutebemberwa et al. 2012; Strachan et al. 2012). These studies indicate that involvement of CHWs in health care delivery is the result of a shortage of skilled health workers. This task sharing with CHWs may assist the community to gain access to the care they require (CORE Group et al. 2010).

Despite notable benefits of employing CHWs at community level, there are criticisms of the utilisation of these volunteers in any community health projects. The criticisms are mainly associated with the quality of service and retention of the CHWs in delivering health service in their community. Nabudere et al. (2011) argue that the employment of CHWs to replace formal health workers can be seen as a short-term strategy that may reduce the quality of care and hence be a false benefit. However, this concern can be anticipated and dealt with by strengthening training and supervision of CHWs practices by formal health workers (Gupta et al. 2011).

Another concern related to the utilisation of CHWs in community programs is the retention of these health workers. In a study that examined the experience of volunteer CHWs in implementing a community project in rural Uganda, Ludwick et al. (2013) found that maintaining CHWs' motivation and retention is the main challenge. It is understandable because CHWs are selected by the community and are voluntary. Another reason is that CHWs who are selected by the community do not always continue to reside in that community, they sometimes move with their families (Ludwick et al. 2013). To anticipate this concern, the authors emphasise the importance of improving community involvement in CHWs selection, quality training, appropriate supervision, and incentives. This conclusion is also reached by Strachan et al. (2012) who added the importance of the inclusion of these health workers in the health system to ensure their retention. Ensuring the retention of CHWs is essential as CHWs are part of the community and therefore are important to efforts related to improving community participation.

Community Participation

Community participation is another area of discussion in the literature in relation to CCM implementation. This section of the chapter will scrutinise the literature examining community participation in relation to achieving MDG 4 of reducing infant mortality, particularly in the context of rural areas in LMIC. This section will explore the concept of community participation, the reason why community participation is crucial in the effort of reducing infant mortality and improving child health, and community participation in CCM implementation.

The notion of 'community participation' has been used widely in various disciplines ranging from health and the delivery of other public services to environmental risk assessment and agricultural development (Draper, Hewitt & Rifkin 2010). In health, community participation is a complex concept that has been examined extensively and continues to be an interest among community health related disciplines (Zakus & Lysack 1998). Community participation is often described closely and interchangeably with 'community mobilisation' (Rosato et al. 2008a), 'community empowerment' (Heritage & Dooris 2009; Laverack 2006), and 'community involvement' (Mbuagbaw & Shurik 2011). Rosato et al. define community participation as:

> … a capacity building process through which individuals, groups, or organisations plan, carry out, evaluate activities on a participatory and sustained basis to improve their health and other needs either on their own initiatives or stimulated by others. (2008a, p. 962)

A similar definition is used by Heritage and Doris with the reference to the WHO's definition of the concept (WHO 2002), noting that community participation is:

> ... a process by which people are enabled to become actively and genuinely involved in defining the issues of concern to them, in making decisions about factors that affect their lives, in formulating and implementing policies, in planning, developing and delivering services and in taking action to achieve change. (2009, p. 46)

In addition, Mbuagbaw and Shurik (2011, p. 214) emphasise that community participation is associated with a form of empowerment in which the community takes part in the decision-making process.

Despite various terms and definitions attributed to the concept, the central tenet of community participation is increasing the capacity of the community so that they can actively engage in the process of decision making concerning their own health outcomes. By participating in decision making, the community is viewed as the one who owns their endeavours and destinies (Heritage & Dooris 2009). This is reflected by the sense of commonality or cohesion among the members of the community by making them feel a sense of belonging and commitment to one another (McMurray 2007). The involvement of community in decision making will also increase their feeling of having power and control over the design and sustainability of their current and future health (Laverack 2006; McMurray 2007). Community participation in health programs is beneficial in terms of increasing democracy, mobilising resources, achieving better decisions and more effective services, ensuring the ownership and sustainability of programs, and actively empowering the members of the community (WHO 2002).

Community Participation to Reduce Infant Mortality and Improve Child Health

Community participation is the key in the primary health care framework announced by WHO country members in the Alma Ata Declaration (WHO 1978). The Declaration document clearly states that "people have the right and duty to participate individually and collectively in the planning and implementation of their health care". The document also highlights the importance of promoting maximum community and individual self-reliance and participation in the planning, organisation, operation and control of primary health care. In LMIC, the process of antenatal, delivery, and postnatal care mostly occurs in the community rather than in health facilities (Rosato et al. 2008a). It is therefore critical to involve community in the strategies to improve maternal and child health.

A growing body of literature has investigated the use of community participation strategies to improve child health in LMIC (Banteyerga 2011; Nahar et al. 2012;

Rosato et al. 2008a; Tripathy et al. 2010). Banteyerga (2011) investigated a community-based program called a 'health extension program' in an attempt to achieve MDG 4, 5, and 6 in a rural community in Ethiopia. In the program, the intervention includes training volunteers, who were mostly women from villages, focusing on maternal and child health. The main task of these trained community members was to increase the skills and knowledge of communities and households to deal with preventable diseases and be able to access health facilities. The study found that the health extension program has increased the PHC coverage, immunisation, and antenatal coverage by 15%, 10%, and 20% respectively. The findings, however, need to be interpreted with caution as the authors do not clearly articulate a sound methodology in the study report. The paper is reportedly based on three earlier studies undertaken in the project without critically illustrating how the studies were conducted or how the review used the data from the studies. Despite this concern, the review used a community participation framework that promotes the intrinsic value of the idea that the community is the owner, producer, and multiplier of health. In this system the role of the health provider in promoting the change is to enable families and communities to lead healthy lives, to build their capabilities in disease prevention and health management, and to provide a timely referral to a health facility for those who need one.

Another study that examines community participation in accelerating the progress of achieving MDG 4 is reported by Nahar et al. (2012). The study investigated the process of scaling up program coverage using the strategy of a community participation intervention for maternal and neonatal and child health in rural Bangladesh. The intervention used in the study was a monthly women's group meeting on a maternal and newborn health package that was reported to be successful in improving health outcomes of mothers and children in Nepal (Manandhar et al. 2004) and India (Tripathy et al. 2010). In the monthly meetings, groups of women were assisted to identify and prioritise their health problems, plan strategies to address them, and implement and evaluate the strategies. The study found that following the intervention, the coverage of

women who engaged in the program increased by fivefold. The study, however, did not determine the impact of the study on infant mortality.

Nahar et al.'s work shows that community participation is a promising strategy to improve child health outcomes with minimum financial resources and limited staff. The keys for successful program implementation are ensuring community capacity, clarity of intervention objectives and wide stakeholder engagement (Nahar et al. 2012). Similar conclusions were also reached by a review conducted by Rosato et al. (2008a), While this study affirms that community participation may bring about cost-effective and substantial reductions in mortality and improvement of maternal, newborn and child health, the authors emphasise the need for further investigation on the process of community participation and how this strategy can be scaled up effectively.

Community Participation in CCM Implementation

The importance of a community participation strategy in the implementation of CCM is outlined in the literature (George et al. 2009; Mukanga et al. 2010; Strachan et al. 2012). Community participation in CCM is exemplified by involvement of CHWs to deliver lifesaving intervention at the household and community level. George et al. (2009) reported that since CHWs are selected by the local community, CCM fostered community mobilisation, leadership and empowerment that resulted in community involvement in the implementation process. The study also found that CCM has increased ownership of the health system by the community and improved coordination between health workers in the facility and community.

While George et al. (2009) imply that community participation is a result of CCM implementation, two other studies (Mukanga et al. 2010; Strachan et al. 2012) indicate that community participation is a pre-requisite for CCM to be successfully implemented. In the introduction of CCM in a rural district in Uganda, Mukanga et al. (2010) examined acceptability to the community of a rapid diagnostic test for malaria if used by PHCWs. In the study, the community was involved in assessing whether interventions delivered in CCM were

appropriate for them. In addition, Strachan et al. (2012) emphasise that the factor that was commonly considered to be most critical to the success of CHW programs is community participation. An interesting notion posed by the authors is the need to change from the ideology of 'community-based program' into 'community owned program', where the community owns the program and is in command of bringing about a change in their health.

Socio-Cultural Influences

The other theme emerging in the literature associated with health care delivery in community settings is cultural influence. This section of the chapter will scrutinise the literature that examines the concept of culture and cultural influence in relation to the implementation of community-based health care delivery in the context of rural areas in LMIC; and in particular as it relates to the implementation of CCM. The concept of culture has been widely elaborated, but it has not been fundamentally changed in several decades of analysis and debate (Peterson 1979). The fundamental elements of culture involve norms, values, beliefs, and expressive symbols (Peterson 1979). Although a number of definitions of culture have emerged within the social and behavioural sciences, the basic characteristics of culture are that it is: learnt from birth through the processes of language acquisition and socialisation; shared by all members of the same cultural group; an adaptation of specific environmental and technical conditions; and a dynamic, ever-changing process (Singer 2012). Culture, that is learnt and conveyed from one generation to another (Horton & Johnson 2010), mirrors the attributes of a society. It is noted in the literature that culture affects one's health behaviour, practice and access to health care (Singer 2012).

Literature emphasises that cultural influence should be taken into account in any community health projects (Stone 1992). For example Horton and Johnson (2010) assert that culture is one of the essential factors that influence community access to health care in rural areas. Although the study focuses on elderly families, unlike the current study, it has similar themes and contexts regarding accessing healthcare in a rural area. The authors note that families' belief systems influence their choice and decisions related to medical treatment. An

example of how culture influences a community's choice about health service is presented by Assan et al. (2009). The study conducted in rural Indonesia reported that participants viewed traditional practitioners as having more important roles and were preferred over trained health professionals. This was because they were culturally more acceptable as they rarely had direct contact with patients' bodies (Assan et al. 2009). The preference for traditional practitioners was also reported by mothers because they are more accessible and affordable (Pollit et al. 2000).

Stone (1992) argues that culture should be viewed in a broad ideological and behavioural context rather than an obstacle to the adoption of community-based health programs. As such, culture will be acknowledged and viewed positively as a potential resource for health development. How cultural influence may affect positively on health is reported by Munawaroh (2006), who noted the involvement of voluntary community health workers in community health programs as the reflection of Indonesian people's value of *gotong royong* (mutual aid for community benefit). Another example is presented by Greta et al. (2002), who reported that breastfeeding practices of Indonesian mothers until their infant is two years of age is a result of cultural traditions and religious norms.

The literature suggests that it is crucial for health care providers to be sensitive to the cultural diversity of their clients to recognise and ameliorate cultural barriers for families to access health care (Horton & Johnson 2010). It is also important that health practitioners be culturally competent (Lie et al. 2011) in providing health services to communities.

A consideration of cultural influences in CCM is central to implementation and is outlined in the literature. Akweongo (2011) describes how the socio cultural environments can enable or limit the implementation of CCM in urban and rural areas. For example in African urban areas, families tend to use private medical practice if their children suffer from malaria instead of utilising CHWs available in their neighbourhood. This is because the urban families are not confident with CHWs. In addition, private practices are available near where they live. Likewise, rural families prefer to use CHWs to help their children when they were suffering

from malaria (Akweongo et al. 2011). The authors asserted that the implementation of programs and national policies should consider the local ways and cultures. This can be done by involving the community in the policy development and being sensitive to the voice of the community who received the care (Gill et al. 2013).

Summary

This review of the published literature has examined the concept of case management in general and the fundamental principles of the approach. In spite of the wide variation in the literature to the definitions of case management, the key defining aspect of case management is that it is a systematic process. The process always involves assessment, planning, coordination, monitoring and reassessment through which the multiple service needs of clients are met. The literature also shows that case management has been implemented in community settings, with a focus on addressing scarce resources and meeting the health needs of vulnerable populations.

Specifically, the review has discussed community case management of childhood illness with the characteristics of delivering lifesaving interventions and involving health workers that 'fit' with the local context. One of the most significant current discussions in CCM is around common factors that flow from the successful implementation of CCM. These factors include: reduced infant mortality, increased access to care, improved health seeking behaviour, supportive social and political environments, and improved quality of care. The current literature also highlights the involvement of PHCWs including nurses, midwives and CHWs as key to success in community-based child health service provision as well as describing barriers that may impede the implementation. Literature affirms that the health system approach is a promising way forward for planning to address the constraints. In addition, engaging the community appears to be a useful means of optimising the implementation. The other key theme associated with CCM implementation, that was discussed and which is central to this study, is the influence of unique cultural factors on the implementation process.

While there is evidence in the literature of successful outcomes from the implementation of CCM in various cultures, there is little available on the process of implementation from the perspective of PHCWs and families, particularly of implementation in Indonesia. This study seeks to explore the implementation of CCM in one pilot site in Indonesia. In order to generate the knowledge of how CCM was implemented in Indonesia from the perspectives of PHCWs and families in Indonesia, an interpretive descriptive approach was selected as the methodology for this study.

Chapter 3 - Methodology

Interpretive description (ID) (Thorne, Kirkham & MacDonald-Emes 1997) has been selected as the methodology for this study. Although not used as a cookbook, or off the shelf methodology, ID is relevant to nursing as an applied health science that focuses on understanding complex phenomena in the context of clinical practice, which cannot be explained by existing approaches (Thorne, Kirkham & MacDonald-Emes 1997). This chapter justifies ID as the methodology of the study. This chapter will provide arguments that ID has been selected because firstly, the approach allowed for an investigation of the question of "what is happening here" (Thorne, Kirkham & O'Flynn-Magee 2004), which is aligned with the aims of the study. In doing so, the contextual nature of the data was respected and the research was guided to focus on, and engage in, the intellectual processes that are the keystone to qualitative data analysis.

Secondly, adherence to ID demands an integral purpose deriving from two sources: an actual practice goal; and an understanding of what we know and we do not know (Thorne 2008). As such, the approach assisted in the exploration of the existing knowledge in the implementation of CCM in other contexts as well as getting the sense and experience from participants in implementing the model and its impact on their health and their practice. And thirdly, I, as a nurse, strongly favoured the philosophical notion of the approach that generating knowledge should be constructed and directed to a framework that fits with the nursing praxis orientation of the dialectic between practice and knowledge, so that the result would have a considerable impact and value for transforming the everyday practice world. By using this approach, this study will derive recommendations about the roll out of better practice in delivering child health services in the community in the rural areas of Indonesia.

This chapter presents an overview of the philosophical underpinnings of the methodology, critique, and salient features of the design, including participant selection, data collection and analysis. Ethical considerations of the study are also presented.

There are logical and essential issues in determining a methodology for a research study (Morse & Richards 2002). One issue considered crucial is how well the theoretical and philosophical framework is justified. The justification for any research approach is pivotal to the research enterprise and this chapter explicates the theoretical and philosophical framework underpinning this work. This framework becomes the way of knowing and the lens for the inquirer to understand the world and interpret the findings.

Other critical issues in selecting a methodology include the consideration of what we want to know or how our research questions can be best answered, what we believe or the theoretical perspective, and the context of the study. Morse and Richards (2002) assert that in a particular situation, researchers might claim to pursue a certain methodology, but there is no coherence between their research design, research products and their stated methodological choices, or there might be blurring of different methodologies without a compelling account of how the various aspects fit together. Therefore, the central issue from this perspective is that methodology should be coherent with what we want to know, and the embedded context of the project.

Interpretive Description: A Methodology for Nursing Research

Interpretive description was chosen as the methodology for this study as it provides a means to illuminating a professional nursing orientation which involves the generation and incorporation of knowledge into the development of better practice (Benner 1984). Benner (1984, p. 3) asserts that since nursing is an applied discipline, knowledge development should consist of extending practical knowledge through theory based scientific investigation. This practical knowledge extension occurs when the clinical experience is challenged, refined or disconfirmed by the actual situation (Benner 1984).

The use of existing clinical practice experience in developing nursing knowledge aligns with the pivotal work by Carper (1978), which presents the ideas of 'Fundamental patterns of knowing in nursing'. Since the seminal work of Carper, a number of nursing authors (Porter 2009; Silva, Sorrell & Sorrell 1995; White 1995) have taken up the importance of personal and tacit knowledge in nursing

and the central role in giving informed and individualised care. Carper (1978, p. 18) argued that nursing is considered an interpersonal process that involves interactions, relationships and transactions between the nurse and the client, and thus personal knowledge of the nurse is an essential part of understanding the meaning of health in terms of individual wellbeing. One of the interpretive methodologies that is used to understanding phenomena in the clinical field that acknowledges the knowledge and experience of the researcher is ID (Thorne, Kirkham & MacDonald-Emes 1997).

The founders of ID have described it as a form of paradigm shift in qualitative methods for nursing knowledge development (Thorne, Kirkham & MacDonald-Emes 1997). The ID methodology was established in response to the lack of suitable traditional qualitative research approaches from other disciplines. These were perceived as being inappropriate to develop the kind of knowledge required in the distinct context of nursing which has an unique orientation to practice (Sandelowski 2000; Thorne, Kirkham & MacDonald-Emes 1997).

ID has also been selected as the methodology for this research as it incorporates an understanding of the philosophical, theoretical and practice foundation of nursing and is claimed to be a credible and legitimate way to access knowledge in nursing (Thorne, Kirkham & MacDonald-Emes 1997). ID evolved from the belief that nursing always and inherently requires knowledge about patterns and themes concerning phenomena within people in general so that it can better inform the care of the unique and distinct individual (Thorne, Kirkham & MacDonald-Emes 1997). The knowledge results from the dialectic of the interplay between subjective and objective information (Thorne, Kirkham & O'Flynn-Magee 2004), where the knower and the known interact to create understanding of a reality. As they work in a practice discipline, nurses have been argued to be ‘knowledge workers’ (Benner 1984). Nurses have a distinct role with patients, utilising ‘self’ in a therapeutic manner because “nursing knowledge is constructed and contextualized within the activity of the nurse as a 'knower' and is an integration of formal, tacit and personal ways of knowing” (Antrobus 1997, p. 830).

ID acknowledges the theoretical and practical knowledge that researchers bring to a study. The researcher's prior knowledge of the phenomenon under study is considered the basis upon which to design the project, and determine the horizons of the study. In particular, clinical knowledge and experience is recognised as a valuable starting point for orienting research, particularly when the area of investigation has not been evaluated in a rigorous fashion. Such experientially derived knowledge of the phenomenon provides a starting point to orient the research design. The theoretical scaffolding that is created as the researcher begins the inquiry is then challenged and refined as the research progresses. This approach also helps to make visible how assumptions and preconceptions influence the design and development of the research. As a consequence, the researchers need to illuminate their assumptions and preconceptions when they interpret the data and these will move over the time of the project. Therefore, researchers need to consider having a collaborative interpretation with participants.

Thorne (2008) suggests that there is intrinsic value in the careful and systematic process of understanding a phenomenon and an equally pressing need for putting that analysis back into the context of the practice field with all of its inherent social, political and ideological complexity. For example when practitioners care for a patient with a particular disease, they may discover things about the individual patient, which will inform interpretation and how available knowledge is brought to bear on the situation. This knowledge includes not only formal evidence, but also shared clinical insight, pattern recognition, established practice, ethical knowledge, and the 'art' of synthesising this knowledge and translating it into practice (Thorne 2008). Although nurses consistently apply standardised interventions for certain health problems, nursing embraces the belief that an individual may present in a unique way. An individual may need a new approach or a new adaptation, in order to attain optimum health outcomes. This notion (the relationship between the general and the particular) exemplifies the natural complexity of nursing's close relationship with knowledge development and knowledge generation as well as knowledge transfer and application (Thorne 2008).

After considering the literature regarding ID based upon the discussion outlined above, it can be seen that ID is not simply a modification of traditional qualitative approaches. Rather, it is a conceptual manoeuvre in which a solid and substantive logic derived from the nursing orientation justifies the application of specific techniques and procedures to generate knowledge. In other words, ID is an analytical approach that is designed to create ways of understanding clinical phenomena that results in application to practice (Thorne, Kirkham & O'Flynn-Magee 2004). In relation to this study, the approach is used to understand the phenomena of how PHCWs undertook their practice in implementing CCM.

Philosophical Basis

Qualitative researchers are guided by principles that combine beliefs about ontology (being in the world and the nature of reality), epistemology (the relationship between the knower and known), and methodology (knowing the world or gaining knowledge of it) (Denzin & Lincoln 2008; Guba 1990). This belief, which is known as a paradigm (Guba & Lincoln 1994), assists researchers in shaping their understanding about the world and how they may act upon it.

ID aligns with interpretive naturalistic inquiry (Sandelowski 2000; Thorne, Kirkham & O'Flynn-Magee 2004). Naturalistic inquiry is a theoretical perspective that recently came to be known as the constructivist paradigm (Appleton 1997). Before looking at how ID aligns with the constructivist paradigm, it is important to briefly look at the nature of the paradigm.

Guba and Lincoln (1994) explain that a paradigm can be understood as a belief system based upon the nature of its ontological, epistemological and methodological assumptions. Constructivists support a relativist ontology that posits that realities can be comprehended in the form of multiple, intangible mental constructions (Guba & Lincoln 1994, p. 110). This rejects the conservative realist ontological tenet that realities exist independently of observers (DeForge & Shaw 2012; Guba & Lincoln 2005). In other words, constructivists see realities (facts, events or experiences) as complex, multiple phenomena which are strongly related to context (Sandelowski 2000), and the meaning of the phenomena is constructed by the observer.

Epistemologically, constructivist researchers believe in a transactional approach to investigate a phenomenon (Guba & Lincoln 1994, p. 111). This approach involves the interaction between the researcher and the participant so that the findings are literally co-created during the process of study. As the consequence of the inseparable relationship between the researcher and the participant (Thorne, Kirkham & O'Flynn-Magee 2004), the researcher is required to "move farther into or beyond their data as they demand not just reading words and scenes, but rather reading into, between and over them" (Sandelowski 2000, p. 336).

The notion of knowing as the construction of meaning in the constructivist paradigm is widely applied in psychology and education (Bodner 1986; Brandon & All 2010; Panksepp 2007; Phillips 1995; Raskin 2002). Brandon and All (2010), for example, examine how constructivism was used in the study of nursing education curricula. The authors noted that according to constructivism, learning is the process where a person constructs knowledge and meaning by incorporating prior knowledge, beliefs and experience. Knowledge does not exist outside of the person but is constructed based upon how a person interacts with the environment and experiences the world. In other words, it can be said from the constructivist perspective that knowing is not a passive activity of receiving knowledge; rather it is an active process of knowledge construction.

When considering the constructivist theory in knowledge acquisition, two types of constructivism have been described, namely cognitive constructivism and social constructivism (Powel & Kalina 2010). Both theories view knowledge acquisition as a means of interpreting incoming information through an individual's unique lens, which includes his or her personality, beliefs, culture, and experiences. Particular to cognitive constructivism, it focuses on the individual characteristics or attributes of the knower and their impact on learning, while social constructivism focuses on how meaning and understanding are created through social interaction. Based on interpretations, knowledge has meaning and the knower builds schema to figure out what they know (Powel & Kalina 2010).

The concept of cognitive constructivism was proposed by Jean Piaget (1896-1980) who believed that knowledge cannot be simply conveyed by a person, but must be constructed by experience (Piaget 1964). Experiences allow individuals to construct mental models or schemas, and knowledge construction is based on a change in schema through assimilation and accommodation. If the incoming information can be associated with existing information, assimilation of the incoming information into the already formed schemas occurs and equilibrium is maintained. If the incoming information conflicts with current thinking, cognitive dissonance occurs; this is an uncomfortable feeling that stems from holding conflicting ideas at the same time (Powel & Kalina 2010). Cognitive conflict requires a change in existing schemas to accommodate incoming information. In addition, Piaget believed that knowing is based on interaction with the environment around us, so real-world practice is important (Piaget 1964).

Social constructivism, which was proposed by Lev Vygotsky (1896-1934), emphasised that learning could not be alienated from the social context in which it occurs, nor could accommodation and assimilation occur without the active integration of the knower in a community (Vygotsky & Luria 1994). Vygotsky believed that memory is constantly under construction as a person interacts with incoming information in unique contexts that require them to draw upon prior knowledge from different sources (Vygotsky & Luria 1994). Either accommodation or assimilation of new information into existing schemas occurs, which builds deeper levels of understanding and meaning. Transfer involves the use of meaningful contexts that permit the knowing to be transferred to a novel situation and applied. Real-world examples, as well as opportunities to solve real-world problems, allow for the greatest opportunity for transfer (Powel & Kalina 2010). This approach is useful for the current study because the data gathered in the field would be complementary to researcher's prior knowledge and experience, and the meaning of the data would be constructed based on the existing knowledge. From the standpoint of the current study, constructivism allowed for the integration of my experience of practice as a community nurse focused in community health and in project work with PHCWs and families. Meanings in the research data were constructed out of the synthesis or

assimilation of this experience and knowledge of the real world of practice with the research context. New learning took place and was transferred *in situ* in the act of interpretation and the creation of the horizon of understandings necessary to make sense of the data. For example, my knowledge about community health in rural Indonesia highlighted that the main challenge for the community to receive appropriate health services was access to care. And one of problems associated with the access to care was the availability of health staff in villages. So when a mother participant stated that "with the presence of PHCWs in our village, the service becomes closer and it is easier for us to get health services", I could see that since CCM was introduced in the village, health service was more accessible to the community.

As noted, ID is aligned with naturalistic inquiry. The paradigm entails a commitment to studying a phenomenon in its natural state, or as it is, within the scope of the research project (Sandelowski 2000). The philosophical framework of ID presumes that absolute, wholly objective knowledge is inaccessible through empirical scrutiny. Realities are distinct in nature, socially and experientially based, and dependent in form and content on the persons who hold them (Guba & Lincoln 1994). As such, in any naturalistic study there is no *a priori* commitment to any one theoretical view. However, as noted by Sandelowski (2000), any qualitative approach can have the hues, tones and textures from other approaches such as phenomenological, ethnographic, and grounded theory; and may also have been influenced by other research ideological perspectives such as feminism.

ID has been selected for this research and is therefore guided by naturalistic inquiry which commits to study a phenomenon in a natural state which is complex, contextual, and constructed (Lincoln & Guba 1985), and accepts that the inquirer and the 'object' of inquiry interact to influence one another to create (co-construct) understanding, in other words, the knower and the known are inseparable (Thorne, Kirkham & O'Flynn-Magee 2004). In accordance with the ability of ID to draw upon a range of theoretical orientations this study looks to hermeneutics (Laverty 2003), in which meaning is regarded as a construction of an experience by individuals which can only be within the context in which they

are situated. In other words, the inquirer will interpret the data and construct the meaning using their experience and knowledge as the lens.

Gadamer (1988b), as one of the key authors of the concept, argued that the work of hermeneutics is not to develop the process of understanding. It is rather to elucidate the circumstance in which understanding takes place. Hermeneutics is known as 'the art of interpretation' (Dowling 2004), assuming that humans experience the world through language, which provides both understanding and knowledge. Gadamer (1988a) asserted that understanding is derived from personal involvement by the researcher in a reciprocal process of interpretation, which is inextricably linked with one's being-in-the-world (Dowling 2004). In order to understand the meaning of something held by another, one must not attach blindly to one's own prescribed fore-meaning. They should remain 'open' to and embrace the meaning held by the other person (or text). What is critical throughout this process is that they are aware of their biases in order for the text to reveal its uniqueness against their own fore-meanings (Gadamer 1988b). Therefore, the hermeneutic process becomes a dialogical method whereby the horizon of the interpreter and the thing studied combine. The fusion of horizons necessary to interpretation in this framework is dependent on the fore-meanings of the researcher and is embedded in their understandings of the practice world and its cultural context.

An example of a situation where I needed to be aware of my personal bias was when I found that the PHCW participants were hesitant to administer antibiotics because they were not sure whether it was legal or not. In Indonesia, only medical doctors are legally able to prescribe medicines. My initial reaction was that the PHCW had practiced unlawfully in relation to medicine administration. However, the findings of other interviews showed that the PHCWs felt confident and trusted by the community to administer medication as they were the only health staff who were available in villages and they had been mandated by the local health service to provide health care in villages. After considering my knowledge and looking at the phenomena, I surmised that there was role confusion among PHCWs in relation to medicine administration. On one hand

they were not sure whether it was legal, but on the other hand they had to do that because they had no choice.

In defining ID, Thorn (2008) revealed that 'interpretive' came from the ideas of hermeneutics generated by scholars such as Paul Ricouer (1913-2005), Martin Heidegger (1889-1976) and Hans-Georg Gadamer (1900-2002), who focused their interest on the scrutiny of construction of meaning within subjective and intersubjective experience. Research drawing on these ideas involves enlightening the ability of understanding experience from the view of others, while concurrently considering social and cultural forces that may have shaped that view (1988a). The point of such research is not simply to interpret action through motivations that are reachable to subjective awareness, but to focus on the lived context within which those actions evolve and become meaningful (Thorne 2008).

As noted earlier, ID is not a 'cookbook' that provides a strict guideline for methods of inquiry; rather it offers such a way of thinking that enables the enquirer to understand the phenomena in the clinical practice context in a rigorous way. ID allowed me to put myself into the conversation about the meaning and the nature of the disciplinary project that encouraged a qualitative design in keeping with the nature of the project and the question asked. The conversation allowed me to develop a design logic that had integrity for plausible science, and to the philosophical underpinnings of the applied disciplinary world (Thorne 2008, p. 36).

Methods

While 'methodology' relates to the overall approach associated with the paradigm or theoretical framework underpinning the research, 'methods' refers to systematic modes, procedures, or tools used for collection and analysis of data (Mackenzie & Knipe 2006). Methods need to be coherent with the aims of the project, examine what the study sets out to investigate (Kvale 1994), and allow the gathering of good data (Morse & Richards 2002). The scientific value of qualitative methods also draws from the capability to communicate to others the systematic approach to the study of a phenomenon (Sandelowski 1995). An

appropriate method is required to permit the investigation of clinical phenomenon that can be converted into text to allow interpretation.

Participant Selection and Recruitment

The selection of participants in a qualitative approach does not refer to the number of participants or events but rather to the richness of data (Silverman 2000); that is, how the data encourages one to the selection from the most predictable variations within the topic studied (Sandelowski 2000; Thorne, Kirkham & MacDonald-Emes 1997). Most qualitative studies rely upon 'purposive' or 'theoretical' participant selection to identify which participants or events become the focus of the study and also to identify what is most relevant to the aims of the study (Morse & Richards 2002). The participant selection, however, can be one of 'convenience' in a situation where a group of people who are closest at hand may be an exceptional source of insight of a phenomenon, particularly in the initial stage of describing aspects of its shared experience (Thorne 2008, p. 89).

In order to gain an understanding of how CCM was implemented in Indonesia, the study considered purposive participant selection (Guest, Bunce & Johnson 2006), in that participants were individuals who experienced the phenomena of interest or those who could shed light on the area of interest. The participants for this study comprised PHCWs—midwives, nurses and CHWs—from villages in six subdistricts that implemented CCM, and their clients who are family members responsible for caring for their sick children. Key informants and documents related to CCM implementation were also included in the study.

Particularly for mothers, the participants were recruited through a snowball technique (Atkinson & Flint 2001), where one participant provides me with a name for the second, third, and so on (Vogt 1999). Snowball technique is based on the assumption that a 'bond' or 'link' exists between the initial participant and others in the same target population, permitting a series of referrals to be made within a circle of acquaintance (Atkinson & Flint 2001). This technique offered technical advantages in terms of recruiting participants in concealed and hard to reach populations such as some villages in Kutai Timur.

In recruiting the participants, I wrote a letter to the district health office, informing them about the research and intention to invite PHCWs who were involved in CCM implementation to participate in the study (the invitation letter is attached in Appendix 1). The district health office subsequently passed on the message to PHCWs at *Puskesmas* in six subdistricts and villages where CCM was implemented. If they were interested in participating, they would let me know by sending a text message (SMS) or a phone call so I could follow-up, provide more information (Appendix 2), and obtain informed consent (Appendix 3). After one PHCW participant was recruited, I asked the participant to recommend other PHCWs who might be interested in participating in the study.

Family members were recruited by asking PHCW participants about any mothers who might be interested in being involved in the study. Once a name was obtained, I provided information about the research and asked whether they were willing to participate when a home visit was made by the PHCW (Appendix 3). If the family member agreed to participate, more information about the procedure was given and consent was obtained (Appendix 4). Key informants were identified as those people who could provide rich information about how CCM was developed and managed. They were in senior positions in the Ministry of Health, district health office, and MCHIP. Once potential key informants were identified they were recruited by approaching them directly by telephone. If they agreed, more information about the study and their involvement was provided and consent was obtained (Appendix 6). Further discussion about informed consent is outlined in the ethical consideration section of this chapter.

CCM was implemented in 17 villages in six subdistricts in the Kutai Timur district, of East Kalimantan. Six key informants, three supervisors from district health offices and *Puskesmas* (community health centres), 15 PHCWs (11 nurses/midwives, and four CHWs), and seven mothers were recruited in the study. The list of the participants is summarised in Table 3.1 below.

Table 3.1 Participants involved in the study

	Key informant	Nurse/ midwife	CHW	Mother
Ministry of Health	1			
MCHIP	3			
District health office	2	1 (supervisor)		
Puskesmas		2 (supervisors)		
Villages		11	4	7
Total	**6**	**14**	**4**	**7**

Data Collection Procedure

ID includes the collection of multiple sources of data to capture themes and patterns within the phenomenon being studied (Thorne, Kirkham & O'Flynn-Magee 2004). After considering the context and the aims of the project, a number of strategies and tools were utilised to capture the implementation of CCM, and to articulate a coherent and meaningful account of the experience so that an in-depth and holistic understanding of the implementation would be gained. The strategies included interviews, focus group discussion, participant observations and documentary analysis. As noted earlier, I acted as the knower to and part of the influence of the study, all the evidence that came from the fieldwork was written in a research journal and it was used as complementary data.

Interviews

Interview is an effective technique for enhancing one's understanding of participants' perceptions and for learning how individuals attribute meaning to phenomena (Kvale 1994). An "interview is the focal point for deconstructing the production of knowledge within research, leading to epistemological concerns over how we come to understand or represent another person's world view" (Riach 2009, p. 357). Interviews also provide an opportunity to further explore shared meanings and to expand observation (Thorne 2008).

Semi-structured interviews of approximately one hour were conducted with participants between the periods of July to December 2011. The interviews were undertaken at the MCHIP office and district health office for key informants, at

the district health office and *Puskesmas* for program supervisors, at the village health centres for PHCWs, and at homes for the mothers.

The interviews commenced by engaging the participant in a conversation in order to collect useful data to understand the socio-cultural background context of the interviewee. Structured questions were initially asked to gather background demographic data. Such questions warmed up both interviewer and interviewee to the interview and were useful to enhance the interviewee's sense of confidence to effectively engage in the conversation (Kvale 1996). After the completion of the protocol questions, the interviewee was invited to talk about their experience of the implementation of CCM. A number of questions were used to guide me to understand the context. Conversations were not constrained by the topics below but they served as a guide to ensure important areas were well covered if the conversations digressed from the research goals.

The key informants and supervisors at the district health office and *Puskesmas* were asked questions that included:

- What do you know of service user needs in this service?
- What kind of services should they cover?
- Who should be involved in meeting those needs?
- How feasible is CCM and what support is required for the implementation?

For the PHCWs at village level, the type of questions included:

- How is CCM managed?
- How do care providers work together, who do you talk to, what relationships do you have?
- How is service delivered by PHCWs under a CCM framework?
- What policies guide practice in this area?
- What funding is set?
- What education and training do you receive in the service?
- How is CCM different from the usual approach to your practice?
- What are the PHCWs barriers and constraints to addressing CCM & why?

- How does this impact on your performance and CCM outcomes?
- What interventions are required to address these barriers and constraints?

Similarly, for interviews with mothers, the questions incorporated:

- Have you noticed any differences in receiving care?
- Are you satisfied with the care delivered?
- Do you feel it is easier to get access to care with the CCM framework?
- What are your suggestions to improve the care service?

In the qualitative technique, the collection of data by interviews was terminated when no new information emerged (Kvale 1994; Morse & Richards 2002).

Focus Group Discussions with Primary Health Care Workers

Focus group discussion is a research method where a small group of participants gather to discuss a specified topic to generate data (Wong 2008). The purpose of focus group discussion is to give the researchers an understanding of the topic discussed. This technique is considered most productive when focused on topics that are reasonably public and not sensitive (Denzin & Lincoln 1998). Focus group discussion is a useful strategy to collect data in which participants are able to build upon one another's comments and opinions, stimulate thinking and discussion, and thus generate high quality data (Stewart, Shamdasani & Rook 2007). Despite the advantage of focus group discussion, the limitation of the strategy that needs to be anticipated is that it is susceptible to bias as group or individual opinions can be swayed by dominant participants or the moderator (Wong 2008). Being firm in sticking to the topic under discussion, giving equal opportunity for participants to pose their opinions, and developing guidelines for discussion is considered helpful to overcome this concern (Stewart, Shamdasani & Rook 2007).

The study incorporated a focus group discussion strategy to further elaborate the focus of care delivered in CCM and to discuss possibilities for better practice. One focus group discussion consisting of six PHCWs from different villages was conducted in November 2011. In undertaking the focus group discussion, I was

directed by a guideline (Appendix 7). Before the discussion proceeded, I gave the participants an explanation about the purpose of the session, the procedure and the process of the discussion, and provided the reasons why they were invited to participate in the process. Once they understood, I asked for their agreement to participate and informed consent was taken. In capturing the data, I commenced by asking a question regarding CCM implementation outlined in the guideline. I then provided an opportunity for the participants to respond to the question. The discussion, that included my contribution in the discussion, was digitally recorded and some important points were written in the field notes kept by me.

The significance of the focus group discussion was that it allowed the PHCWs to be a part of a group that enabled them to reflect upon and recall their experience of implementing CCM. During this process comments of other group members triggered memories and incidents that meaningfully enriched the data.

Observation

Observation is looking, listening and asking to gain understanding about people, events and context (Denzin & Lincoln 1998). Participant observation is a unique mode of observation in which the researcher may actually participate in the events being studied (Munhall 2002). In capturing the rich context and seeking *emic* or insider perspectives, a researcher needs to observe patterns, connections, relationships and themes related to the research focus that have meaning to the people (Labaree 2002). Observation is useful to capture the incongruity that may exist between what people say and what people do (Denzin & Lincoln 1998). This type of 'going native 'observation, however, may lead the researcher to understand a phenomenon as an insider which to some extent, may create premature closure when he or she attaches an existing structure onto the findings early in the analytic process and then seek only to verify it and fail to capture anything of its essence or depth (Thorne, Kirkham & O'Flynn-Magee 2004). For example I found that one of the barriers in CCM implementation conveyed by PHCW participants in some villages was the difficulty in filling in the reporting and documentation forms. This influenced my observation of other PHCWs when they were undertaking the documentation. I anticipated that they

would have similar challenges to those in other villages in filling in the forms. In order to guard against this risk, I had to ensure that I approached each situation with a view to obtaining new information that would enrich the data.

There are a number of approaches that a researcher may use when undertaking observation: they can act as complete observer, observer as participant, participant as observer and complete participant (Labaree 2002). The approach of observer as participant was adopted for this study. In order to observe how CCM was implemented in primary care health centres and family, I mostly inhabited the observer as participant role. The role of the observer was publicly known at the outset to all participants in the study. This role also provided access to a wide range of information (Denzin & Lincoln 1998), as well as enabling me to be selective with regard to observation and participation, with flexibility to move as required by the research focus. Fieldwork observation included the physical setting, family activities in relation to caring of sick children, PHCW's activities and interaction both in the primary health care centre and when they conduct a home visit.

To enrich the understanding of the CCM implementation processes, particularly in relation to the political context, some events related to the CCM implementation were attended. Some meetings and discussions at the district health office, *Puskesmas* and MCHIP office that involved the program manager, team leader and program supervisor, were attended. At the national level, I was involved in a seminar and workshop initiated by the Ministry of Health. Attendance at the seminar included various stakeholders/multi-agency working groups (WHO, NGOs and local government representatives) from the districts implementing community-based child health programs, whose experiences and views were sought to develop national guidelines for rolling out CCM at the national level.

All observation data were documented as field notes (Munhall 2002). The notes were made during or close to when an observation occurred. This provided an opportunity for ongoing review and analysis of data. The notes also served as a

reflection tool (Munhall 2002), as they enabled me to record feelings, reactions, biases, and other forms of introspections.

Document Analysis

Supplementary to observation data during fieldwork was analysis of documents that related to the implementation of CCM. Bowen defines (2009) document analysis as a systematic process for reviewing or evaluating documentary material, where the documents are examined and interpreted in order to elicit meanings, gain understanding and develop empirical knowledge. Further to the definition, Bowen (2009) suggests that document analysis is beneficial in a number of ways. The document analysed may help the researchers in providing data regarding the context within which the participants operate, and is useful to provide supplementary research data. In addition, information in the documents may yield questions that need to be asked of the participants. And most importantly, documents can verify findings and or corroborate evidence from other resources (Bowen 2009).

Documentations included CCM policy and procedure manuals published by MCHIP and the district health office, reports, PHCWs documentation, patient records, and survey result and statistics conducted by MCHIP. These documents were useful resources for me to gain deeper insight into how CCM was implemented in the district. The documents analysed are listed in Table 3.2.

Table 3.2 Documentary materials included in document analysis

No	Documents	Source
1	Planning document: District Team Problem Solving (DTPS) to decrease child mortality and improve maternal health	Kutai Timur district health office
2	Training books for PHCWs and facilitators	MCHIP
3	Health profile Kutai Timur district 2009	Kutai Timur district health office
4	Register and report documents used by PHCWs	PHCWs
5	Case report from MCHIP officer	MCHIP
6	Community case management essential: treating common childhood illnesses in the community	MCHIP
7	PHCWs competency assesment tools and result	MCHIP and Kutai Timur district health office

Data Management

Recorded interviews were transcribed verbatim; participant observation was stored as field notes. While field notes are written in English, the interviews were conducted and transcribed in *Bahasa Indonesia*. Then, I translated the transcripts into English with the closest interpretation and meaning for further analysis. As a native Indonesian, I used the approach of 'researcher as translator' (Temple & Young 2004). In this role, I had significant opportunities to pay close attention to cross cultural meanings and interpretations that potentially brought me up close to the issues of meaning equivalence within the research process (Temple & Young 2004, p. 168).

All documentation was stored in a locked and secure filling cabinet, and all electronic data were stored in a password-protected computer, and backed up on a secure external disk. In order to guarantee the maximum privacy for participants and the security of the data, the data will be stored for a minimum of five years after publication. These files can only be accessed by me and the supervisors.

Data Analysis

The process of analysis begins with a critical review of current knowledge (theoretical knowledge, clinical pattern observation and scientific studies) which is the basis to make participant selection, design and early analytic decisions. In this beginning process, Thorne (2008) suggests that the researcher is to avoid the use of meticulous coding to prevent the risk of reducing the meaning of the data. During the data collection, I had to remain sceptical of the immediately apparent, and create data collection pathways that challenge, rather than reinforce, the earliest conceptualisations (Thorne 2008). The intellectual task for me was to engage in a dialectic between theory and the data, avoiding theoretical imposition on one hand, and theoretical description on the other, for coherent rich interpretation that allows *a priori* theory to be changed by the logic of the data (Thorne, Kirkham & MacDonald-Emes 1997; Thorne, Kirkham & O'Flynn-Magee 2004).

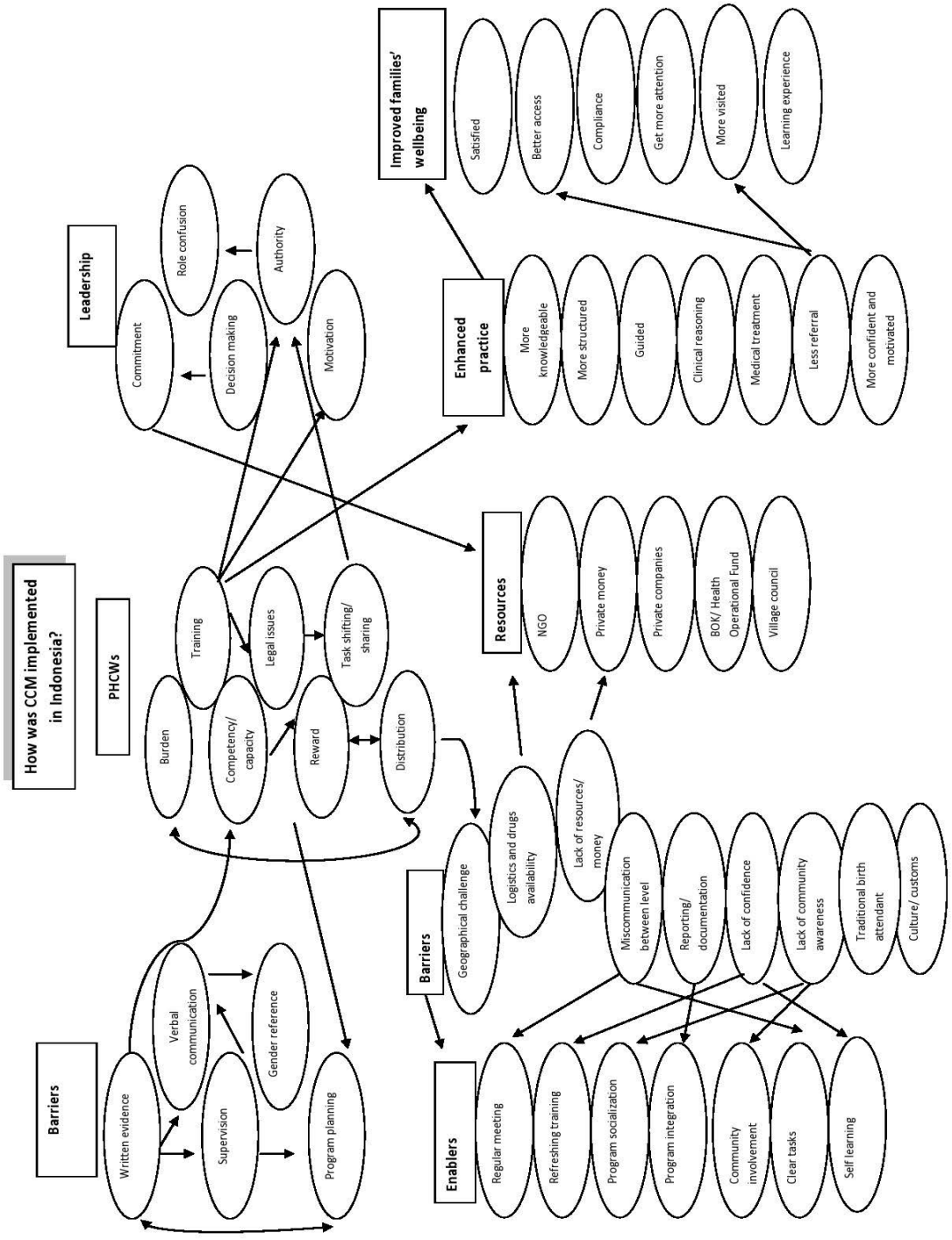
The process of data collection, analysing and interpreting occurs in an ongoing sequence. Each is associated with the other and at times occurs concurrently (Kvale 1994; Sandelowski 1995). Analysis is the process of breaking up data to make it interpretable (Sandelowski 1995). Data analysis in ID draws upon a process proposed by Morse (1994) that highlighted a framework of data analysis using four cognitive processes, which are important in all qualitative inquiry to derive the findings. The processes include comprehending, synthesising, theorising and recontextualising.

In the process of comprehending, the data were subjected to constant review through questioning, comparing and synthesising to establish further questions and observations during fieldwork. The data were reviewed, sorted and classified to identify issues, topics, patterns, and cultural themes. In this formal analysis process, I immersed in the data to gain insight (Morse 1994). This process occurred at the time of proofreading of the transcript (Sandelowski 1995). In this study transcripts were read repeatedly (reread) and sorted to allow the creation of a conceptual map of predominant story lines (Figure 3.1). As new data was obtained through the continued process of interview and observation, through immersion in the data, new categories were created and some categories

collapsed into themes. Categories made their way into construction by virtue of their fit with and truthfulness to the data (Peshkin 2000; Sandelowski 1995). The holistic approach to the analysis of data was selected as the text was viewed as alive, in that it played itself out in front of me in a crucial way.

Figure 3.1 illustrates the concept map of predominant story lines resulted from the initial data analysis. In the process, the data were read repeatedly allowing me to develop topics, patterns and categories. As the data generation was continued, new categories were generated, and were classified into themes.

Figure 3.1 Concept map of predominant story lines in the data



As suggested by Munhall (2001a) the process was followed by breaks to provide adequate time to reflect. As analysis moved on, initial broad themes became smaller. At this stage, the data analysis began to progress to theorising. During this process, the data were challenged by alternative explanations until a fit with the data was developed (Thorne 2008). The process of recontextualisation,

subsequently, was situating the findings in the context of other research that supports existing theory and demonstrating how the research had made a new contribution (Morse 1994).

While analysis involved breaking up the data to allow me to view the data in a new way, interpretation required the creation of something new from the data (Sandelowski 1995). The process of analysis allowed the data to be organised in a way that made this possible. The circular nature of the process of interpretation is not always distinct from and sometimes overlaps with analysis, and it is only separated for the purpose of making the process by which data is transformed transparent to the audience (Sandelowski 1995). The interpretation I constructed embodies a revelation of a deep understanding of the phenomenon (Thorne, Kirkham & O'Flynn-Magee 2004). The interpretation reached is open to re-interpretation and is dialectical in nature (Peshkin 2000). This aligns with the tenet of the hermeneutic circle that any interpretation is a construction.

Rigor

The issues of rigor and credibility are considered essential in an ID inquiry. As a caring discipline, nursing has an obligation to guarantee the rigor of the research findings (Thorne, Kirkham & MacDonald-Emes 1997). While it is impossible to eliminate all biases, it is noted that a reflective journal and using field notes that link the context with phenomena are considered a useful way to reduce biases as well as documenting the reactive processes of interpreting (Lincoln & Guba 1985; Thorne, Kirkham & MacDonald-Emes 1997).

The credibility of the findings also depends largely upon the specific analysis decisions that are made and situated within the larger picture (Thorne, Kirkham & O'Flynn-Magee 2004). This occurs when complexities are made visible through the analytic process that acknowledges a certain tentativeness about the final research outcomes (Sandelowski 2010). It was essential that the processes I used were transparent and that I made adequate information available to the audience about the analytic reasoning process and the judgement of the degree to which the analysis is grounded within the data.

ID is intended to expand beyond what a person might 'see' in his or her situation and allowed me to understand commonalities within a range of phenomena. While Kvale (1994) argued that going back to participants for 'member checking' might be useful to enrich the data only, and some researchers believe it is necessary to ensure validity (Long & Johnson 2000), having the participants 'validate' the findings can be misleading (Sandelowski 1993; Thorne, Kirkham & O'Flynn-Magee 2004). The finding according to these researchers is nothing more than the meaning constructed by me with my own sincerity. This is in line with what Hammersley (1992) noted that no knowledge can be counted as certain, and the best that we can do is to seek a means of judging claims to knowledge in terms of their tentative truth.

Ethical Considerations

As qualitative inquiry involves human beings and their experience as participants, there were basic principles that I considered in undertaking the investigation (Morse & Richards 2002). First, the principle of 'beneficence' where participants must not be harmed and their physical, social and psychological welfare should be protected; second, the principle of 'autonomy' where informant participation should be voluntary and informed; and last, the principle of 'justice' where participants should be assured that confidentiality will be upheld and that they will be treated with dignity and respect. In clinical research, where community-dwelling families are involved as participants, there should be balance between the risk of participation and the possibility of proposed benefit for participants (UTS Human Research Ethics Committee 2008).

This section explores the ethical issues in qualitative methodology incorporating the principles of respecting human beings, research merit and integrity, beneficence, and justice (NHRMC 2007). As well, it discusses ethical dilemmas that presented in the project, particularly in relation to informed consent, data generation, participant-researcher relationship, and publication.

Informed Consent

Respect for human beings entails giving due scope to people's capability to make their own decision (NHRMC 2007, p. 16). In the research context, the decision to participate should be made by participants. Informed consent is the acknowledgment of the notion of participants as self-governing persons with decision-making capability (Carpenter 2003). It is strongly associated with the principle of autonomy where participants have to voluntarily participate in the research (Munhall 2001b). Informed consent also allows the participants to be exposed to adequate information regarding the research in which they agree to participate. The information provided for the consent comprised the title, purpose, and explanation of the research and the procedures to be pursued and the implications of participation in the research (Munhall 2001a; NHRMC 2007). The potential risk and benefit also have to be clearly illustrated. A statement that participants have an opportunity to ask questions and that they are free to withdraw at any time is also included. This is important in a study involving recipients of health care so that participants do not feel compelled to be involved because of a concern that they may miss opportunities for treatment.

In qualitative inquiry, a researcher needs to evaluate the involvement of participants at several points throughout the research (Labaree 2002). Munhall (2001b) stated that because a qualitative study is undertaken in an ever-changing field, informed consent should be an ongoing process. Over time, consent needs to be renegotiated as unanticipated events or consequences can take place. At all times participants need to be reassured that they may withdraw from the study without any negative impact on their care to guard against the risk of coercion.

In this study, informed consent was obtained from family members and the PHCWs, who were involved in interviews and participant observation and focus group discussion. An information sheet provided explanation about the potential risks, benefits and research procedures to the participants prior to their involvement in the study. As well, the participants were informed regarding the codes of ethics which include the rights of informant privacy, dignity, confidentiality, and care to avoid causing personal harm (Munhall 2001b). It was

explained that the risk of harm to participants is considered minimal. However, the possible risk would be psychological distress or embarrassment as they were subject to observation. Another risk was a sense of vulnerability as they are subject to interview, particularly to some sensitive questions regarding PHCWs' practice.

In a case of any literacy problem where written consent could not be obtained, verbal consent was sought. In this consent, the participants were informed about the procedure of the study, and they were offered the opportunity to participate in the study. These conversations were recorded. The participants were asked to reaffirm their consent to continue to participate in the study each time they are approached.

Sensitive Issues Concerned with Data Collection

To ensure that the data collection could commence, ethical clearance was obtained from the authorised committee. I applied for ethical clearance from the UTS Human Research Ethics Committee. After the application was examined and approved (Appendix 8), the approval from the in country ethics committee, which was held at the Faculty of Nursing, University of Indonesia, was sought. Once the approval was obtained (Appendix 9), I commenced data collection.

As noted earlier, a set of data collection techniques were utilised to generate the data. In qualitative methodology, the researcher is the tool of data collection (Bulpitt & Martin 2010), and as such, comes to know participants as part of a person-to-person relationship (Carpenter 2003). The intensive nature of the researcher-participant relationship may impose unique constraints and raise distinct ethical issues for the researcher (Eide & Kahn 2008). As introduced earlier, the boundaries of relationship may become vague and blur as the research progresses, and role confusion may occur (Bulpitt & Martin 2010; Carpenter 2003). When participants confused my role with that of counsellor, therapist or PHCW/caregiver, and unrelated issues of concern emerged, the protection of participants' welfare always took priority over the research (Eide & Kahn 2008; Munhall 2001b). The potential for role confusion had been anticipated in the study as I was working with PHCWs to observe families. I was

also aware of any biases because of the close relationship in participant observation (Labaree 2002). Reflecting after each interaction was considered vital to avoid biases and ensure an objective or *etic* perspective (Bulpitt & Martin 2010).

Interview is another data collection technique that may pose ethical dilemmas, particularly in relation to sensitive and personal questioning (Bulpitt & Martin 2010). In the study, sensitive questions regarding a family's practices and their perception on the implementation of CCM might be perceived as challenging a family's belief system as well as their understanding of the disease and its treatment. Similarly, working with PHCWs and interviewing them after care-giving events could lead to a sense of vulnerability, as they feel exposed to criticism. Working with both of these groups of participants has required sensitivity and tact and it was important to convey a sense of curiosity and authentic desire to understand without any intimation of being judgemental. I offered participants a follow-up after each interview if they wanted to debrief, and provided a contact for additional help if needed (Carpenter 2003).

Reporting the Research Data

In reporting and publication, one of the issues that might arise was related to confidentiality. Although confidentiality of the subjects is often a requisite in a study, sometimes individuals and groups allow themselves to be identified (Munhall 2001b). The understanding about confidentiality was clearly noted in the participant information sheet and informed consent form.

Summary

This chapter has defended the use of ID as the appropriate methodology to understand CCM implementation in Indonesia from the perspectives of PHCWs and families. The key argument underpinning this methodology selection is the feature of ID that acknowledges the contextual nature of the data and guided me to focus on, and engage in, the intellectual processes, which was the foundation to qualitative data analysis. The approach also assisted me to assimilate existing knowledge about the implementation of CCM in other contexts, as well as gaining

insight into the context and experience of the implementation of the model from participants, and its impact on their health and their practice. The approach was also aligned with my role as a nurse and acknowledged the nursing praxis orientation of the dialectic between practice and knowledge. As a result, the findings of this research might have a considerable impact and value for transforming the everyday practice world, ensuring immediate relevance to child health at community level in rural Indonesia.

ID has allowed me to use various methods for data generation in order to gain deep understanding of how CCM was implemented in such rural areas in Indonesia. The data was analysed and is illustrated in a rich description in the findings chapter.

Chapter 4 - Findings

This chapter presents the findings of the study including the characteristics of the participants who were mainly PHCWs (nurses, midwives and CHWs) and families. Also presented is the range of identified themes such as: improved family wellbeing; enhanced PHCW's practice; barriers to CCM implementation; enablers of CCM implementation; and cultural influences. The study aimed at gaining an understanding about the implementation of a CCM model in Indonesia from both the families' and primary health care workers' perspectives.

Participant Characteristics and Themes: An Overview

As previously identified in Chapter Three, a range of data from a number of sources were analysed to substantiate the themes. The sources of data include: interviews with key informants, primary health care workers (PHCWs), and families; observation of PHCWs and families during home visits (field notes); a focus group discussion with PHCWs; and the analysis of documents related to CCM implementation (CCM guidelines, implementation reports, district health office reports, and MCHIP initial assessment). The characteristics of participants is summarised in Table 4.1.

Table 4.1 Characteristics of participants

Characteristics of participant	Key informant (N=6)	Program supervisor at *Puskesmas* (N=3)	Primary health care worker (N=15)	Mothers (N=7)
Sex				
Male	3		2	
Female	3	3	13	
Age (years)				
18–27	1		5	3
28–37	1	2	7	3
38–47	3	1	3	1
47+	1			
Education level				
None				2
Primary (1–6)				5
Secondary (7–12)			3	
Academy/ University	6	3	12	
Occupational status				
Medical doctor	5			
MCHIP district program manager	1			
Nurse		1	7	
Midwife		2	4	
CHW			4	
Housewife				7

Table 4.1 describes the characteristics of participants. Of the six key informants, five were medical doctors, whereas the program supervisors had a nursing/midwifery background (See Table 4.1 and Table 4.2 below for a further breakdown). The PHCWs were predominantly female and relatively young (aged 18 – 37), some of them had just graduated from nursing/midwifery school. Among the PHCWs, nurses and midwives graduated from an academy education, while most CHWs had a secondary education background. All mothers participating in the study were housewives who mostly had primary level education.

CCM was implemented in 17 villages in six subdistricts of the Kutai Timur district. PHCWs from 12 villages and mothers from five villages across the six subdistricts participated in the study. The distribution of participants across the level of organisation is illustrated in Table 4.2 below.

Table 4.2 The distribution of participants across organisation

Organisation	Key informant	Program supervisor	PHCW	Mothers
MCHIP	3			
Ministry of health	1			
District health office	2	1		
***Puskesmas*/Subdistrict Kaubun**		1	2	1
***Puskesmas*/Subdistrict Teluk Pandan**		1	3	3
***Puskesmas*/Subdistrict Sangkulirang**			3	2
***Puskesmas*/Subdistrict Kaliorang**			4	1
***Puskesmas*/Subdistrict Rantau Pulung**			1	
***Puskesmas*/Subdistric Bengalon**			2	
Total (N)	**6**	**3**	**15**	**7**

The data were subjected to a thematic analysis as outlined in the method chapter to develop the findings presented in this chapter. Data was obtained through the continued process of fieldwork, through immersion in the context as participant observer. In the analysis, the data were reviewed, sorted and classified to identify themes. Five themes were identified across the data. These themes include: improved family wellbeing; enhanced PHCW's practice; barriers to CCM implementation; enablers of CCM implementation; and cultural influences. The themes all reflect a cultural perspective bound by the beliefs and practices of the PHCWs in implementing CCM and the families in receiving care in the Kutai Timur district, East Kalimantan, Indonesia. The themes are summarised in the Table 4.3 below.

Table 4.3 Themes distinguishing the implementation of CCM in the Kutai Timur district from families' and PHCW's perspectives

Theme	Sub-theme
Improved family wellbeing	Locally accessible health care Mothers' satisfaction with the model of care Compliance with care protocols Improved health literacy
Enhanced PHCW's practice	Family and child health knowledge Professional confidence and motivation Structured clinical intervention (according to the CCM protocols) Development of clinical reasoning

Theme	Sub-theme
Barriers and constraints to CCM implementation	Terrain and transport Distribution logistics Communication barriers Poor reporting and documentation Inadequate supervision and monitoring Role confusion Inadequate financial and human resources Community awareness
Enablers of CCM implementation	Access to transport Coordination meetings Integration with existing programs Refresher course and self-directed learning Program promotion and stakeholder involvement Innovation
Cultural influences	Involvement of CHW Redistribution of tasks Preference for traditional birth attendants Traditional beliefs and practices

In this chapter, each theme is discussed in a separate section along with the subthemes that substantiate the theme. These themes are presented along with excerpts of data to support the findings.

Improved Family Wellbeing

The section presents how the implementation of CCM reportedly impacted upon families' wellbeing. This theme is mostly generated from interviews with mothers as the care recipient of CCM. Interviews with PHCWs and observation of their practice during home visits also resulted in the identification of data that was coded under this theme. All participants affirmed that the CCM program has resulted in better access to care, increased mothers' satisfaction, increased families' compliance with care, and improved mothers' health literacy. These improvements have all contributed to a reported change in the participant family's wellbeing. The theme and subthemes are illustrated in Table 4.4.

Table 4.4 Improved family wellbeing

Theme	Subtheme
Improved family wellbeing	Locally accessible health care
	Mothers satisfaction with model of care
	Compliance with care protocols
	Improved health literacy

Locally Accessible Health Care

In CCM, PHCWs provided health services at community level through family visits. As a result, the service was closer to the community and families could get better access to care. A supervisor at the district health office noted that CCM has "made for a wider scope of health service and the care was coming closer to the community". This is in contrast to IMCI[8]. CCM required PHCWs to be more active to carry out community work "In IMCI, we are waiting for patients in the facility, but with CCM, we become more active going into the community" [PHCW - nurse participant].

Better access to care was also confirmed by mothers. One mother participant said, "with the presence of a nurse and midwife (PHCWs) in our village, the service becomes closer and it is easier for us to get health services". Since the new service started and PHCWs were available in the villages with CCM services, mothers said they did not need to take their sick children to town for care. A mother participant said:

> I am satisfied ... with the nurse and midwife here, it is easier for us to get service ... we used to go to (local town) when we need a medical service for our sick babies ... it now becomes easier ... (to get service) was not difficult ... very convenient and close. [Mother participant]

This indicates that the service provided by PHCWs has met families' expectations and aligns with one of the CCM intermediate outcomes (CORE Group et al. 2010) as outlined earlier in the introduction chapter, which is to improve the community's access to care.

[8] Integrated Management for Childhood Illnesses (IMCI) – the facility based medical model that was used by *Puskesmas* (community health centre) to address childhood illnesses.

As a consequence of the accessibility of care provided by PHCW to the community, the needs of families for health services can be met in their home location. From the perspective of PHCW participants, the need to refer patients to *Puskesmas* had lessened as the health workers felt they were better skilled to provide the correct intervention to sick babies in the village. This is supported by a PHCW participant who said:

> I now have more knowledge ... before CCM existed, when I found a baby with low birth weight and infection, I always referred them to *Puskesmas* ... but now I know how to manage the case at home without referring them to *Puskesmas*. [PHCW – midwife participant]

A similar account can also be seen in another village with a PHCW (nurse) saying that they could "handle the case at home before sending the patients to *Puskesmas"*.

Mothers' Satisfaction with Model of Care

Following CCM implementation in the village, mother participants gave positive feedback indicating that they were satisfied with the care delivered by PHCWs and that their needs were being addressed at the household level. A mother demonstrated this by saying that she was "satisfied with the visit" made by the PHCW linking her satisfaction to the skill and knowledge of the PHCW. Knowing that the PHCW had been trained with a new skill, a mother showed her excitement that the intervention given by PHCW had impacted positively on herself and her baby. She said: "it is very good and I am really happy ... because the midwife had directly applied the knowledge that she'd got from the training to my baby and me".

One of the reasons why mothers were satisfied was because they believed they were getting more attention from the PHCWs. One mother reported:

> It is better now ... in the past ... when we went home from hospital after a birth, nothing happened ... no one gave attention (to me and my baby) except my neighbour. Now I am visited by the midwife and CHW ... I am so happy .... [Mother participant]

The feeling of having a better connection with the mother was also experienced by PHCWs indicating that their interaction with mothers had enhanced PHCWs–

mother relationship. PHCWs felt the frequent home visits made them closer to the mothers. This was evidenced by a PHCW (midwife) participant who said: "We feel closer to mothers now ... we get used to communicating with mothers more intensively". A PHCW (nurse) participant noted "... the community has trusted us more ... because they have got more attention from us".

The other factor that contributed to mothers' satisfaction was that the intervention given by PHCWs was successful as it worked for them and their babies. Three mothers with low birth weight babies reported that their babies' weight increased significantly within a few weeks after applying the Kangaroo Mother Care technique (the technique that is outlined in the CCM protocol to address low birth weight) that had been suggested by the PHCW.

Compliance with Care Protocols

PHCWs' periodic visits to the mother had improved the mothers' compliance with treatments. I observed this during a follow-up visit made by a PHCW (midwife) to a mother with a baby that had an eye infection. The PHCW asked the mother what she had done at home in terms of medication administration to the baby since the previous visit. It was determined that the mother undertook the procedure as suggested by the PHCW and the PHCW noted that the baby's health had improved. In the interview following the visit, the PHCW said:

> ... and we can monitor the mothers' compliance with treatment because the mother is the one who gives the medication to the sick baby at home ... we can ask the mother (how the medication was administered). Before CCM (was implemented), we had never known how the follow-up care at home was (by mother) ... we couldn't monitor. [PHCW – midwife participant]

Health Literacy

Mother participants reported that their understanding around child health had improved following the CCM implementation. The PHCW's visit had enhanced the mother's learning experience so that they were prepared if a recurrent or similar health issue affected their baby or another in the community. This was demonstrated by a mother who said:

> This is new experience that I can share with my relatives ... in case I have a new baby with low birth weight again (in the future); I know what to do ... This is really good because I have never received service like this before. [Mother participant]

The fact that the mother's skill about how to deal with sick babies had improved could be found when I visited a family whose baby suffered from low birth weight in a village. The mother demonstrated how to do the baby care - Kangaroo Mother Care method and this directly corresponded with the information that was outlined in the CCM protocol.

This section of the chapter has highlighted how the participants' reported that the CCM implementation has changed families' wellbeing. Besides making a change to families' wellbeing, this study also found that CCM implementation has impacted the PHCW's practice and this is discussed in the subsequent section of the chapter.

Enhanced PHCW's Practice

This section illustrates how PHCWs perceived the introduction of CCM in the district made a difference to their practice. It describes how the CCM training was conducted and the reported impact of the training on PHCW's practice. Included in this theme were: enhanced family and child health knowledge, which was reported as resulting in increased professional confidence and motivation, structured clinical intervention and developed clinical reasoning. The theme and subthemes are described in Table 4.5.

Table 4.5 Improved PHCW's practice

Theme	Subtheme
Enhanced PHCW's practice	Enhanced family and child health knowledge Professional confidence and motivation Structured clinical intervention (according to the CCM protocols) Development of clinical reasoning

Enhanced Family and Child Health Knowledge

Prior to CCM implementation in the Kutai Timur district, a series of training workshops were initiated by the MCHIP program manager involving selected staff from the district health office and *Puskesmas*. The first workshop was to train the trainer. These nominated 'trainer' people then became the program trainer and supervisor in the district. They in turn trained other PHCWs at village level. One supervisor reported, "firstly, we were trained to be facilitators at district level, after that our colleagues at subdistrict *Puskesmas* were trained and they then implemented at the village level". The training of villages' PHCWs was followed by a competency examination.

The purpose of the examination was to determine whether the trainees had met the objectives of the training. The examination also provided feedback to trainers on other learning needs that the trainees' might have. A supervisor participant highlighted that "actually the test is not to assess them; we just want to know what the problem is for them in implementing the program later in the field". This indicates that the trainers were clear about the importance of the examination.

PHCW participants revealed that the training made differences to their practice. They stated that their knowledge about newborn health had enhanced following the training. One PHCW (midwife) noted that, "after the training, I knew better (about) how to deal with a newborn baby and what to do with a baby suffering from infection". The increase of PHCWs knowledge about newborn health was also reported by another PHCW (nurse) who said: "The obvious thing is we get more knowledge". Not only did PHCWs' knowledge about babies with infection

increase, but also their understanding about low birth weight babies. This is demonstrated by a PHCW (nurse) participant who said: "I have got more knowledge ... yesterday we got a baby suffering from low birth weight, and I knew what to do with it".

Professional Confidence and Motivation

The increase of PHCW's knowledge resulted in a reported increase in PHCW confidence in delivering clinical interventions as reported by a PHCW (CHW) participant following her visit to a mother. The participant said, "I have got more knowledge and become more confident in doing counselling to families ...". The confidence increased when the intervention they gave to a family was successful, as mentioned by a PHCW (nurse), "... I become more confident ... particularly when we give medication and it works."

A participant who was the supervisor at a district health office believed that following the training, most of the PHCWs were competent and were able to implement the program. The supervisor believed that "PHCWs in the field can do this program ..." and believed that "the PHCWs in *Puskesmas* and villages were motivated and enthusiastic after being trained and were willing to implement the program". The enthusiasm of the participant in implementing the program was also seen when they were in the training and when they undertook home visits.

The Structured Clinical Intervention

Besides increasing PHCWs' knowledge, professional confidence and motivation, the training was also described as affecting how PHCWs provided clinical intervention. They stated that they felt more guided in delivering clinical intervention and, as a result, the home visit had become more structured and the healing process was easier to monitor. A supervisor said that "although they (PHCWs) already had knowledge (about newborn health), with the training they seemed to be more guided (because) the procedure looked simpler". A PHCW (nurse) agreed with this saying that "the home visits we make are now more structured". With the structured home visit, PHCWs were able to monitor the healing process of sick babies and see the outcomes of their treatment plans, evidenced by a PHCW (midwife) who noted:

> … in CCM, the visit for baby with local infection is five days ... and after three days there will be another visit ... so that is the difference (with previous the approach) ... we can see the healing process. With this new approach, I think it is getting more and more controllable. [PHCW- midwife participant]

The curriculum in CCM training was arranged in such a way that the PHCWs were able to assess, diagnose, intervene, and evaluate babies in a straightforward manner. In undertaking home visits, the PHCWs were equipped with a resource, which consisted of a printed reference card with step-by-step guidance for the assessment, diagnoses, and treatment of babies with various health conditions, including essential newborn care for healthy babies and antibiotic administration for sick babies. The guidelines on the cards are illustrated with colourful pictures and large letters so that the PHCWs can easily understand them. In the intervention section on the card, the information on medication that the PHCWs should give includes the type of antibiotic, the dose and the administration of the medicine. This guideline made it easier for PHCWs to provide more structured care to the family, which in turn increased their confidence in delivering care.

Development of Clinical Reasoning

In addition to being more guided in delivering structured clinical interventions, the PHCWs reported that their clinical reasoning in assessing and evaluating sick babies had developed following the training. A PHCW (nurse) reported that:

> CCM intervention is depending on the level ... ehmm ... there are various levels ... each level has got different interventions ... for babies with normal conditions, with local infection and severe infection ... so we will do the intervention based on the level ... [PHCW – nurse participant]

From the interview following a home visit, a PHCW demonstrated an understanding about the diagnosis based on what was outlined in the CCM protocol, the PHCW (nurse) conveyed that:

> … the mother reported that the baby's umbilical cord was bleeding, so I immediately came (to visit the baby) ... we took the temperature ... it was good: 36.1 C ... and we assessed the body, there was no pustule (signs of infection - red swelling spot on the baby's skin), and she concluded that the baby was not classified as sick/infected. [PHCW – nurse participant]

Despite the improvement of PHCW's clinical reasoning capacity in diagnosing a problem, participants showed that they still incorporated their prior knowledge and experience to make a clinical decision. In an interview, a PHCW participant reported that she was judged to have given the wrong answer on how to intervene with a baby with symptoms of a severe infection as shown on a video in the competency test. The participant explained her justification of why her answer was different from what is outlined in CCM protocol:

> I think it was classified as an emergency. The baby experienced chest indrawing, she was also groaning ... it was clear that there is something wrong with her respiration ... Usually what we did was address the breathing problem first. But in the CCM procedure, we have to address the infection first then we refer if there is no change. In hospital we had to focus on respiration first, impossible to give Cotimoxazole or Gentamicyn (antibiotics) first ... that is the difference. [PHCW – nurse participant]

In this case the previous knowledge influenced how the PHCWs clinical decision was made.

Some PHCWs implied that CCM was strongly medical in approach, which sometimes seemed at odds with the nursing/midwifery approach. Three PHCWs (two nurses and one midwife) mentioned that their main role in delivering CCM was to diagnose a medical problem and to give medication. Whereas as a nurse and midwife, the participants noted that their orientation is to help patients in obtaining their basic needs. However, PHCW's realised that administering medication was part of the role of being the health worker in an assigned village, as noted by a participant: "For us as midwives, we do have competency standards ... but we are in a village ... sometimes we have to do medical treatment".

Despite the positive outcome of CCM implementation on families and PHCWs, participants highlighted a number of barriers that impeded the implementation of CCM therefore affecting its successful delivery. This is illuminated in the theme in following section.

Barriers and Constraints to the Implementation of CCM

In this section, a number of factors are discussed that participants reported to be barriers and concerns that impeded CCM implementation. These are illustrated

in Table 4.6 below. The barriers and constraints identified by the study participants include terrain and logistical factors such as the availability of transportation that when combined with poor communication between the various levels of project personnel (in the villages, *Puskesmas* and district health office) affected access to medicines. Also reported as concerns and barriers were: inadequate written reporting and documentation; poor supervision and monitoring of the program implementation; role confusion concerning the administration of antibiotics; and inadequate financial and human resources to deliver the program. All PHCW participants also perceived as a challenge the lack of community awareness of the program and the care available to the project participants.

Table 4.6 Barriers and constraints to CCM implementation

Theme	Subtheme
Barriers and constraints to CCM implementation	Terrain and transport Distribution logistics Communication barriers Poor reporting and documentation Inadequate supervision and monitoring Role confusion Inadequate financial and human resources Community awareness

Terrain and Transport

According to the PHCWs, the physical geography of the Kutai Timur district, particularly the subdistricts of Kaubun, Rantau Pulung, Kaliorang and Sangkulirang, was very difficult terrain to negotiate in order to conduct home visits. Although the main road in the capital district was sealed, most of the roads in the villages were dirt and became very dusty in dry weather. When the weather was wet, the roads became slippery and muddy so that it was difficult to conduct home visits with any form of motor vehicle. This was substantiated in a focus group discussion, where all PHCW participants expressed difficulty in accessing mountainous, slippery and wet areas to make visits. One PHCW (midwife) stated: “my main problem is the geographical access. It is worse if I am not here (available) and there is a birth ... but I can handle it so far”. This is also

supported by a PHCW (CHW) who stated: "... the challenge is the road ... the family's home is not too far from my place ... but the road is really terrible ... let alone when it is raining ...".

The difficulty making home visits due to the poor road infrastructure was exacerbated by the absence of public transport in villages. Some PHCWs highlighted the absence of transportation as the main barrier to home visits. In villages, most people relied on motorbikes for transportation. Not all PHCWs in villages had a motorbike. One PHCW (midwife) participant noted that if a birth occurred, a family member had to pick them up and take them to the new mothers' home. Another PHCW reported using a partner's motorbike to conduct home visits. The problem was that if the partner was using the motorbike, then it was not possible to make a home visit.

Travelling from one place to another is expensive in the district. This is associated with a number of factors. Firstly, in some villages the price of petrol can be twice the price set by the government. The high price of petrol is due mainly to the lack of petrol stations operating in the area; and the repackaging of petrol in small cans and bottles sold in small shops along the road. Petrol availability was dependent on petrol deliveries from the district capital city. Secondly, some villages are inaccessible to conventional transport for petrol deliveries as they are geographically separated from the main island by a sea strait or by rivers. In this case, to get to the villages from the *Puskesmas*, people needed to get a boat, which was very expensive. I met a family in one of the *Puskesmas*, who were bringing their sick son to get medical help. They said that while it might be a free service at the *Puskesmas*, to get there required spending a lot of money to hire a boat. It can cost Rp.750,000 (approximately AUD75.00) to hire a boat to travel between villages and services, which is very expensive when considering the local community income standards. According to Kutai Timur Statistics (2011), the average household expenditure in the district is Rp.778,503 (approximately AUD78.00) per month.

Safety while travelling was also a concern in some villages. Because of the poor condition of the roads accidents often occurred. One participant could not attend

the focus group I conducted because she fell off her motorbike on her way to the interview. I also witnessed several motor accidents when I travelled to the community. Moreover, several of the study villages were subject to threats from wildlife such as crocodiles, monkeys and orang-utans. I witnessed a dead body being retrieved from a river after the person had been attacked by crocodiles. A group of wild monkeys was also seen crossing the road while on a visit to a village to gather data for this research.

Distribution Logistics

PHCWs reported that they would function as expected by PHCW protocols if they were equipped with the required resources. The lack of availability of medicines required in the delivery of CCM, as well as the logistics for acquiring them was perceived by participants to be a barrier to implementing CCM. The participants stated that the logistics to distribute the required CCM program resources, such as forms and registers, classification cards, scales and medicines, were not in place. As noted in the CCM protocol, the medicines that are required for clinical interventions are Tetracyclin ointment, Gentian violet 0.5%, Gentamycin injection, and Cotrimoxazole paediatric tablets. Based on my own observations in all *Puskesmas* and informal conversations with the heads of these services, almost all of the *Puskesmas* had received the Tetracyclin ointment and Gentian violet 0.5%, while the Gentamycin injection and Cotrimoxazole paediatric tablets were not made available. Cotrimoxazole for children was available but in the form of a syrup. Medicine in the form of syrup is not suggested in CCM protocols, as it needs to be stored in a refrigerator. Not all families have a refrigerator, as electricity is not available in all villages.

Unclear communication between villages, *Puskesmas* and district health office was suggested, by PHCWs, as the reason why some medicines were not available in several *Puskesmas* and villages. A supervisor at the district health office mentioned that the procurement by the district health office would rely on monthly *Puskesmas* requests, while the *Puskesmas* would rely on requests from villages for medicines. However, a PHCW participant at a village said that they

would wait for medicines they had requested from the *Puskesmas* that never came.

Communication Barriers and constraints

The problem of communication occurred not only in the provision of medication but also in the coordination of CCM across the various levels of administration reported by participants. In the district health office, for example, there was unclear communication between the program manager and program supervisor. The program supervisor felt unable to communicate well with the program manager. The program supervisor conveyed that the program manager did not engage well in the program implementation stating that: "we had a number of meetings and the program manager has not been with us. But perhaps because we have been trained the manager just let us go". The program supervisor concluded that it was probably because of a breakdown in communication. This indicated that there was an expectation that the program manager be more engaged in the CCM implementation and that they communicate regularly with the relevant personnel.

Communication concerns were also expressed by a PHCW (midwife) participant in a village. The participant was relatively new in the village and there was a senior nurse who had been assigned to the village and had worked there for years. The participant said:

> It is challenging to speak and coordinate with the senior nurse. I am expecting to get clarity and clear guidance from the senior nurse about 'who does what' in the village, but could not get any clarity ... I believe there is a communication problem. [PHCW – midwife participant]

According to the participants, poor communication was the result of the lack of available communication modalities. People relied mostly on verbal communication via the phone, text messaging and mobile messenger (Blackberry messenger and Yahoo messenger). The lack of a regular electricity supply and computers meant that the Internet was not always available in *Puskesmas* and villages. Despite each *Puskesmas* having at least one computer for administration purposes, electricity was not available during the day. Additionally, people are not able to use the postal service, as it does not reach the subdistrict level.

The communication between PHCWs and supervisors in *Puskesmas* and district health office relied on verbal communication via the phone. One participant (nurse) said that communication was "so far … exclusively by phone only". Another PHCW stated: "I still communicate verbally with the people here". A PHCW (nurse) in another village said that the:

> … supervisor at our *Puskesmas* sometimes rang us, asking how the CCM is going, (and) used to ask about cases and registers ... (but) has never come for supervision ... the mobile network is not a problem here. [PHCW – nurse participant]

The reliance on verbal communication was also confirmed by a supervisor at a *Puskesmas* who said, "it was only verbal conversation".

Despite the reliance on verbal communication among the program implementers, CCM required that supervision processes be documented via observation, documentation and interviews with PHCWs and supervisors. PHCWs in villages reported cases to the supervisor at subdistrict *Puskesmas*. The reports from villages were then compiled at *Puskesmas* to be passed on to the supervisor at the district health office.

The reliance on verbal communication on the phone could also make the coordination between levels of health administration weak. As outlined in the finding, a supervisor at the district health office tended to directly make contact with PHCWs at village level without informing the supervisors at *Puskesmas* because it was easier and faster. This sometimes resulted in confusion for supervisors at *Puskesmas* to coordinate with the PHCWs in the villages. A similar story was evident in medicine provision, resulting in a supply shortage of medicine in villages. As outlined earlier, PHCWs did not receive the required medicines in their villages while they had requested it to the *Puskesmas,* which should have been passed on to the district health office. The office, on the other hand claimed that they did not receive any requests from the *Puskesmas*.

Poor Reporting and Documentation

The need for written reporting and documentation was reported as an issue by participants. A program supervisor at district level expressed concern that written documentation was poor in the program implementation, and that "... one of our weaknesses is we have no documentation." The supervisor noted that there is a need for written reporting and documentation for the program implementation so that it can be effectively evaluated:

> ... and we need evidence, which is documentation such as a written report. I would say that the program would be effective if it is proven by an effective report. We could monitor the reports. There should be tools, checklists ... that is very important ... even me I cannot ensure whether it meets the standards if we don't have any tools. Checklists make it easier to evaluate. [Supervisor participant]

The presence of an adequate written report was also perceived as crucial for program planning, as the supervisor noted "... to make the plan we have to have data. For CCM we do not have any data ... so there is no evidence".

Although it was realised by the participants that appropriate reporting is essential for CCM implementation, proper reporting and documentation did not occur. According to the PHCW participants, there were at least three main reasons for why this problem occurred: lack of availability of reporting documentation forms in villages; some PHCWs perceived that the forms were difficult to complete; and PHCWs felt that writing documentation was a burden as there were many forms to fill.

A key factor affecting the written elements of the program was the lack of the necessary paperwork for program documentation. The forms that were supposed to be used to produce the report were not adequately distributed to PHCWs in villages. As noted by one participant, "the forms have not been distributed yet" because there were no logistics to support the distribution of such documentation and forms to villages. As mentioned earlier, reporting and documentation forms were distributed together with other logistics. The forms were printed in Jakarta (the country's capital city on Java Island) by MCHIP and were shipped to the district. Once the forms were received by the MCHIP office at

the district, they were to be distributed by staff that had reason to visit subdistricts or villages with MCHIP transport. There was no standardised mechanism for the supply logistics to PHCWs in villages. This situation was exacerbated by the fact that using a car was the only option to distribute all the forms, as there was no post service available in the villages. In the absence of official forms from MCHIP, there was an interesting finding that some PHCWs used their own notes to document what they had done in villages. One supervisor noted that this effort should be appreciated as it would be beneficial for them in terms of keeping them informed of the history of implementation. This would also be beneficial for the program to ensure that the process of implementation was recorded for program planning in the future.

Some PHCWs reported that they found that the forms were difficult to fill in, even though the MCHIP program manager noted that the forms had been designed in an easy and practical way to be filled in by PHCWs in villages. Although reporting and documentation had been taught in the training, the program manager agreed that most of the forms were completed inaccurately by PHCWs, with the result that reports were poorly completed and the information was not reliable.

The PHCWs who had the forms from the training modules found them difficult to fill. One participant (CHW) noted, “frankly speaking my problem is how to fill in the register ... what I do is I write the report in my own notebook”. There was also confusion of who writes what, evidenced by a PHCW participant (CHW) who noted “the midwife has got a form ... I (CHW) also have the same form ... I don’t know what she writes and she doesn’t know what I write ...”. When I saw the register forms filled in by both the midwife and the CHW, I observed that they reported the same visit to the same mothers on the same occasion. I also witnessed a similar event in another village.

The other issue with reporting and documentation was that PHCW participants perceived this task as a burden. With a number of programs running in the district, the documentation became overwhelming as each program required documentation and a report using similar information in a repetitive way. PHCWs had to make multiple reports for different programs although the object

of the report was the same. In one visit to a family following a birth, a PHCW (midwife) should make reports for different programs such as CCM, newborn visit, mother visit, and immunisation. While the target of all programs is the same (mothers and children), each program has its own reporting and documentation system that the PHCW must complete. In addition, they had to make the reports for different levels of administration. A PHCW (midwife) complained that, "for the report and documentation, we have to make for *Puskesmas* as well as for village ... so every visit has got two reports ... for the same targets we have two separate reports". Another PHCW stated that, "... the report is different ... there is a monthly report like that in IPNC (Integrated Postnatal Care) ... there is also another report like CCM ...".

Inadequate Supervision and Monitoring

Supervision and monitoring of PHCW practice is part of CCM implementation that is required by the CCM protocol. As outlined in the protocol, supervision should be completed by supervisors at the district health office and *Puskesmas* to PHCWs in villages on a regular basis. This aligns with PHCW participants' expectation that supervision and monitoring is a crucial process and should be done as required. A supervisor suggested, "it is very important because it is related to good practice". It was also suggested that, "supervisors at *Puskesmas* level ... they should check at least every week". Another supervisor stated, "... the monitoring, it could be two monthly ... depending on them. It is important to make it happen, not only to have a plan" but to actually follow through.

Having a supervisor come to visit villages to supervise and to see how PHCWs implement CCM was also reported as an expectation by a PHCW (midwife) at village level who noted, "we wish someone (a supervisor) would come down to the village, so we feel we get attention and we would receive feedback on what we have done".

A supervision scheme was established prior to CCM implementation. Two health personnel from the district health office and two from each *Puskesmas* were appointed to supervise in their subdistricts. They were trained in supervision and monitoring, including how to undertake field supervision, how to provide

feedback, how to fill in the form, and other related supervision processes of the MCHIP monitoring process. As noted in the CCM essential document, the main role of the supervisors was to ensure that CCM was implemented by PHCWs and the interventions met the required practice standards. The hierarchy of supervision was district health office supervised *Puskesmas*, and *Puskesmas* supervised PHCWs in villages.

While the supervisors agreed that supervision should be undertaken on a regular basis, some PHCWs noted that the implementation was not as they expected. The process of supervision was undertaken differently at the district health office and the six subdistrict *Puskesmas* that implemented CCM. One *Puskesmas* has started to undertake a supervision process. A PHCW (nurse) at one village said:

> The supervisor has come to supervise once. The supervisor came to our village to see how we visit the family. She didn't look at the documentation. She filled the register and left it at the village. [PHCW –nurse participant]

In most villages, PHCWs revealed that the supervisors had not physically come to monitor the implementation. The supervision process often occurred remotely, through phone calls. As noted by a PHCW (nurse) "there is no supervision in our village, but the supervisor sometimes rang us, asking if there are any problems ...". In a different village, a PHCW (nurse) mentioned that: "no one has come to supervise ... we have just been asked how it went ... we just go on our own ... so we just go and we make the report". In the remaining (four) *Puskesmas*, there was no evidence that the supervision occurred. One participant noted, "Apparently the supervision does not happen there". As the supervision process in the villages happened with verbal conversation on the phone as opposed to face-to-face, the supervisors and PHCWs did not complete all required forms. With verbal supervision, it was not possible for the supervisors to observe what the PHCWs had done so they were not able to provide feedback on performance and whether the PHCWs had met the competency. Similarly, the PHCWs had been left uncertain as to whether they had met the required standard.

At the district health office level, a supervisor noted that the senior manager hardly asked how CCM was implemented and the supervision provided by senior management was poor and further mentioned "so far we go with CCM, the senior

management has never asked us questions such as how CCM goes ... nothing ...". It is possible that the manager may have expected them to demonstrate a more independent approach to practice after receiving the CCM training. Whatever the issue that caused the discrepancy, expectations of both PHCWs and CCM around supervision were not met.

Given that there was no particular budget allocated for supervision and monitoring specifically for CCM and because CCM was a relatively new program that was not attached to any other existing program, supervision resources were limited. A supervisor noted that CCM supervision could not stand alone since visiting villages required extra effort and resources for *Puskesmas* staff. The supervisor suggested that utilising existing programs and combining the supervision with other budgeted programs would make it possible to resource the CCM supervision.

Role Confusion

In experiencing the implementation of CCM, participants noted that they were not sure about legal aspects of medicine administration. Participants were not clear if they had the authority to legally administer antibiotics. A PHCW (nurse) participant noted that "for the antibiotics administration in CCM, I don't know ... if something happened ... I am not sure whether we are permitted by law". This is supported by another PHCW (nurse) participant who said "I don't know ... therefore I am a bit ... ehm ... is it legal or not". PHCWs in villages were familiar with giving medication in their usual daily practice outside of the project. However, they were uncertain about their role as indicated by a participant who said:

> We do provide the service (giving medication to patients) besides CCM, but we get confused about that. I have asked about SIPP[9] (the permission letter for nursing practice) to someone in the Nursing Association, but the SIPP is only for practice in group with other health professionals ... and that is not for drug prescription". [PHCW – nurse participant]

[9] *Surat Izin Praktik Perawat* (letter of nursing practice license), a letter issued by provincial government for nurses to undertake nursing practice (Ministry of Health 2001).

However, the participants (nurses and midwives) felt confident and trusted by the community to administer medication as they were also the only ones who could administer medication in the village. A PHCW (nurse) stated that "because we are the only ones in the village, there is no doctor here ... the people here have trusted us". Moreover, they felt competent to administer medications as they had been trained and were familiar with the procedural standard as a PHCW said "we have no worries ... we have been trained in *Puskesmas* anyway". Another PHCW (nurse) also said, "I am worried if something happens after the antibiotics administrations ... but we feel safe because the standard procedure is there". In addition, a PHCW (nurse) participant noted that giving medication is a form of delegation from *Puskesmas* as "the *Puskesmas* has assigned us to be here to run the program at village level".

There was an issue where PHCWs were reluctant to administer antibiotic injections to babies due to family cultural objections, and this will be elucidated in a subsequent theme. CHWs were hesitant to administer medication as a CHW noted "there is a bit of worry ... let the nurses or midwives do the medication ... I don't know about the legal aspect". This further supports the lack of clarity around roles and responsibilities.

Inadequate Financial and Human Resources

Another barrier that impeded the CCM implementation, as perceived by participants, was a lack of financial and human resources. As mentioned earlier, there was no particular budget allocated by the district health office or *Puskesmas* for this program. The development of the program, including training and logistics, was supported by MCHIP's fund. As a result, PHCWs had to use their own personal funds to undertake a home visit. They believed that they needed a budgeted allowance to undertake a home visit.

According to initial assessment, the budget was realistically funded, in keeping with local demands and logistics. The district team problem solving document (the district assessment conducted by MCHIP and district health office) (Kutai Timur District Health Office & MCHIP 2011), states that in 2011, the money allocated to the project was more than Rp.40 billion (approximately AUD4

million), with 1.65% of that being allocated for maternal and child health. One of MCHIP's priorities in the district was to assist the local government in health development management, including budget utilisation, particularly in advocating to ensure that sufficient budget was allocated for maternal and child health area.

The distribution of health workers, particularly nurses and midwives in villages was claimed to be a concern by participants. Although the number of these health workers was not reported as problematic, participants confirmed that not all villages had a resident nurse or midwife. This resulted in difficulties for families who live in the villages to seek help from professional trained health workers when they needed one. Consequently, it was more convenient for some families to go to alternative health helpers such as *Dukun* (traditional birth attendants and traditional healers) that were more accessible to them. Of the 17 villages implementing CCM, five had neither a midwife nor nurse residing in the village: only a CHW. A PHCW posed a similar concern that there is a group of people in a village that it took hours to get to and yet there was no PHCW living the village.

Community Awareness

In addition to the barriers and constraints identified above, participants noted that there was a lack of community awareness of the CCM program that affected CCM implementation. PHCW participants in two villages reported that it was a challenge to engage people in community health related activity, therefore the program could not be appropriately run because "the people in this village are very hard to get to participate ...". In the village, the attendance of mothers at the *Posyandu* (monthly integrated health clinic), which had been identified as the best place to promote the mother and child health program, was reported to be very poor. The participant PHCW noted that of the 86 under-five-year-old children living in the village, only 12 of them came to the *Posyandu* in the month. A similar concern was also posed in another village by a PHCW (nurse) who said, "I think the awareness of the people here is very poor".

One of strategies used by PHCWs to find a new case was by screening the mothers and babies at the *Posyandu*. With this post activity, the PHCWs can

identify if there is a sick baby and pregnant mothers who are due to give birth so that a follow-up visit could be made. However, this strategy would not be effective when the awareness of the need for the family to attend the post was low as noted by PHCW participants. *Posyandu* existed in every village with scheduled dates in every month. Health staff from *Puskesmas* would notify the CHW when *Posyandu* was going to be held in their village. The CHW would then notify the mothers to attend the *Posyandu*.

A PHCW (nurse) participant reported that cultural factors were among the main reasons why the attendance of mothers was poor. Most mothers believed that their babies should not leave the house before they reached 40 days old. They also believed that they should not leave the home in certain weather. Taking into account this cultural issue is essential in developing such activities that tie to CCM implementation.

Lack of community awareness was also shown by minimal involvement of village stakeholders in health programs in villages, resulting in lack of funding support from village councils. According to PHCW participants, the head of the village presumed that *Puskesmas* and PHCWs are the ones who are responsible for health programs in villages, and therefore the funding should be allocated from the *Puskesmas*.

This section of the chapter has presented a theme of barriers to the success of CCM implementation as revealed by interviews, focus group discussion, field notes and some CCM related documents. Along with the barriers reported by the participants, they offered a number of suggestions to overcome the problems. This is presented in the subsequent theme in this chapter.

Factors that Could Enable the Implementation of CCM

Participants did offer remedial interventions to counter the concerns and barriers they identified and to improve their own practice so that CCM could run more effectively. The participants' suggestions to facilitate change in order to enable the smooth implementation of the CCM program are summarised in Table 4.7. These themes will be addressed individually below.

Table 4.7 Enablers of CCM implementation

Theme	Subtheme
Enablers of CCM implementation	Access to transport Coordination meetings Integration with existing programs Refresher course and self-directed learning Program promotion and stakeholder involvement Innovation

Access to Transport

In order to ease the problem of transportation in some villages, some participants suggested access to a motorbike would aid their visits. A PHCW (midwife) participant in a village said:

> It would be good if we are assisted by a motor bike ... so we have a vehicle to be mobile ... hope we'll get one from MCHIP ... it is almost impossible to wait for *Puskesmas* to give us one. [PHCW – midwife participant]

Another nurse participant indicated that there was a policy from *Puskesmas* that there are some motorbikes for PHCWs in villages for their operational purposes but the mechanism of the allocation was not clear, and said "I knew there were two new motorbikes in *Puskesmas*, but the ones who got them were new midwives in other village ... I don't know".

Regarding the terrain in some villages, which was perceived as the main barrier by the participants, there was no particular suggestion of how to overcome the situation. The only way to deal with the situation, as suggested by one participant, was not to do a home visit when it was raining. The importance of a safe approach to transport and visits could be included in the PHCWs educational training, certainly dealing with accidents and reporting dangerous roads.

Coordination Meetings

To enhance coordination between levels and overcome the problem of communication, participants suggested coordination meetings for the program implementers. A supervisor recommended that: "There is a need for meetings for PHCWs". A PHCW (midwife) also mentioned, "we might need to gather again if possible". In the coordination meeting, the job description needs to be discussed

so that the PHCWs get to be clear about what their tasks are, and as a PHCW (nurse) suggested they "need clearer job descriptions, so we know what we are supposed to do". This suggested the need for improved role clarity between the members of the health team delivering the CCM.

Integration with Existing Programs

The integration of child health related programs was proposed to ease the problem of multiple reporting within the same targeted service and thereby reduce the burden of PHCWs. A PHCW (midwife) participant mentioned that: "I believe that if related programs are integrated, it would be easier for us ... at least we don't have to make lots of reports". As has been mentioned in the previous section, there was concern about the burden of multiple reports posed by participants, thus the integration would address both over reporting and better use of resources.

The integration of related programs was also believed beneficial for the PHCWs, families and the program itself. A PHCW (midwife) participant stated:

> Actually, CCM can be integrated with other programs. In *Puskesmas,* there are several programs for mother and neonate visits. They are closely related and they would mutually benefit one another, also we don't need to make a lot of visits to the same mother for different purposes. [PHCW- midwife participant]

The MCHIP program manager suggested that the fact that these two programs coexist within the one district and are serviced by the same PHCW is an example of how important it is for the CCM to be integrated with other related programs. In the district the 'Midwives - *Dukun* (traditional birth attendants) Partnership' program[10] is also active and was promoted by the district health office with the support from MCHIP. In the program, *Dukun* in villages were identified and gathered by *Puskesmas*, and were endorsed to undertake safe practice as well as to work in partnership with midwives. According to the program, a PHCW (midwife) would be informed if a *Dukun* attended a birth so that an initial visit to the baby and new mother could be made by a PHCW. Further to the suggestion, the program manager noted that as more mothers chose to go to this traditional

[10] The program designed to engage *Dukun* in the maternal and child health program in the Kutai Timur district.

practitioner, it was important for PHCWs to foster a channel of communication with these health workers. The tendency for mothers to choose a *Dukun* to assist the birth will be presented in a subsequent section of this chapter (under the title cultural influence).

Refresher Course and Self-Directed Learning

To maintain the clinical competency of PHCWs and ensure they meet the service standards, participants proposed refresher courses. A supervisor suggested that "perhaps there should be a regular refresher course for the PHCWs". This was also supported by a PHCW (nurse) who mentioned "... there is a need for further training". In addition to that, participants also highlighted the importance of self-directed learning to improve their knowledge in delivering services to families. One PHCW participant found it was helpful to "read the training modules on her own, particularly before conducting a home visit". This self-directed learning was reported to promote health professionals' self-confidence, as a participant noted that "to be more confident, we need to do more self-directed learning".

Program Promotion and Stakeholder Involvement

In terms of promoting CCM so it could be understood, known and accepted by families, and to increase community awareness, participants suggested that program promotion and stakeholder involvement were really crucial. A participant noted, "there is a need for normalisation from the local government". Participants mentioned particular forums could be used by *Puskesmas* to communicate the aims and methods of the program to the community. These might be the regular meeting at the subdistrict level, with a participant (nurse) suggesting, "if there are events in the subdistrict such as meeting or planning something, they would invite the head of *Puskesmas*, that's where they can communicate ..." or the meeting at village level regarding other health related programs. A PHCW (nurse) said "for example if there is a meeting ... such as village ambulance or blood donation in our village ... we let the community know that we have a new program for mother and newborn baby ...". Similarly, another participant noted:

> When we have a meeting for Desa Siaga (alerted village) program, we mention that there is a new program for newborn babies up to two months, with three compulsory visits ... and there is particular intervention for those who are sick ... [PHCW – nurse participant]

Dissemination of information about CCM and using promotional opportunities to the community as well as the individual CCM members promoting it at a family level were all considered important strategies to improve awareness about the program.

Participants emphasised the importance of involving community leaders and stakeholders to raise community awareness. A supervisor suggested that "besides us, the ones who are not directly involved may be our community leaders ... we can involve them ...". Not only did the community need to be involved, but also other stakeholders in the community, "everyone in community ... such as the head of the village, PKK (the formal organisation of mothers/females in villages) ... I think it's necessary ...". Participants believed if the community were well engaged, their awareness about the program would be enhanced. This is indicated by a participant saying, "in fact if we speak frankly to community and work together, they will be aware".

Innovation

Despite some suggestions by the participants regarding how to enhance CCM implementation in the district, it is interesting to see that PHCWs in villages have demonstrated their creativity by drawing on local resources to support and sustain the program. The PHCWs have taken the opportunity to invite nearby private companies to support the village health program, utilising cross-program funding (BOK/Operational Health Funding), village council budget, and NGOs operating in the district.

A PHCW (midwife) participant in a village for example had worked closely with a nearby private company to support the health related program in her village. The PHCW was successful in a proposal for funding for the health centre, and received goods, such as equipment for *Posyandu* (integrated health clinic), milk and supplementary food for children and said, "we have got something from private company ... but it is in the form of goods ... not money".

Another example where PHCWs demonstrated initiative to obtain local resources was through being actively engaged in the village council planning so that the health centre got some of the budget allocated for the village. A PHCW (nurse) stated that "there are funds from the village for *Posyandu* ... we used the fund for purchasing *Posyandu* equipment and mother class". A similar story was also reported in another village where "CHWs had received Rp.25,000 (AUD2.5) from the village council" so that the CHWs were motivated to undertake monthly *Posyandu* and home visits.

Some PHCWs (nurses and midwives) reported that there was budget allocated from the district health office for the mother and neonates visit called BOK (operational health funding). The budget was provided on an annual basis where nurses and midwives should get a reimbursement for the visits they have conducted. A participant said that "for nurses and midwives there is BOK, but it is only once a year. The fund is used for neonates and mother visit program". Another PHCW noted, "the programs have to run first and the report is made, the fund will then be reimbursed". However, the PHCWs at villages stated that the mechanism to obtain the fund was not practical. The forms of BOK should be collected in *Puskesmas*. To get to *Puskesmas* from the village is sometimes challenging as a PHCW noted that:

> ... there is some money from BOK funds .. .but it is not easy ... because we have to have SPPD (assignment letter from *Puskesmas*) ... it has to be made at *Puskesmas* ... and yet it is far away to get to *Puskesmas* ... and it is challenging. [PHCW _midwife participant]

They also have to submit documents that proved they have conducted a home visit, as mentioned, "for home visits there was some funding from BOK, we have to submit the photos/pictures ... I heard it is also applied to CCM ... yes ... when there is a sick baby ... we'll use BOK".

The other opportunity that could be utilised for program implementation was NGOs operating in the district. One of the NGOs that initiated the CCM program was MCHIP. They provided some funding as well as a resource person acting as a technical consultant to work with the local people for maternal and child related health development. A supervisor mentioned "... so far we got aid ... such as for

transport, etc. has been covered by MCHIP ...". Another PHCW also mentioned "if there is training ... we'll get some money ... for transportation from MCHIP".

This section has shown how PHCWs used their own initiative to access other funds from a range of sectors to support the CCM work in order to navigate successfully the process for getting payment.

The summary of the barriers perceived by participants and suggestions to overcome the barriers is presented in the following table.

Table 4.8 Perceived barriers and participants' suggestions

No.	Perceived barriers	Suggestions participants made to address these barriers
1	Geographical challenges	No suggestions.
2	Transportation	Access to transport (aided by motorbikes) and policy concerning their use.
3	Logistics and medicine availability	Coordination meetings; clearer mechanism of logistics and medicines distribution.
4	Communication	Coordination meetings; clearer job description (tasks) and expectations.
5	Reporting and documentation	Program integration; produce practical reporting tools such as checklists; make own notes/documentation.
6	Lack of confidence	Refresher courses; self-directed learning.
7	Financial and human resource	Creative innovation in using resources from private companies and other sources.
8	Supervision and monitoring	No suggestions.
9	Community awareness	Program normalisation; access to key stakeholder involvement

This section has presented some suggestions proposed by participants to make the implementation of CCM run more effectively. Despite the proposed suggestions, which were aimed at addressing some of the barriers elucidated in the previous section, there were other barriers identified which did not have obvious solutions.

Socio-Cultural Influences

In this section, I discuss the cultural influences affecting CCM implementation. The theme emerged from the data gathered from observation and interviews with PHCWs and mothers, and participation in Multi Agency Working Group (MAWG) meetings in Jakarta. This meeting involved the Ministry of Health and NGOs working in the child health area in the country. Included in this theme are the subthemes of: involvement of CHWs; redistribution of tasks from PHCWs who are health professionals (nurses and midwives) to CHWs; preference by mothers to be assisted by traditional birth attendants in giving birth; and the traditional beliefs and practices of families regarding caring for their sick children. These subthemes are illustrated in Table 4.9 below:

Table 4.9 Cultural influences to CCM implementation

Theme	Subtheme
Cultural influences	Involvement of CHW Redistribution of tasks Preference for traditional birth attendants Traditional beliefs and practices

Involvement of CHWs

One of the forms of community participation in CCM implementation was the inclusion of CHWs. The CHW includes the people selected by the community who voluntarily work for the health programs in villages (Ministry of Health 2010). Since it is voluntary work, the CHW does not receive any official payment from either government or community for completing these tasks. In some villages, however, the local council provides them with a small stipend for their transport. The involvement of CHWs in villages in the district has existed since long before CCM was introduced, particularly in maternal and child health programs (Kutai Timur District Health Office & MCHIP 2011).

One of the CHW's traditional roles is to organise a *Posyandu* in villages where pregnant women and children under-five-years of age come to the clinic for health assessment and immunisation (Ministry of Health 2010). In my visit to a *Posyandu* in a village, I observed one CHW who assisted a midwife from

Puskesmas in providing health service for pregnant mothers and young children. The CHW registered mothers and children who came, then weighed them and completed documentation in a registration book and *Posyandu* card before referring them to the midwife for immunisation or other health interventions.

The tradition of involving community volunteers, such as CHWs, in health related programs was adopted by the CCM program. Prior to the implementation, *Puskesmas* nominated one CHW from each village to be trained together with PHCWs. Following the training, the CHWs were examined to ensure that they met the competency required in CCM.

The involvement of CHWs benefited the success of CCM implementation in the district in a number of ways. As the CHWs came from the community and lived with them, they had close relationships with local mothers and were trusted by the local community. This was highlighted by a PHCW (midwife) participant who said that "the ones who come directly from the community are the CHWs (as they were) familiar with the characteristics of the community and knew well which of the families were at risk", and therefore they played an important role in the CCM program, particularly in case finding. It was also noted by a supervisor at district health office that the "involvement of CHWs is to ensure that the program is adopted by the local community".

Moreover, the engagement of CHWs in CCM implementation eased the burden of health professionals in delivering health services. As not all villages had either a resident nurse or midwife, the CHW would be given specific tasks to ensure that health programs reached the community. This was demonstrated by a PHCW participant who said, "CCM has reduced our burden because the CHW helps doing some of our tasks". The delegation of health intervention to CHWs by the other health professionals is further illustrated in the subsequent subthemes.

The involvement of CHWs in CCM implementation, however, created a debate among stakeholders at higher agency national levels as to whether non-health professionals should be given authority to deliver any health intervention. This debate occurred in the Multi Agency Working Group (MAWG) meeting in Jakarta where a number of NGOs working on child health in different districts gathered

to discuss the development of national guidelines for CCM implementation in the country. This meeting was attended by a representative of the Ministry of Health. As noted earlier, MCHIP as the leading agency for the Kutai Timur district in Kalimantan had decided to involve CHWs as PHCWs in implementing CCM. From the interview with the MCHIP program manager in response to these debates, this decision was made because the distribution of health professionals in villages was an issue in the district. There was "a gap to deliver children lifesaving interventions at the community level as not all villages have any resident health professionals". In addition, the program manager argued that accessing the health centre remained the main issue in the community. Therefore, engaging CHWs was considered a short-term solution to fill in the gap before the human resource crisis is resolved.

In contrast, the Ministry of Health representative, who was from the child health directorate, argued that "non-health professionals should not be authorised to deliver any health interventions for any reasons". The representative said that the directorate had considered some critiques from the professional organisations (medical, nurses and midwives) regarding the delegation of health intervention to non-officially trained health professionals. The representative highlighted that "we should not leave the health intervention to CHWs because the competent performance of skills can't be guaranteed if CHWs are expected to pick up the tasks in two weeks". It was further noticed, "if the problem was related to the insufficiency of human resources, then the solution should be how local government focus on the distribution of nurses and midwives in villages. Not to give authority to CHWs". It was also argued that not involving CHWs in the provision of health intervention was a way of ensuring that the community received safe care from competent and properly educated nurses and midwives.

In response to the ministry's argument, the MCHIP program manager noted that addressing the human resource crisis is a long-term endeavour that would need broader involvement of related stakeholders and requires more financial investment. Involving CHWs in CCM implementation was a short-term strategy to fill in the gap and to ensure that lifesaving interventions could be delivered to the community so that infant mortality could be reduced in the targeted time of four

years from the program implementation. In addition, the program manager highlighted that to guarantee that the community received safe practice, the CHW should be well trained and they should pass the examination to ensure that they met the required competencies in CCM.

Redistribution of Tasks

One of the intentions of CCM implementation was to ensure that the community in villages could get access to care. As mentioned earlier, to achieve this aim by involving the CHW as care provider is important so that the care could reach the community. At village level, the tasks were distributed between PHCWs who are health professionals (nurses and midwives) and CHWs.

The tasks related to administering medication was mainly undertaken by nurses and midwives, while CHW's tasks were mainly to find cases and undertake initial assessment of mother and baby. One PHCW (nurse) participant made the point that "when there was a case report from the CHW, we will make a visit". This was also supported by another PHCW who said, "when the CHW found a case in the community, they would report to us and we would follow it up". A similar account was also given by another PHCW:

> For the task distribution, so far I go together with the CHW ... for the problem identification, the CHW will do ... but for medication, I will do ... So CHW's job is finding a case. [PHCW – nurse participant]

Another CHW also mentioned that if she found a case she would "make an initial assessment, and would let the nurse/midwife know if the baby needed any medication".

Preference for Traditional Birth Attendants

Another cultural fact that might influence CCM implementation was the mother's preference to go to traditional birth attendants (also called *Dukun*) for delivery, instead of health professionals such as nurses or midwives. This was confirmed by PHCWs in villages who said that, "most of the mothers in villages prefer to go to a *Dukun* for giving birth".

There were a number of reasons why mothers preferred a *Dukun* instead of health professionals. Firstly, the *Dukun* was the one who could be easily accessed by family. They lived in the village and therefore were available whenever the family needed assistance with a birth. A CHW noted that:

> It is difficult for mothers to go to *Puskesmas* for giving birth at night on a muddy road, let alone if it is raining. It is easier to call a *Dukun* because she lives in the village and can assist the birth at home. [CHW participant]

Secondly, mothers perceived that a *Dukun* have more experience than health professionals as *Dukun* have helped mothers from generation to generation. This was noted by a mother who said, "I got used to going to her (mentioning the name of the *Dukun*) ... she had helped my mother and my relatives to give birth". In contrast, nurses or midwives who were assigned in the villages were relatively young and some of them had just graduated from the nursing or midwifery academy.

Another reason why mothers preferred the *Dukun* was because a *Dukun* provided a comprehensive service at a more affordable price. This point was made by a PHCW (midwife) who said: "following a birth the *Dukun* would clean (bath) the baby for one week and massage the mother".

The tradition of choosing a *Dukun* in assisting a birth was viewed as a concern by some participants. A PHCW (midwife) noted, "the problem is it is difficult to tell mothers not to go to a *Dukun* for birth ... it is a bit hard". The use of a *Dukun* was problematic in the CCM program because PHCWs were sometimes not informed when a new baby was born and consequently the initial visit could not be made. This issue was raised by a PHCW (midwife) participant who indicated that, "I have never been contacted by the *Dukun* ... after she leaves (from attending a birth), I learn there has been a birth from the family or the neighbours".

Traditional Beliefs and Practices

In addition to the above cultural factors, local beliefs held by members of the community were also considered influential in CCM implementation. One of the local beliefs is related to medicines administration. Not all mothers could accept medication offered in CCM for cultural reasons. This was highlighted by a PHCW

(midwife) who mentioned, "that it is challenging to give seven days of antibiotics to a newborn baby" as she thought "it has never been done before and was culturally unacceptable". The PHCW noted, "that will be challenging here ... because they still strongly hold their culture ... it is a cultural issue". This is affirmed by a mother who said "I don't want my baby to be injected. My other children have never got immunised ... I believe that the substance of the drug is not *halal".*[11] Some mothers reported their preference of using traditional remedies for their family members. I observed a mother put a herbal substance such as pepper on her baby's umbilical cord.

Participants also perceived that Kangaroo Mother Care (KMC) (another CCM intervention) could not be applied by some mothers due to cultural reasons. Kangaroo Mother Care is designated for low birth weight babies. This was demonstrated by a PHCW saying:

> I think the KMC is a bit difficult to apply here ... so what we did was suggest that the mother put a blanket on the baby, not take it out of home, not open the windows wide ... so that is the challenge ... it is difficult. [CHW participant]

The PHCW reported that mothers did not get used to putting tiny babies against their body for skin-to-skin contact as suggested in the KMC method. The PHCW further mentioned that mothers believed when the baby was born, he/she should be blanketed to keep them warm.

PHCW participants also reported that the community-based carers believed that there are some circumstances in which the members of the family should not go outside of the home. For example, as noted by a PHCW, a new baby was not allowed to go out of the home until they reached 40 days of age. As a consequence, the mothers did not take them to monthly *Posyandu* for immunisation and health assessment before their babies reached this age.

Moreover, a PHCW (nurse) participant revealed that the community believed that in certain weather family members should stay at home. This point was made by a PHCW who said "the local culture is very strong here ... there are a lot

[11] A term designated to any object or action, which is permissible to use or engage in, according to Islamic law.

of taboos ... yes ... a lot of them ... like in the weather like this, they are not allowed to get out of home ... otherwise they become sick". When the interview was undertaken, the local weather was cloudy, a bit wet and humid in a rainy season. As a consequence, the PHCW reported, that if *Posyandu* was held in that kind of weather, the attendance of mothers and babies would be very poor.

This section has highlighted cultural factors that might influence how CCM was implemented. Despite some positive influences to the implementation, come cultural considerations should be taken into account by the implementers so that CCM can be culturally acceptable to the local community.

Summary

This chapter has provided an insight of how CCM was implemented in a rural district of Kutai Timur, East Kalimantan, Indonesia from the perspectives of PHCWs and families, characterised by themes substantiated from data generated in the field. The key themes include improved family wellbeing, enhanced PHCW's practice, barriers to CCM implementation, enablers of CCM implementation, and cultural influences. The findings imply that CCM implementation in Indonesia by PHCWs demonstrated its strength and limitations. The strength is reflected by the themes of 'improved family wellbeing' and 'enhanced PHCW's practice', whereas the limitations were demonstrated by the themes of 'barriers to CCM implementation'. Moreover, the findings also indicate that there is a way towards an improved model of care, which is reflected by the themes of 'enablers of CCM implementation' and 'cultural influence'.

The following chapter of this thesis will dialogue these findings with other relevant research, examining the strengths and limitations of implementation of such child health delivery models in a rural context of Indonesia. The discussion will be followed by recommendations towards an improved model of care by harnessing the strengths and addressing the limitations of the current implementation as found in the study, as well as considering elements outlined in the enablers of implementation and cultural influence.

Chapter 5 - Discussion

This research into the implementation of CCM in the Kutai Timur district of Indonesia has identified evidence of improved family wellbeing, and PHCWs practice as well as factors that have contributed to the delivery of the program as well as those hindering it. These findings contribute to the growing body of evidence to support the use of CCM, adding the unique perspectives of health workers and family recipients and insight into cultural context. The discussion draws on the findings to show the influence of the local cultural context on the implementation of CCM to address objective four of the study. However, the socio-cultural aspects of implementation are discussed more fully and specifically in the section on Socio-Cultural Influences in the next chapter.

The discussion that follows considers the study findings in relation to other research and examines a way forward for strengthening CCM and scaling up across Indonesia.

Strengths of CCM Implementation in Kutai Timur

The ultimate goal of implementation of CCM is to reduce infant mortality in the district where the model is employed (CORE Group et al. 2010), whereas the intermediate results expected from implementation are concerned with: developing an enabling social and policy environment; increasing access to the intervention; increasing care seeking behaviour of the community; and increasing the quality of child health services (CORE Group et al. 2010). The improvement in family health is not recognised in the project quantitative data, which is reported as statistics for the region. This study demonstrated that the qualitative responses by participants suggest the CCM project has had positive impacts on the health and wellbeing of the families involved. Themes from the research that reflect the intermediate result of the CCM implementation are: improved family wellbeing; increased access to the intervention; increased health seeking behaviour; and enhanced PHCWs' practice.

Improving Family Wellbeing

The theme of 'improved family wellbeing' is argued as an indication that two of the CCM implementation intermediate results have in part progressed. The intermediate results include an 'increase in access to health interventions' and an 'increase in care seeking behaviour' by the community. All family participants agreed that the CCM program has resulted in improved family wellbeing. Several factors were found to be associated with reported family wellbeing these included an improvement of mothers' health literacy and an increase in: access to local health care; families' compliance with care; mothers' satisfaction with care and improved health seeking behaviours. These factors may need to be considered in future CCM delivery and are explored below.

Locally Accessible Health Care

With the employment of PHCWs in villages delivering care to families, mothers did not need to go to subdistrict *Puskesmas* when their babies needed healthcare. The presence of PHCWs in villages eased the problem of having to use expensive transport to get to the health centre. The availability of health care also reduced the length of time needed to get any help. Consequently, the very significant problem of children dying on the way to the *Puskesmas* should have been reduced by the implementation of CCM.

The improvement of access to care was also noted by the PHCWs. The employment of the CCM model at the community level reduced the need for referral from villages to the facility-based care, such as *Puskesmas* at subdistrict level. Despite some problems associated with the availability of medicine, the PHCWs were able to administer appropriate medicines and interventions at the families' houses.

The fact that CCM had improved the community's access to care in rural areas has been identified in earlier studies. In a randomised control trial conducted by Soofi et al. (2012) that studied the effectiveness of CCM for severe pneumonia in a rural district in Pakistan, the authors argue that this type of home based strategy had effectively reached children with pneumonia in the community where referral is difficult. Other authors support this finding in Nepal (Ghimire,

Pradhan & Maskey 2010), Uganda (Nanyonjo et al. 2012), Nicaragua (George et al. 2011), and Bangladesh (Sadler et al. 2011). In addition, a WHO-UNICEF joint statement on integrated CCM claimed that the implementation of the model in some Asian and Sub Saharan African countries had brought treatment for diarrhoea, pneumonia and malaria in children closer to home (Young et al. 2012). Although there is a debate whether CCM is the most effective model to reduce infant mortality, all studies agree that the model has enabled the community to gain better access to care through the employment of PHCWs in rural areas. All studies recommend that for a successful CCM roll out, supportive policy should be put in place. Before considering the impact of policy on the CCM project in Indonesia, it is useful to consider the change in health seeking behaviours expressed by the families. The qualitative data supporting this finding indicates a capacity building (Laverack 2006) aspect of the project that includes improved health literacy.

Improved Health Literacy

Improved access to care suggests that the care seeking behaviour of the families had increased. This was identified by the increase in mothers' health literacy. Since the CCM project was introduced in the village, mothers stated that their understanding of illness had improved and they could more readily identify if there was something wrong with their babies. Mothers in the project were therefore more aware of how to seek help if needed. Participants also agreed that the frequent visit of PHCWs to the home had enhanced the relationship between mothers and PHCWs so that mothers would not hesitate to ask for help from PHCWs when they needed it. Thus, the health workers were not only more accessible but also more acceptable to the mothers. Mothers also confirmed that they received important lessons from PHCWs so that they could identify health problems when they occur in the future with their own or relatives' babies.

This finding bears out a study conducted by Akweongo et al. (2011) investigating CCM implementation for malaria in children in five sites in Africa. The authors report that caregivers' knowledge about the disease signs and symptoms improved following the intervention. The improvement of mothers' knowledge of

the signs of childhood illness is also demonstrated by George et al. (2009) following CCM implementation in Nicaragua. Beyond the studies on improvements in knowledge of CCM, other literature has established an association between child health and parent health literacy and important health outcomes. Two systematic reviews found that children whose parents had low health literacy often displayed poor preventative health care behaviours that lead to poor child health outcomes (DeWalt & Hink 2009; Sanders et al. 2009a). This highlights the need to integrate health promotion strategies into all child health programs that pay particular attention to the literacy needs of families (Sanders et al. 2009b), including appropriate resources for families (Hewer & Whyatt 2006). In addition, literacy programs for poor women may need to take health literacy into consideration (Nordtveit 2008).

Along with the increase in mothers' health literacy, the qualitative findings in this study demonstrate an improvement in mothers' compliance with care protocols.

Mothers' Compliance with Care Protocols

One unanticipated finding from this study was that mothers' compliance with care improved following CCM implementation. The health workers reported that the follow-up visit by PHCWs resulted in a higher compliance with the care recommendations. The improvement in compliance and management of the babies' conditions was captured by the PHCWs in the follow-up visit, which involved evaluating the condition of the baby and the treatment given by the mother at home following the previous visit. Mothers' compliance with the care instructed by the PHCW is imperative for successful health outcomes since it is not possible for PHCWs to be present all the time. The care prescribed by CCM and outlined by the PHCW has been designed according to best practice principles so it is important that mothers follow care as instructed.

This finding corroborates the study conducted by Winch et al. (2005) in Africa and South East Asia, showing that one of the roles of PHCWs in relation to the management of pneumonia and malaria is to monitor the compliance of the family with treatment, and this was demonstrated by PHCWs in this study. However, not all studies demonstrated an increase in compliance following the

implementation of CCM. Poor compliance with treatment was reported following CCM implementation for childhood malaria in Sierra Leone (Thomson et al. 2011) and Congo (Hawkes, Katsuva & Masumbuko 2009). This highlights the need to review community intervention programs that involve CHWs.

CCM is a model that emphasises home based medical/nursing interventions. Therefore, ensuring that sick children receive appropriate therapy at home without constant supervision by PHCWs is essential. The compliance of mothers with prescribed care is not only beneficial for the sick children, but also surprisingly, beneficial for the PHCWs. Kane et al. (2010) report that the compliance of a mother with prescribed health care is a factor that increased the motivation of health workers. Mothers' compliance to care indicates that PHCWs are being valued and seen as role models by the community, which results in the PHCWs' perception of having better social status within the community. A perception of improvement in social status and having a valuable social role in the community can improve PHCWs performance and motivation (Kane et al. 2010). The increase of PHCWs performance will in turn increase the satisfaction of mothers who receive the care.

The reciprocal benefits, that is mothers' increased compliance with care and PHCWs' increased motivation as a result of the relationships, can be explained by 'positive reinforcement' theory (Skinner 1953). Positive reinforcement involves the addition of a reinforcing stimulus following a behaviour that makes it more likely that the behaviour will occur again in the future (Lewis & Waite 2012). In other words, positive reinforcement relates to any stimulus given to certain actions or behaviours that can increase the motivation of an individual to maintain the desired behaviour (Sigler & Aamidor 2005). In the context of PHCWs–mother's relationships, the visits made by PHCWs to families had stimulated the mothers to comply with the planned care. Likewise, the compliance of mothers with the care would increase PHCWs' motivation in undertaking their tasks in the community hence feeding the positive feedback loop.

In LMICs, a number of appropriate strategies have been identified to improve maternal compliance with treatment, including: a mix of birth and emergency preparedness, transport schemes, finance schemes, maternity waiting homes, and telecommunications technology for timely responses. In addition, monitoring the use of outreach services is necessary such as follow-up and drop-outs, especially for immunisation and prevention of maternal-to-child transmission of HIV (Kerber et al. 2007). A one-on-one relationship between health worker and mother is also needed for communication and improved compliance (Winnick et al. 2005).

Mothers' Satisfaction with the Model of Care and Health Seeking Behaviour

The improvement of families' access to care, mothers' compliance with care protocols and families' health literacy resulted in the increase in mothers' satisfaction with the model of care. This was demonstrated by mother participants who expressed their satisfaction with the care provided by PHCWs in their village. This finding is supported by an earlier study conducted by Seidenberg et al. (2012), showing that CCM implementation in rural Zambia resulted in the increase of mothers' satisfaction with care as a consequence of the increase in community's health seeking behaviour.

The increase in community's health seeking behaviour following CCM implementation was evident in a study in two rural districts in Zambia (Seidenberg et al. 2012). The study suggests that the presence of PHCWs in the villages had influenced local care seeking practices and decreased the workload at the primary health centres. The authors confirm that after the introduction of the model, mothers were likely to seek care from health workers available in their village when their babies were sick. Three other studies in Uganda, Malawi, and Kenya also found that local health workers noted reductions in the number of patients coming to their health centres following the introduction of CCM (Callaghan-Koru et al. 2012; Kisia et al. 2012; Nanyonjo et al. 2012), suggesting that home visiting was addressing health care needs. In contrast, another study conducted by Kalyango et al. (2012) in Uganda, showed that there was no significant increase in the use of PHCWs by mothers in the villages. The authors

noted this was because there were many other choices available for treatment in the local community including private clinics, pharmacies and government health centres (Kalyango et al. 2012).

The qualitative findings on how CCM implementation made a difference to mothers as care recipients suggest that access of the community to care had improved following the introduction of the new model of care. This improved access to care is followed by the increase in care seeking behaviour of the families. Therefore, it can be argued that there is an indication that the intermediate results of CCM implementation in the Kutai Timur is somewhat evidenced. In addition to the improved access to care and the increase in health seeking behaviour, it is also argued that the quality of care delivered by PHCWs under the CCM framework in the Kutai Timur district had also improved. This is indicated by the enhancement of PHCWs' practice following CCM implementation.

Ensuring the satisfaction of mothers through the provision of appropriate, accessible quality care is essential in order to encourage attendance at facility service points and compliance with treatment. Studies in LMIC have found that maternal satisfaction has been improved through the provision of health workers who speak the local language (Gilroy et al. 2004); providers who address maternal concerns; and delivery of relevant information and social support (Morrow et al. 1999). In Nigeria, a study concluded that drug availability and physical appearance of the health centres led to high levels of consumer satisfaction (Uzochukwu, Onwujekwe & Akpala 2004).

Enhancing PHCWs' Practice

PHCW participants confirmed that the implementation of CCM in the district had made a difference in their practice, which they believed would lead to an increase in the quality of care. The enhancements to PHCWs' practice following the introduction of CCM were an increase in family and child health knowledge; increased professional confidence and motivation; more structured clinical intervention; and the development of clinical reasoning. These issues may be taken into account when implementing CCM.

Improving Family and Child Health Knowledge

As mentioned previously, the initial phase of the introduction of CCM was a series of training sessions for PHCWs. Following the training, participants demonstrated better understanding about family and child health issues, particularly related to newborn diseases. This improved understanding was reflected in the competency examination result following the training. The results showed that most of the PHCWs satisfactorily passed the test of their competence. The acquisition of health knowledge following the training of PHCWs in community health projects is demonstrated in other studies (Counihan et al. 2012; Kisia et al. 2012). However, in the systematic review conducted by Lewin et al. (2010) that investigated the effects of PHCWs intervention in primary and community health care on maternal and child health and the management of infectious diseases, the authors argue that knowledge is not a useful indicator of the effectiveness of the intervention. The authors note that change in behaviour is instead more helpful to measure the primary outcome of the intervention. While this is an interesting distinction, other authors have recognised that knowledge acquisition is a useful indicator (Haq & Hafeez 2009).

Haq and Hafeez (2009) argue that appropriate knowledge is essential for PHCWs in bridging the community and the health system in providing care. In addition, correct knowledge is the most important element in developing the PHCW's confidence in delivering care in the community (Haq & Hafeez 2009). This study on CCM implementation in the Kutai Timur district favours this standpoint. The change in behaviour and culture should be initiated by the change in knowledge. With the improvement of knowledge, it is likely that the behaviour will also improve accordingly. Consequently, the process of change can be made more easily. Pieter et al. (2010) suggest that behavioural change, in the context of health promotion, should be initiated by the acquisition of knowledge.

It is argued that increasing the quality of service to the community by adopting a new model of care in the district can be seen as a change process where the change agent moves the object of change to a new desired level of balance (Kristonis 2005). As such, PHCWs were thought to move from a traditional

model, where care delivery service was focused on the health centre with the patients coming to the centre, into community-focused care where PHCWs actively visit patients at home. It can be argued that the implementation of the CCM project is a community change and as part of a transition process, adequate knowledge is required by PHCWs as the frontline elements of the implementation so that their retention and motivation in the program can be maintained (Strachan et al. 2012).

Professional Confidence and Motivation

The findings provide evidence that following the training, PHCWs demonstrated an increase in their professional confidence and motivation for providing care to the community. In the context of nursing practice, professional confidence is defined as 'an internal feeling of self-assurance and comfort as well as being reaffirmed by colleagues, patients and friends' (Capper 2008, p. 79). In a qualitative study involving nursing students in clinical practice in Canada, Brown at al. (2003) outline that professional confidence is a dynamic process that involves personal and professional factors such as feeling, knowing, believing, accepting, doing, looking, becoming, and evolving. Professional confidence underpins engagement in effective practice, critical thinking, clinical reasoning and skill deployment (Holland, Middleton & Uys 2012). Professional confidence can positively influence clinical performance (Capper 2008) that eventually results in better patient outcomes. Lack of professional confidence may lead to stress amongst health professionals, particularly in life threatening situations (Dekel et al. 2007). Professional over-confidence, in contrast, may result in clinical errors, leading to negative patient outcomes that come with malpractice consequences (Crooks et al. 2005).

In this study on CCM implementation in the Kutai Timur district, PHCWs conveyed that their professional confidence increased once they passed the competency examination following the training. Referring to Capper's (2008) definition of professional confidence, the confidence of PHCWs developed when they received feedback from the examiners/trainers so that they were reassured about the competencies they gained from the training. In the implementation

process, families reinforced their practice when the intervention they provided was successful. Since professional confidence and motivation of PHCWs is an essential element for practice performance, it is important that ongoing program delivery continue to preserve educational elements in the form of continuing professional development.

Structuring Clinical Interventions According to CCM Protocols

The CCM project provided the PHCWs with a structured intervention process and the knowledge and skills to engage with the families in the community. The PHCWs reported that this was a change in their practice and that they felt more guided when delivering a health intervention. A structured intervention is beneficial for frontline PHCWs particularly to help avoid errors in medication administration. A study conducted by Kliger et al. (2009) suggests that nurses giving medication should be guided by clear protocols so that the medication accuracy is attained and patient safety ensured. Another study conducted by Khanal et al. (2011) shows that a structured intervention by PHCWs in rural Nepal using a simple algorithm for identifying bacterial infection had increased the number of infants who received correct treatment for a potentially life threatening infection. It is suggested that the intervention should be supported by focused training and good coordination between the community and the facility-based workers (Khanal et al. 2011). The improved clinical performance due to use of clinical algorithms is also reported in the study on CCM implementation in Niger (Kelley et al. 2001).

A structured intervention may also be beneficial for PHCWs in terms of helping them to organise home visits. With the knowledge acquired from the training, the PHCWs knew what equipment, materials and resources needed to be prepared before undertaking home visits, what to do during the visit and what to document following the visit. All PHCW participants agreed that with CCM, their visits to families were more organised. A study conducted by Mubi et al. (2011) in rural Tanzania confirms that the use of guidelines by trained PHCWs can assist them in managing the treatment of childhood malaria at household level. The guidelines that the PHCWs learnt in the training provided step-by-step guidance

preparing equipment prior to home visits, helped them in assessing, diagnosing, and treating sick babies during home visits, and assisted them in documenting the intervention after the visits.

When health workers such as the PHCWs are guided by a structured process to deliver health interventions it raises the concern that this mode of care will affect a PHCWs' ability to apply clinical reasoning and clinical judgement (Simmons 2010), which may require an appropriate variance to the delivery of an intervention. This concern is reasonable as the PHCWs may rely overmuch on the guidelines for diagnosing and determining an intervention without exercising a critical reasoning process to determine why they instigate treatments. Surprisingly, the PHCW participants reported that since the introduction of CCM, they felt more knowledgeable on how to make a diagnosis and had better clinical reasoning for providing interventions. This was reflected by PHCW participants who indicated correct diagnoses and treatment when visiting a family with sick babies.

Developing Clinical Reasoning

Clinical reasoning for nursing practice is defined as "a complex cognitive process that uses formal and informal thinking strategies to gather and analyse patient information, evaluate the significance of this information and weigh alternative actions." (Simmons 2010, p. 1155). In other words, clinical reasoning is the thinking process involved prior to decision-making. The perceived improvement of clinical reasoning by PHCWs was the result of training conducted prior to CCM implementation. In the education program, the participants were taught how to deal with newborn babies with low birth weight and infection including how to assess, diagnose and intervene. The method used involved interactive lectures, watching a video, simulation with a mannequin, and field practice with families. As affirmed in the findings, the competency examination also contributed to the improvement of PHCWs clinical reasoning.

Clinical reasoning is closely related to professional confidence and patient outcomes (Holland, Middleton & Uys 2012), which eventually contributes to quality of care. Clinical reasoning should be preserved by the PHCWs to ensure

they provide safe practice to families. One suggestion posed by PHCWs to maintain their competency was to undertake refresher training and self-directed learning. Another strategy to ensure that the PHCWs meet the competency standard and promote clinical reasoning ability is by strengthening the supervision process (Delobelle et al. 2011; Strachan et al. 2012). However, supervision was perceived as a challenge and a limitation in the implementation of CCM in the district.

The qualitative findings have clearly demonstrated that CCM implementation in Kutai Timur had made a difference to PHCWs in the way they undertook their practice, perpetuating the improvement in the quality of care. Studies have found that multifaceted interventions work best to improve health provider performance (Rowe et al. 2005). Appropriate supervision and feedback alongside financial and non-financial incentives (Mathauer & Imhoff 2006) and effective personnel management in line with the service delivery program can help to facilitate provider performance to increase universal health care access (Victora et al. 2004). The following section discusses the weaknesses of the implementation process as found in this study.

Limitations of CCM Implementation in Kutai Timur

Despite the positive changes identified following CCM implementation in the district, the findings revealed some barriers to the implementation process. This section discusses these barriers and limitations of CCM in the context of the Kutai Timur district. The subthemes explored here include inadequate supervision, role confusion, poor reporting and documentation, distribution logistics, communication barriers, inadequate financial resources, and lack of community awareness. In addition, participants also perceived the difficult terrain and lack of transport as barriers. However, this subtheme is not considered a barrier in the implementation as identified earlier in Chapter One, as this difficulty existed long before CCM was implemented. Lack of access resulted from challenging geographical features and inadequate transport was one of the reasons why CCM was implemented in the district.

Inadequate Supervision

The reported PHCWs' expectation that more senior health professionals would undertake supervisory visits at village level is understandable as the supervision process is one of the keys for the successful implementation of CCM (George et al. 2011; Gill et al. 2013; Young et al. 2012). PHCWs supported the prospect of direct supervision understanding they would get direct feedback from the supervisors. The PHCWs believed that the feedback would help them to maintain their competencies and keep them motivated to run the program.

A number of studies report that poor performance and motivation of PHCWs may be the result of poor supervision (Kane et al. 2010; Rowe et al. 2005; Strachan et al. 2012). Conversely, proper supervision can ensure the sustainability of the program implementation (Gill et al. 2013; Young et al. 2012). With the CCM process, the program manager at the district health office should receive enough information to decide what works in practice and what does not. Based on that information, the manager would be able to make an analysis of aspects of care that need improvement, aspects or needs that are under-resourced, and elements that should be maintained in the program planning. Along with the appropriate supervision process, PHCWs might have better clarity about their tasks, meaning for example that the problem of role confusion, as reported in the findings, could be circumvented.

Role Confusion

One of the main interventions of CCM is administering medication (antibiotics) to sick children. Some PHCW participants felt confident in giving antibiotics to sick babies because they had trust from the community, and adequate knowledge in that they had been educated and passed the competency examination. In addition, their presence in the village was on behalf of the *Puskesmas*, which was mandated by the head of the *Puskeskmas*, who was in all cases a medical doctor; thus, they had authority. However, there was a concern among PHCW participants about whether their practice in delivering antibiotics was lawful.

In Indonesia, the legislation mandates that antibiotics should be obtained by the presentation of a medical prescription (Widayati et al. 2012). In order to enhance

the quality of service in health centres in the country, there was a government initiative of task delegation where nurses and midwives could provide medical diagnosis and treatment for certain diseases with a specific guide called a clinical algorithm (Idris 2011). Clinical algorithm is a standardised protocol that guides nurses and midwives in diagnosing and providing medical treatment for patients. This procedure is adopted by the Integrated Management of Childhood Illness (IMCI), a facility-based official model used by government to enhance child health provision in *Puskesmas* throughout the country (Trisnantoro et al. 2010). This task delegation initiative was formalised in a letter of agreement between the Indonesian Medical Association (IMA) and Indonesian National Nurses Association (INNA). Despite the rolling out of the nurse and midwife algorithm in the country, there was contention around the initiative between IMA and INNA that resulted in IMA cancelling the agreement in one district (Idris 2011).

In contrast to the use of medical treatment in IMCI, the procedure of diagnosing and treating a sick baby in CCM had not been formalised in any legal document. The absence of such an agreement may have resulted in the confusion for PHCWs in delivering the health intervention. Since the PHCWs were uncertain of the legalities in the administration of medicine, this might have been better covered in the training, thus providing assurance around the legalities. Role confusion amongst PHCWs can also result from the absence of a clear job description of 'who does what' in CCM implementation, which may result in the PHCWs poor performance (Kane et al. 2010).

Poor Reporting and Documentation

One of the limitations of CCM implementation in Kutai Timur as perceived by PHCW participants is a concern about poor reporting and documentation. While all participants agreed that reporting and documentation should be made appropriately, there were some concerns that proper reporting and documentation did not exist. One of the concerns was associated with feeling burdened with the huge number of reports that the PHCWs had to make.

The experience of feeling burdened in community practice with documentation and reporting has been outlined in earlier studies. An ethnographic study

conducted by Congdon & Magilvy (1995) in rural Colorado shows that overwhelming documentation was perceived to impede nursing practice in the community and reduce the quality of care. In addition, the study highlighted that the burden of paperwork shifts the focus of service from an emphasis on care to a focus on reimbursement. Although the study was conducted a relatively long time ago, the context of the rural area where the study was conducted and the paperwork used for documentation reflected much of what was experienced regarding documentation by the participants of this study.

Another study conducted by Cheevakasemsook et al. (2006) in Thailand confirmed that despite the importance of nursing documentation for ensuring continuity of care, providing legal evidence, and supporting the evaluation of nursing care, nurses often fail to complete appropriate documentation. The complexities around documentation include disruption, incompleteness and inappropriate charting. The study highlighted factors associated with the complexities of nursing documentation, these include: limited nurse's competence, motivation and confidence, ineffective nursing procedures, and inadequate nursing audit supervision and staff development.

In relation to CCM implementation in Kutai Timur, participants reported that while they had to do all the paperwork to ensure they would get reimbursement for their visit to families, the documentation was not completed appropriately given the complexity and number of forms, and the number of programs requiring the completion of paperwork, which they perceived as overwhelming. This situation was exacerbated by lack of supervision to guide and support documentation.

Distribution Logistics

One of the limitations of CCM implementation in Kutai Timur was the inadequate supply of required equipment to the villages. The equipment includes forms for documentation, medicines, classification cards, and supportive utilities such as weight scales, a timer to count pulse and respiration, and equipment for medication administration. PHCW participants reported that they could not provide services as required because the supporting equipment were not

available in their village. This was not always a CCM issue as MCHIP was responsible for the distribution of forms and supporting utilities, while the district health office was responsible for delivering medicines to villages.

The difficulty in accessing supplies and equipment for CCM in a timely manner for remote areas has been found in other studies including a study conducted by Blanas et al. (2013). That work investigated barriers to CCM for malaria interventions in rural Senegal and reported that the supply chain was one of the main challenges in ensuring the intervention by PHCWs could be delivered as expected. While the authors do not clearly state the reason for the supply shortage, another study investigating the deficiency of supply of drugs for threatening diseases (pneumonia and malaria) in Malawi (Lufesi, Andrew & Aursnes 2007) highlighted that the problem was associated with poor record keeping and ignored supply requests.

The finding of this study supports the literature that documentation was one of the challenges in the implementation and this in part was due to lack of response to the supply request. Another finding suggested that poor communication between levels of health service (village, *Puskesmas*, district health office) was perceived to be the reason for the shortage of supplies in villages. Despite various causes, the supply chain remained problematic. Blanas et al. (2013) highlighted the importance of further investigation concerning frequency, prevalence, and causes of supply chain problems in relation to implementation of CCM models in remote areas.

Communication Barriers

According to Wetta-Hall et al. (2004a) communication is the key success in effective case management. Although the study was conducted in a hospital setting, it was conducted in the context that is similar to this study, that is, an underserved rural area. The authors argue that nearly all management strategies used by a case management implementer involved communication, including communication between staff to patients and communication among staff. The authors assert that communication failure would result in poor implementation performance.

All PHCW participants suggested that communication was a concern in CCM implementation. The participants confirmed that they relied on verbal communication with the use of a mobile phone for any communication, including program coordination. Mobile phone was the only reliable mode of communication as no other mode of communication was available in the district. While PHCWs could take advantage of the presence of a mobile operator in their villages, the absence of written communication created problems with supervision and coordination, along with supply distribution (Gill et al. 2013).

The use of mobile phones for communication, however, had provided the supervisors with information about how the PHCWs were progressing with CCM including information about the number of cases in a relatively quick time. This also enabled the supervisors to provide instant suggestions when the PHCWs posed any problems in relation to the implementation. This finding is supported by a systematic review conducted by Braun et al. (2013), suggesting that the growing use of mobile technology is a promising opportunity to improve the range and quality of services provided by PHCWs. To benefit from the opportunity, the authors highlight that there is a need for more rigorous measurement of improvements in performance and outcomes such as service utilisation, access, productivity, quality and sustainability. In addition, there should also be a cost effectiveness analysis and operational standard about using mobile technology to deliver a health program (Braun et al. 2013).

Inadequate Financial Resources

Financial constraint badly affected the PHCWs ability to provide optimum care to families. This was identified by PHCW participants who reported that they were not able to make home visits because there was no money allocated for transportation; this in turn influenced the families' access to care. The notion of limited access to care is not only associated with the geographical barriers, but also the lack of available resources such as inadequate financial resources (Graves 2008; Grzybowski, Stoll & Kornelsen 2011). Inadequate funding of projects such as this is a recognised barrier and is reported by authorities. For example, it was found that the money allocated for maternal and child health was

only 1.17% of the health development budget in 2010 (Kutai Timur District Health Office & MCHIP 2011). While at the national level, the budget allocation was only 0.56% of the health development budget for each maternal and child health program (UNICEF Indonesia & Ministry of National Development Planning 2012).

Lack of financial support in community-based child health intervention is reported in earlier studies (Chopra et al. 2013; Gill et al. 2013; Kayemba et al. 2012b). Gill et al. (2013) identify three financial barriers in the implementation of a project to overcome pneumonia and diarrhoea in children in 39 countries. First, funding was often allocated for special projects and not distributed in keeping with the burden of the disease. It is difficult to transfer and use money that has been earmarked to one program and has not been fully used by that program. Second, the barrier of burdensome bureaucratic processes inhibits money movement. Lastly, corruption often found in funds distribution drains valuable resources.

While these factors might be present in the Kutai Timur district, the problem of difficulty in bureaucratic process should not have been a major factor given Indonesia has implemented a decentralisation policy since 1999 (Lieberman, Capuno & Van Minh 2005). With decentralisation, the local/district government has the authority and responsibility to manage funding in health development, and is not centralised by national government as it used to be. Consequently, there should be a fast-track pathway to access funding readily. To ensure that funding is appropriately allocated and prioritised for child health development, advocacy is required by the program management to the local government (Jarrah et al. 2013). In addition to the inadequate financial resources, the qualitative findings of CCM implementation in the Kutai Timur district also suggest that lack of community awareness is a concern.

Lack of Community Awareness

Some PHCW participants noted that lack of community awareness about the health program had negatively impacted on CCM implementation. Lack of community awareness presented as poor attendance of the mothers and children

in monthly village clinics (*Posyandu*), and resulted in minimal involvement of key persons and community leaders in villages that led to a lack of program support even effecting funding from the village stakeholders.

Lack of community awareness is reported as one of the main problems in community maternal and child health delivery in Indonesia. Titaley, Hunter and Dibley (2010) report that the attendance of mothers at antenatal and postnatal care in three rural districts in the West Java province was poor. The authors found that the poor attendance was because community awareness about the importance of the service was inadequate, and the fact that traditional birth attendants were preferable for antenatal, delivery and postnatal care. Mothers perceived that formal health services were necessary only when obstetric complications occurred (Titaley, Hunter & Dibley 2010).

Community awareness and support is an essential aspect in any community-based health intervention (Laverack 2006), including CCM. A study conducted by Nanyonjo et al. (2012) suggested that even when CCM is viewed as an effective intervention, its acceptability and adoption in the community is strongly driven by context specific factors such as social factors and how the community perceives the intervention. Suggestions to improve community awareness and acceptability that were made by PHCWs were focused on encouraging more involvement of community leaders and these should be taken seriously as a well-supported strategy to improve program success. A proven strategy that can be considered to increase community awareness is strengthening community involvement in the program (Laverack 2006). This will be further discussed in the next section.

This chapter has discussed the themes outlined in the findings that include the strengths and limitations of CCM implementation in the Kutai Timur district as reported by PHCWs and families. The strengths of the CCM implementation include the employment of PHCWs at community and household levels to deliver lifesaving intervention so that families had made improved health outcomes and PHCWs reported better practice. In contrast, the discussion also highlighted the limitation of the implementation associated with the care provision.

Summary

These ideas and findings have been presented in response to other related projects reported in the literature in similar contexts in community rural areas in LMIC. It is clear that this study has provided new knowledge regarding the implementation of CCM by PHCWs in the unique context of rural Indonesia. This evidence is complementary to the other related research presented in the discussion.

The clearest message from the findings and their fusion with the literature regarding the implementation of new models of practice is that although there was a marked improvement in families' wellbeing and PHCWs' practice as well as constraints in CCM implementation, the local participants had clear insights into what would improve implementation practice in their local context. These suggested improvements spoke directly to a number of the issues identified as problematic and acknowledge the cultural context of the implementation. The literature also outlines that these findings are critical elements in child health service delivery at the community level, and offer a number of suggestions of how these elements can be managed to improve the model of care.

In order to enhance the coverage of service and access, and improve child health delivery at the community level in the rural context of Indonesia, it is important to develop an improved model of care that harnesses the strength as well as addresses the limitations of CCM implementation as found in this study. The following discussion will draw on the experiences of the participants in conjunction with what comes out of the relevant literature in order to both enable an improved model of care, as well as enabling and facilitating the implementation of this and similar models in similar contexts.

Chapter 6 - Recommendations

After looking at how CCM made a difference to families and PHCWs and discussing limitations in the implementation, it is necessary to consider the implications of the study findings; in particular, considering what ongoing development might strengthen the existing model. This chapter addresses the fifth objective of this research. A framework is presented that may improve the delivery of child health care by building on the strengths of CCM and addressing the limitations. This discussion will lead to recommendations that can inform the implementation of a proposed improved model of care in rural districts throughout Indonesia.

These recommendations emphasise the concept of health system strengthening (WHO 2009b), and the integration of child health programs with maternal, newborn and reproductive programs. In addition, the provision of PHCWs support and community participation is emphasised.

Strengthening the Health System

To ensure the successful delivery of community health interventions, strengthening the health system is an important element to increase successful health outcomes. Arifeen et al. (2004) used a cluster-randomised study to look at the implementation of Integrated Management of Childhood Illnesses (IMCI) in Bangladesh, the findings suggest that low intervention coverage in the community could be improved by strengthening the health system. A similar account can also be found in the evaluation on implementation of IMCI in Tanzania (Tanzania IMCI Multi-Country Evaluation Health Facility Survey Study Group 2004). The study suggests that to increase the coverage level of IMCI in resource-poor countries, health system strengthening is required. In addition, Callaghan-Koru et al. (2013) also emphasise that health systems should be strengthened to ensure consistent coverage and quality of CCM implementation in Malawi. It is therefore important to understand the characteristics and elements associated with health system strengthening.

WHO (2005b) defines a health system as the sum of all the organisations, institutions and resources whose main purpose is to improve health. The components of the health system include staff, funds, information, supplies, transport, communications and overall guidance and direction (WHO 2005b). In other words, the health system consists of a range of elements and resources that contribute to the delivery of health services. In addition to WHO's definition, Field (1973, p. 786) describes a health system from a sociological perspective. The author denotes that a health system can be viewed as "the aggregate of commitment or resources which any national society invests in the health concern". The author notes that from a sociological perspective, the resource of a health service may be dependent on societal mechanisms. This definition includes variables in health systems that are not only specific to health related physical resources, but also include the dynamics of social interaction of the people within the community.

The use of a health system strengthening approach to enhance the global initiation of CCM for childhood illness has been suggested in the literature. McGorman et al. (2012) outline the importance of careful attention to financing, human resources, supply chain management, quality assurance and other inputs to ensure the successful implementation of CCM. The authors believe that the framework can offer a useful insight on how to develop comprehensive service delivery. The health system approach used by McGorman et al. (2012) to enhance CCM implementation mirrors the health system framework developed by WHO called 'system building blocks' (WHO 2009b). The building blocks serve as a convenient framework for exploring the health system and understanding the effect of intervention upon it. WHO's framework of health system building blocks effectively describes six subsystems of an overall health system architecture. These include health workforce, health information, medical technologies, service delivery, health financing, and leadership and governance. These components build in the characteristic of a system that is dynamic in interactions and synergies.

The importance of a health system strenghtening approach for improving child health care delivery in a rural context in Indonesia has been proposed in this

CCM project study. Based on the findings of this study, the health system strengthening needs to consider the aspects of:

- Health workforce: with a focus on PHCWs support, including ensuring clear job descriptions and roles, appropriate supervision, professional development and improving professional confidence;
- Health information: that includes improving monitoring and evaluation and establishing reliable information systems;
- Medical technologies: that focuses on improving resource supply management;
- Service delivery: that focuses on improving child health care delivery that is integrated with other concurrent maternal and newborn health and reproductive health programs;
- Health financing: that focuses on ensuring appropriate financial support for the program and program planning; and
- Leadership and governance: that focuses on ensuring supportive policy.

The suggested improved model also considers the importance of 'community participation' through building relationships between public-private sectors and NGOs, enhancing community awareness and ownership, and ensuring that health intervention is tailored to socio-cultural appropriateness. The proposed recommendation can be seen in Figure 6.1.

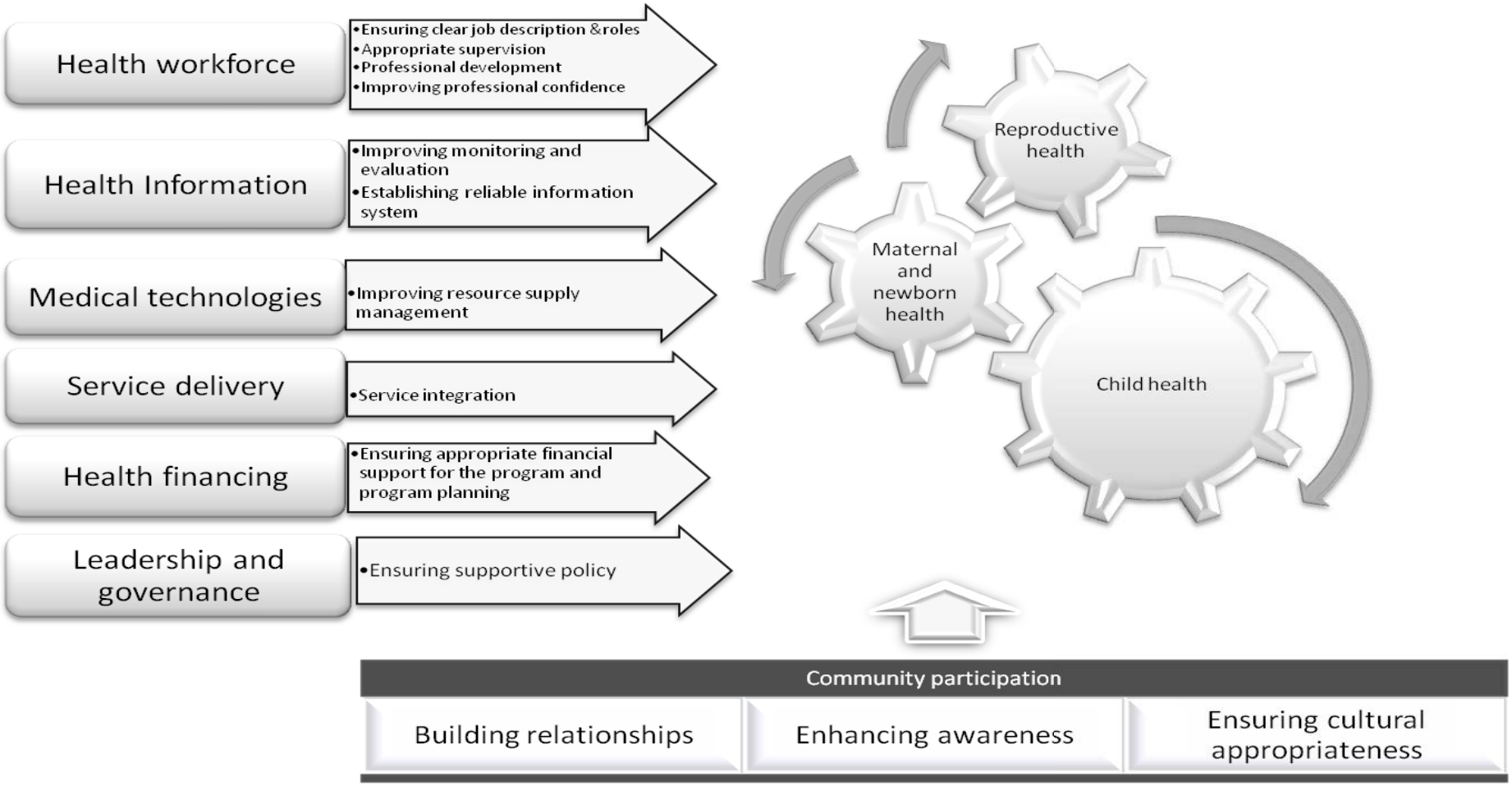


Figure 6.1 Towards an improved model of childcare service delivery in a rural context of Indonesia

Health Workforce

One of the characteristics of CCM is empowering trained health personnel in the village to deliver health intervention according to the local context (CORE Group et al. 2010). In the context of the Kutai Timur district, the backbone of CCM implementation is the PHCWs involving community nurses and village midwives together with CHWs. As such, successful implementation of CCM is not possible without strengthening PHCWs. The findings show that the particular human resource areas that need to be strengthened are, job description and role clarification, supervision, professional development, and maintaining professional confidence.

PHCWs Job Description and Roles

As discussed earlier, the main role in CCM for PHCWs is to deliver curative intervention to sick children where access to a health service is a challenge. In providing such a curative role, there was uncertainty among PHCWs whether undertaking such a practice was legal. The recommendation is therefore to ensure that the role that PHCWs play in delivering care under CCM is clearly defined. Gray and White (2012) suggest that it is imperative to make the role of nurses clear and concise in case management to avoid role confusion and to ensure the care produced is efficient and enacted in a way that produces improved outcomes. Clarity of PHCWs' role is also important as role clarity is an essential factor that influences an individual's performance and job satisfaction in an organisation. A seminal work conducted by Lyons (1971) highlighted that workers who have sufficient information about their roles are less anxious and more satisfied compared to those who do not have clearer ideas about their role expectation.

In clarifying the role of PHCWs, the roles of professional health workers (nurses and midwives) and volunteer CHWs are differentiated. Distinguishing the role is important as nurses and midwives achieve their professional roles as health providers once they have graduated from nursing or midwifery school and are employed in the health system, while the CHWs are not officially trained as part of a professional education to deliver health interventions.

In undertaking their roles in the community, it is argued that nurses and midwives should be aware that they are bound by their professional role, which is to provide basic nursing care to patients. The importance of clarifying professional roles is highlighted by O'Rourke and White (2011). The authors argue that role clarity is one key factor that influences someone to become qualified in their professional role, as they note, this is essential to achieve the best possible outcome for patients, families, workforce and the organisation in which the care is delivered. This implies that it is crucial for nurses to clarify their role as professionals in the care delivery system. Lack of role clarity will result in a risk to the quality of the care delivery system provided. Since community nurses interact directly with the public on a daily basis, they need to be aware and accountable for their role as a professional nurse in the social system (Oyetunde & Brown 2012) so that the quality of care can be assured.

The notion of strengthening the professional role for child health workers who are working in the rural community was suggested by Subhi and Duke (2011). The authors recommend that strengthening the leadership of the local and national professional paediatric association is one of the strategies to reduce child health mortality in a country. Strengthening the professional body is understandable because it has an important role to "develop and maintain the standards of paediatric clinical care and public health according to updated evidence" (Subhi & Duke 2011, p. 99). PHCWs need to keep abreast of changes in both care practices and the dynamic change in the types of health problems seen in the community. An appropriate and evidence-based standard of care established by a professional body would guide the PHCWs in delivering safe and qualified practices to the community.

Along with the increase in community health needs globally, there is a need to employ these health workers in ways that ensure that the community can gain increased access to health care (Field 2012). This has resulted in the expansion and extension of the role of health professionals (Lowe et al. 2012). An example of the expanded nursing role in response to the need is the presence of nurse practitioners in the US, Canada, UK and Australia (Lowe et al. 2012), and the advanced practice nurse role in Singapore, Japan, and Thailand (Sheer & Wong

2008). The nurse practitioner initiative was developed to overcome the lack of supply of medical doctors in rural areas as well as to provide high quality and cost-effective health care to the community (Driscoll et al. 2005). With this role, a nurse is authorised to prescribe medication under the supervision of a medical doctor.

An important lesson that is relevant to this study is highlighted by the advanced practitioner study undertaken by Lowe et al. (2012) who suggest that it is crucial to define the role of practice nurses in rural areas as the extension of the practice of nursing care rather than the substitution of tasks from medical doctors. In addition, Lowe et al. (2012, p. 697) suggest that "clarity is required for regulation that provides consistency in the approach to health care, ensuring a benchmarking process, whereby practice standards can bet met and maintained". In other words, it can be said that nurses and midwives working in the community need to maintain their professional identity by focusing their care on a nursing and midwifery approach, knowledge and professional standard, and recognising the distinction in their work from that of other practitioners. It is important to note that it is necessary to regulate the advanced role by a nominated official governing body in order to protect the practitioner and the public. Regulating this advanced role of nurses is critical to ensure the accountability and standards that bear on their professional practices. This is as opposed to merely carrying out the orders of another professional group, which carries with it no accountability to clearly prescribed and professionally mandated standards.

Another health worker involved in CCM implementation that requires role clarity is the CHW. The finding from this work identifies that one of the cultural influences in CCM implementation is the involvement of the CHW. This is supported by literature outlining that traditionally, the CHW has been involved in community health programs in Indonesia (Bailey & Coombs 1996; Berman 1984; Shields & Hartati 2006). It is evident that this kind of voluntary health worker offers the potential to bridge the human resource gap and enhance access to health services (Khanal et al. 2011; Lewin et al. 2010; Marsh et al. 2008a).

Despite the obvious positive contribution of the CHW to community health outcomes, the findings highlighted a debate among the stakeholders as to whether this voluntary health worker may be authorised to deliver health intervention, particularly administering medication. In spite of this debate, all stakeholders agreed that the CHW should be involved in CCM implementation as they live with the community and therefore have community intelligence and networks important for identifying appropriate clients. Kane (2010) pointed out that local public health service needs to define and clarify roles and responsibilities, in order to improve performance. Role clarity may improve a worker's credibility and legitimacy with the local health service, and improve accountability as the role is defined and the performance benchmarks are clear. On a personal level, a sense of being valued by the health service and community, a perception of better social status, and a guarantee of back-up support from the health service are other benefits of role clarity (Kane et al. 2010, p. 6).

It is clear from the findings of this study that involvement of the CHW in CCM implementation also promotes better community participation in the program as CHWs live in the community and have good relationships with community stakeholders. In order to optimise the CHW's function in the community and health programs, their role should be clearly defined. In clarifying their role, it is important to resolve what health interventions or tasks can be shared and/or delegated by nurses and midwives.

Task sharing, which is also known as task shifting (Callaghan, Ford & Schneider 2010) or task delegation refers to "a process of delegation where tasks are moved, where appropriate, to less specialized health workers" (Nabudere, Asiimwe & Mijumbi 2011, p. 174). In the context of maternal and child health, the aim of task sharing is to optimise the roles of less specialised health workers in delivering particular health interventions to children and mothers that are not accessible to the community and are not being delivered by more specialised health workers (Nabudere, Asiimwe & Mijumbi 2011). Task sharing is a strategy urged by WHO to improve maternal and child health in the community where nurses, midwives, and CHWs are authorised and supported to deliver essential maternal, newborn and child health care interventions that could save lives

(Gupta et al. 2011). However, few countries appropriately plan for this initiation (Gupta et al. 2011).

There is debate in the literature whether task sharing should be supported as a strategy in health delivery in rural areas and this is outlined in the findings of this work. Those who are opposed to task sharing argue that this strategy can be seen as a false quick fix approach that could reduce the quality of care and compromise the health system in the long term (Nabudere, Asiimwe & Mijumbi 2011). It is also outlined in the findings of this study that task sharing would underestimate the professional identity of specialised health workers who have been appropriately and officially trained. Nabudere et al. (2011) argue that trained professional health workers are perceived as the only ones who are capable to deliver health intervention with professional standards as their professional standing suggests they are the only appropriate staff who deliver health care. While it is understandable from the standpoint of professionalism, it is argued that communities living in rural areas deserve to receive an equitable health service. It is the responsibility of the government to serve its people with such a strategy that is proven effective so that the community's wellbeing can be obtained. Task sharing can be seen as a 'short-term strategy' to enhance care access to the community while professional health workers are not available (Dawson et al. 2013). Governments need to work on the long-term health development of human resources, mindful of the needs of a rural community and recognising the importance of appropriate human resources for health. One strategy to minimise the negative effect of task shifting is by improving in-service training and strengthening a proper supervision system (Dawson et al. 2013; Gupta et al. 2011).

Task sharing occurred in CCM implementation in Kutai Timur. All PHCWs were trained to deliver lifesaving intervention for newborns. Nurses, midwives and CHWs were advised to administer medication to sick babies as per CCM protocols. In the implementation phase of the project only nurses and midwives delivered medications to sick babies, and the main role of the CHW was to identify client cases, and undertake health assessments, health education and reporting. The crucial element that was missing in differentiating these tasks was

a clear job description and written policy and regulation from the authorised body about 'who does what'. This situation led to role confusion as has been previously outlined in this work. Nabudere, Asiimwe and Mijumbi (2011) highlight the importance of clear policy in what they call task sharing so that the role of health workers can be optimised for effective health outcomes. The authors also note that the essence of supervision is to ensure that the task assigned meets the care standard. In addition developing guidelines and job descriptions is also considered essential for the PHCWs' role clarity (Rowe et al. 2005).

In order to improve PHCWs support a number of recommendations are proposed with regard to task sharing. These include a clear job description; developing clear policy in the form of regulation of the role while identifying the responsibilities of health workers involved in CCM implementation, and developing appropriate supervision systems. The International Standard Classification of Occupation (Hunter, Dal Poz & Kunjumen 2009) offers ideas on task arrangement and indicates that these can be considered by program managers who can define the 'who does what' in maternal and child health care delivery systems, this is illustrated in the table 6.1 below.

Table 6.1 Classifying PHCWs: Main categories of human resources for maternal, newborn and child health in the International Standard Classification of Occupation. Adapted from International Labour Organization (Hunter, Dal Poz & Kunjumen 2009)

Occupational title	Suggested role
Health services managers	Plan, direct, coordinate and evaluate the provision of clinical and community health care services, e.g. health facility administrator, clinical director, community health care coordinator.
Nursing and midwifery professionals	Plan, manage, provide and evaluate nursing and midwifery care services, e.g. clinical nurse/midwife, nurse practitioner, paediatric nurse, public health nurse/midwife.
CHWs	Provide basic health education, preventive health care and home visiting services, e.g. community health aide, family health worker.

Supervision

All PHCW participants agreed that clinical supervision should be undertaken as required. From the point of view of PHCWs in villages, the supervision is required to improve their motivation and to receive feedback regarding the implementation. In addition, supervision is considered a useful process for supervisors to ensure CCM implementation takes place as planned. This finding substantiates a number of studies highlighting that supervision is the key for successful CCM implementation (George et al. 2011; Nanyonjo et al. 2012; Strachan et al. 2012). Although supervision is seen as key to success in the implementation of CCM these findings noted that supervision did not occur in the manner suggested by participants and in the literature. Therefore, as part of an improved model for CCM it is important to propose strategies to improve supervision. A study conducted by Strachan et al. (2012) interviewing international stakeholders who implemented CCM in various countries, suggested a number of strategies to improve supervision to PHCWs in implementing CCM. The proposed strategies and their impact can be seen in Table 6.2.

Table 6.2 Suggested strategies related to supervision. Adapted from Strachan et al. (2012, p. 114)

Suggested supervision	Description
Supportive supervision approaches	Supportive supervision where PHCWs are provided with feedback on technical and interpersonal skills and refresher training in response to their needs is motivating for PHCWs.
Group supervision	A group supervision approach that highlights the benefits of working as and feeling part of a team and creates a less intimidating learning environment is motivating for PHCWs.
Peer supervision	Supervision by previous or current PHCWs is motivating for PHCWs as: • Peers more readily empathise with the perspective of PHCWs and often make the best supervisors. • "Career pathways" for PHCWs to a paid role within the health system may be an incentive. • Greater levels of community trust and confidence may result as supervisors are locally known and more likely to be "in tune" with local issues.
Effective selection and training of supervisors	Selection and training of supervisors was recognised as important, but there were few tangible suggestions related to this approach. Adult learning approaches were proposed but only after understanding supervisor perspectives, as approaches perceived as unconventional may be counterproductive.
Supervision frequency and regularity	Regular (monthly was the preferred interval), maintained and reliable supervision is important for CHW motivation. Community- and facility-based supervision was viewed favourably depending on logistical feasibility.

Through the findings of the study by Strachan et al. (2012) in the context of rural communities in Indonesia, it is apparent that establishing peer supervision in addition to improving regular supportive supervision is important. The term 'peer supervision' has been defined variously depending on the context such as education, clinical and other work related environments (Wilkerson 2006). For the purpose of this study peer supervision refers to a supervision method involving pairs or small groups of colleagues supervising each other (Zorga, Dekleva & Kobolt 2001). In peer supervision, ongoing and regular relationships are established to enhance professional skills (Wilkerson 2006).

Why supervision in Kutai Timur did not occur as expected, according to participants, was because geographical barriers and poor funding hampered proper supervision. Peer supervision can therefore be considered one approach to bolster supervision deficits and help to overcome the problem. The benefit of peer supervision is that the PHCWs working in villages are more engaged in the community so they are embedded in their village situation, making them well versed in its needs and issues and thus able to be supportive of other health worker's efforts (Strachan et al. 2012). However, there may be drawbacks to be anticipated for this type of supervision. Given the supervision will be undertaken among PHCWs in the same village, the supervision may not be in keeping with the formal program objectives and conflict may occur as advice can be seen as criticism from a peer. It would be important to anticipate these difficulties and have available well-developed guidelines for supervision.

Education for those involved, including the PHCWs, would be important to foster supportive supervision. Supportive supervision could improve PHCWs' knowledge, skills and motivation as well as correct their practice (Rowe et al. 2005). In addition, ensuring regular supportive supervision from personnel from a higher-level health service (*Puskesmas*) is important to complement peer supervision. As peer supervision may result in conflict between PHCWs, the supervision from a higher level could address this concern. This can be done by evaluating current supervision strategies, based on the evaluation and subsequent development of a supervision plan in the CCM program.

Professional Development

In addition to appropriate clinical supervision, PHCW participants noted the importance of refresher education and self-directed learning to maintain their professional competencies in delivering care to the community. The participants' suggestions indicate the necessity of professional development for PHCWs in implementing CCM in villages. A systematic review conducted by Rowe et al. (2005), looking at interventions to improve and maintain high quality performance of health workers in low-resource settings, found that formal and informal educational opportunities is one of the determinants that influences

PHCWs' performance. In addition, the authors conclude that multifaceted intervention such as education and supervision is more likely to improve PHCWs' performance compared to single interventions.

Those finding are also supported by Strachan et al. (2012). The authors found that PHCWs need credible recognition in their role to maintain their motivation. This can be done by providing credible certification pathways for education. One strategy that Strachan et al. suggest could be used to develop and maintain PHCWs' skill is the requirement of these workers to undertake refresher training. The PHCWs may direct the content of these educational sessions and the content might also be based on supportive feedback from the supervision process (Strachan et al. 2012). Maintaining professional development through education is therefore proposed for successful CCM implementation in the country. The continuing education program should be reviewed by the program manager, including the educational needs in the program planning.

Identifying the PHCWs learning needs is an important factor to pose a desired educational outcome. MacDonald (2012) notes that adult learners have a wealth of varied knowledge and experiences gleaned from their previous experience with education, or knowledge of particular conditions and treatments. In addition, they may have various interests, which may have led them to explore specific areas. Identifying this knowledge is therefore critical to planning a learning program. This can be done by discussion with the learners to identify their needs and expectations (MacDonald 2012).

Another suggestion posed by PHCW participants to improve their competency is through self-directed learning. Self-directed learning is "learning in which the conceptualization, design, conduct, and evaluation of a learning project are directed by the learner" (Brookfield 2009, p. 2615). In other words, self-directed learning is independent learning that is tailored to the needs of the learner and the way the learning is conducted suits the learning style of the learner. Self-directed learning is a promising strategy that can be used by PHCWs as the needs of learning may vary between one PHCW to another. The learning strategy can also be seen as a feasible approach for PHCWs in such a rural community context

as it may provide them with freedom to choose the strategy that suits their situation. The strategy, however, is going to be somewhat constrained by the lack of resources in villages such as learning materials and the Internet.

Despite the benefits, there is a constraint that needs to be anticipated in relation to the use of this strategy for learning. As the success of self-directed learning relies on self-motivation and commitment (Murad et al. 2010), it is challenging to ensure the sustainability of the use of this strategy. It is therefore essential to balance this mode of learning with traditional learning strategies (Edmondson, Boyer & Artis 2012).

This section proposed a number of strategies for successful CCM implementation for PHCWs support in particular. The recommendations are summarised in Table 6.3.

Table 6.3 Recommended strategies to strengthen PHCWs

Area of improvement	Recommended strategies
Job description and roles, task sharing and delegation	Clarifying the professional roles and identities of the health workforce Strengthening professional body/association Developing policy to define CHW's role in child and family health care delivery Developing a clear job description and guideline Developing supportive policy with regard to task sharing and delegation
Supervision	Evaluating the current supervision system Considering the use of 'peer supervision' Ensuring regularity of supportive supervision from *Puskesmas*
Professional development	Putting continuous professional development in the health planning for programs Developing refresher training program Promoting self-directed learning Strengthening supervision
Professional confidence	Developing refresher training Utilising feedback strategies through supervision Promoting support from a professional body Increasing community support

Once the PHCWs are supported by the health system by using the recommended strategy, the next element in the health system that might be strengthened concerns monitoring, evaluating, and establishing health information systems.

Health Information

In WHO's health system strengthening framework, the health information component refers to ensuring the production, analysis, dissemination, and use of timely and reliable information on health determinants, health system performance and health status (WHO 2009b). One of the factors that influence good health information is the quality of communication between health personnel (Doyle et al. 2013). PHCW participants suggested that one of the barriers of CCM implementation in the Kutai Timur district was poor communication. The communication problem amongst the program implementers was in part due to reliance on verbal communication and the absence of written information systems. This ultimately resulted in poor monitoring and evaluation records for the program. Improving written communication through health information systems for monitoring and evaluation is crucial for successful implementation (Gill et al. 2013; Young et al. 2012).

Monitoring relates to regular systematic and purposeful observation and recording of activities taking place in a project or program (Bartle 2011), whereas evaluation refers to measuring how successfully a project meets its aims and objectives (Bates & Jones 2012). Monitoring and evaluation are useful in analysing the situation in the community and the impact of any project, by identifying problems as well as considering the feasibility of possible solutions. This is also beneficial for the program implementer to ensure that all activities are carried out as expected (Bartle 2011).

While the program planner and implementer, as with the CCM program in Indonesia, usually set up monitoring and evaluation the process did not occur as expected. This resulted in the inability of program management to recognise the real outcome of the program implementation. Bates and Jones (2012) identified a number of constraints in conducting aspects of monitoring and evaluation, many

of which are consistent with those identified in the findings around the implementation of CCM in the Kutai Timur district. These constraints include limited time and personnel to conduct evaluation, lack of knowledge and skill of the staff regarding the evaluation process, and limited funding. To overcome the barriers the authors suggest the importance of keeping the activities associated with monitoring and evaluation brief and simple. In addition, staff education and step-by-step guidelines regarding monitoring and evaluation requirements should be provided for program staff. Most importantly, the authors argue, it is essential to motivate staff to conduct the process and improve their understanding about the value of evaluation for successful project implementation. Finally, they note allocating funds for monitoring and evaluation is important for program success (Bates & Jones 2012).

Since monitoring and evaluation involve the activities of collecting data, it is important to establish health information systems to capture the information. Health information systems have four functions: data generation, compilation, analysis and synthesis, and communication and use (WHO 2008b). These functions provide the underpinning for informed decision-making. A good health information system enables users to ensure that they can access reliable, authoritative, usable, and understandable information (WHO 2008b).

A number of strategies can be proposed to improve monitoring and evaluation and strengthen health information systems in the implementation of child community health projects (Gill et al. 2013). These include establishing a health information system in rural districts, through the use of an electronic data system via mobile telephone (Braun et al. 2013). Mobile telephones are functional and accessible technology in the region and methods need to be developed, or instituted if not in existence, to use them for data capture. The authors suggest that it is beneficial in reducing the time required for data collection. Moreover, education for the staff and the use of clear guidelines can also improve the quality of data collection. It is also important to harmonise data collection items across projects to reduce redundant or irrelevant elements and reduce the burden of PHCWs in collecting repetitive data, and to ensure the

effectiveness of the evaluation, it is essential to add clear indicators of implementation.

Medical Technologies

Medical technologies refer to "medical products, medicines and other technologies of assured quality, safety, efficacy, and cost effectiveness, and their sound and cost-effective use" (WHO 2009b, p. 31). In relation to the recommendation for an improved model of child health delivery at the community level, this involves ensuring that the required products are available in the community through an effective supply chain management system.

As noted earlier, the main intervention provided by PHCWs under the CCM framework is delivering curative interventions primarily by administering medicines such as antibiotics for a common infection in children. The availability of the medicines through an appropriate supply chain and the management of this chain are therefore essential to ensure that the intervention is effective. Chandani et al. (2012) report that there are at least three factors associated with the availability of essential medicines for community-based child health intervention in three countries in Africa. These include product availability at health workers resupply point, supply chain knowledge and capacity among health workers and their supervisors to manage the medicines and equipment supply, and availability of appropriate transportation of the medicines. These factors were constrained in the supply chain of the CCM implementation in rural areas such as that in the Kutai Timur district. Improving supply chain strategies to improve essential CCM product availability at the community level should therefore be taken into account against the range of factors including strengthening the supply chain at national, provincial and district levels (Chandani et al. 2012). It is also argued that education of PHCWs and district health office staff prior to the implementation is clearly crucial to creating foundational supply chain management knowledge and would improve practice and skills to obtain strategies to address other factors in supply chain problems.

In addition, Gill et al. (2013) affirm that the shortage problem of essential commodities at community level occurred because many countries relied on so-

called “push” systems, where community health centres or health workers were provided with pre-stocked kits of drugs and supplies for a certain period of time so that they were not responsive to the needs or pattern of use. To overcome this problem, the authors highlight the importance of the development of supply chain management systems that may enable PHCWs to plan and manage the required commodities at the community level and enable a “pull” system where PHCWs order stock as required and the orders are responded to. This was in keeping with comments from the participants’ and their suggestions about CCM implementation in the Kutai Timur district. The authors also emphasised the importance of coordination between health administrative levels and other programs in relation to supply chain management. The authors assert that once supply management is established, supportive policy is required to ensure that the system works as desired (Gill et al. 2013).

Service Delivery

Service delivery in health system strengthening refers to ensuring effective, safe and quality health interventions are provided to those in need, with a minimal waste of resource (WHO 2009b). The findings implied that the delivery of child health services in the district was not effective as a number of related programs run separately, although the target of the service is the same. PHCW participants noted that the area for improvement in CCM implementation is coordination between staff and the alignment of CCM with other child health related programs.

Along with coordination, the participants also suggested that CCM needed to be integrated with other existing programs. The suggestion is understandable as the findings from this work indicate that most of the problems that arose in the implementation aspects of the CCM program were associated with a lack of coordination and fragmented health delivery in the villages. For example, supervisors could not undertake supervision of the PHCWs in the villages because there was no budget allocated for CCM supervision. Meanwhile, supervisors had regular visits to PHCWs in villages for other programs and this was well budgeted. If CCM was integrated with other programs, supervisors may have been able to use the opportunity to conduct supervision for the CCM

program concurrently. The problem of multiple reporting was perceived as a burden by PHCWs in villages and might have been reduced with better coordination between the programs so data entry was not replicated. This problem should not have occurred if CCM was formally attached to other child health related programs. Had this coordination of reporting requirements occurred, the PHCWs would not need to make a number of reports for different programs while they conducted a home visit to the one family. They would not need to worry about the budget for the home visit either if it had been budgeted for in another related program.

The problem of a lack of coordination in the programs related to addressing childhood pneumonia and diarrhoea in the community is reported by Gill et al. (2013). To overcome the problem, the authors highlighted the importance of cross-program alignment of the strategic priorities, improving coordination of investment and resource allocation, improving the managerial team's capacity in organising strategic priorities, and ensuring activities are coordinated with priorities at the village, district, province and the national levels. These efforts can be reflected by the integration of child health care delivery with other programs that are directly connected and have the perspective of the 'continuum of care' for maternal health and reproductive health (The Partnership for Maternal Newborn and Child Health 2011).

There has been recognition of the need to enhance and strengthen the integration of essential care for child health into newborn babies, maternal, and reproductive health (Chan & Lake 2013; Martines et al. 2005; Rosenfield, Maine & Freedman 2006; Starrs 2006). Integration relates to providing a range of reproductive, maternal and child health services at the same time and utilising the same facilities (WHO 2008a). It is argued that integrated care service will improve access to important services as well as promote efficiency and effectiveness (WHO 2008a). Improved service integration can reduce duplication. In addition, preventive and curative service can be delivered by PHCWs in each contact with families (Bain-Brickley et al. 2011). An integrated service approach would facilitate the PHCW to not only administer vaccinations to infants but also

offer contraception, and provide antenatal care, including undertaking screening for any sexually transmitted infections, if applicable, all in one visit to the family. As a result of this level of health delivery integration, PHCWs would not be expected to come for different services on different days, which is something that would be beneficial for families' in terms of time, and would reduce the cost for transport. Experience has shown that families' satisfaction with care increases following the implementation of integrated care (WHO 2005a).

The framework that can be applied to promote the service integration is known as the 'continuum of care' for maternal, newborn and child health (Kerber et al. 2007). The continuum of care approach promotes care for mothers and their child throughout the life cycle (adolescence, pregnancy, childbirth, the postnatal period, and childhood) and also within differing contexts of care giving (including households and communities, outpatient and outreach services, and clinical care settings). With this integrative approach, Karber et al. (2007) propose eight packages to promote health for mothers, babies and children, which can be used to deliver more than 190 separate interventions. Of the eight packages, three are delivered through clinical care (reproductive health, obstetric care, and care for sick newborn babies and children); four through outpatient and outreach services (reproductive health, antenatal care, postnatal care and child health services); and one through integrated family and community care throughout the lifecycle. The services are represented in Figure 6.2.

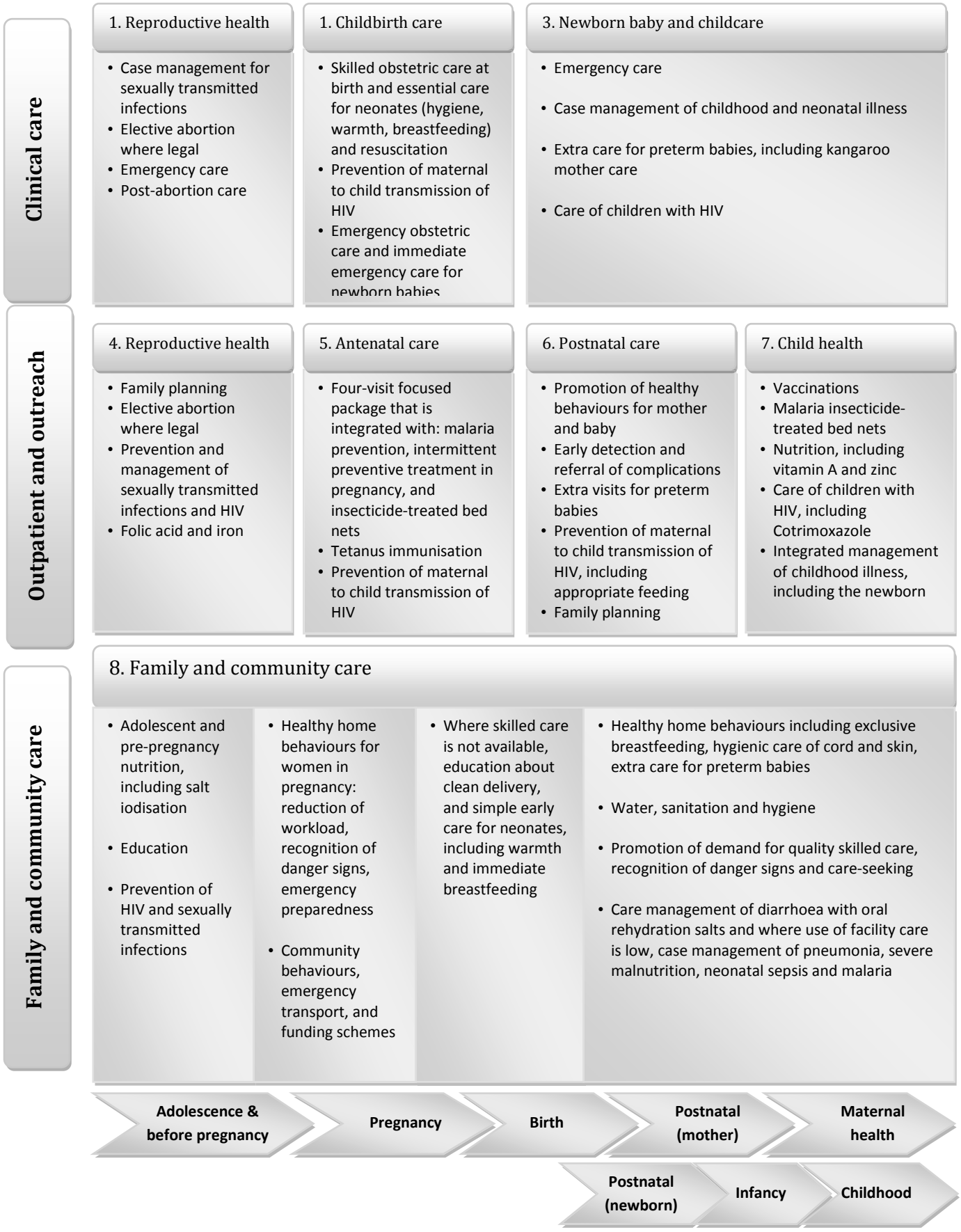


Figure 6.2 Integrated packages for health of mothers, newborn, children and reproductive health, with evidence-based interventions along the continuum of care, organised by lifecycles and place of service delivery. Adapted from Kerber et al. (2007)

Despite the benefits of an integrated service, the challenges in scaling up the integration program should be considered. Challenges may include: inadequate support for the health program and the weakness in the health system in general (WHO 2005a). Ensuring that other elements in the health system are strengthened and supportive to care integration is therefore crucial, including guaranteeing supportive financial resources.

Health Financing

In the context of health systems, strengthening health program financing means ensuring that adequate funding is raised in ways that ensure people can use needed services and are protected from catastrophes or impoverishment associated with having to pay for them (WHO 2009b). It also involves ensuring that an adequate amount of money is appropriately allocated, planned and managed for child health service delivery programs at the community level. Allocating adequate funds is useful not only to ensure that the program operates as expected, but also to increase PHCWs' motivation and performance through incentives. It is outlined in the literature that poor PHCWs' motivation and performance is associated with poor rewards in terms of salary (Kisia et al. 2012; Rowe et al. 2005).

A number of strategies can be proposed to ensure that financial resources are well allocated and accessed for child health service delivery at community level. These strategies include increasing PHCWs' capacity and knowledge about how funding arrangements are made and managed (Jarrah et al. 2013), so that they are familiar with the mechanism of proposing, utilising and reporting the allocated budget. Strengthening the process of advocacy to local government is also essential to ascertain that child health is prioritised in budget planning (Jarrah et al. 2013).

The advocacy should involve providing a justification of why funding arrangements should align with the burden of disease data so that the funds are transferable to other programs as required (Gill et al. 2013). In addition, it is also important to simplify the process of bureaucracy in accessing the money while

still ensuring that the process is transparent and accountable so that the unexpected misuse of funds can be avoided (Gill et al. 2013).

To ensure that the CCM program is appropriately funded, appropriate planning is required. In the planning process, a set of actions would be designed detailing how CCM is to be implemented including implementation strategies and resource allocation needs. The target of coverage, strategies and evaluation criteria should be set up prior to implementation so that PHCWs have clear directions of how CCM is going to be implemented. The strategies that should be planned include: intervention delivery to families, supervision, supply management, training for PHCWs, and monitoring and evaluation. In addition, resources needed by the program have to be allocated as part of the planning. Resources include funding, human resources, and other supported resources such as medicines and equipment.

The findings indicates that the program manager at the district health office felt unable to make appropriate plans as the manager did not feel capable and did not have authority to do this. The other espoused reason was that no sufficient implementation report and document was available for use as the basis to develop a plan. The findings also indicate that planning in the Kutai Timur district was made using a top down approach where the district health office made plans for *Puskesmas* to implement. This finding corroborates an earlier study (Gill et al. 2013) that suggests that one of bottlenecks in CCM implementation in several countries is a lack of program management including using data and reports for decision making and development planning. Literature supports that in developing health planning, appropriate information data management is required so that accurate decisions can be made (Gudes et al. 2010).

Considering the above reasons, the proposed interventions to ensure that proper planning is in place include capacity improvement of program managers, improving reporting and documentation through supervision, and improving information management systems. In addition, it is also emphasised that planning should involve the health workers at *Puskesmas* and village levels.

Leadership and Governance

Leadership and governance components in the health system strengthening involves ensuring strategic policy frameworks combined with effective oversight, coalition building, accountability, regulations, incentives, and attention to system design (WHO 2009b). In the context of this study, this component involves ensuring supportive policy is in place to endorse the delivery of child health services in the community.

Policy support is considered an essential element in child health care delivery at community level. A review conducted by Marsh et al. (2008b) revealed that the success for countries implementing CCM is strongly associated with the endorsement by governments demonstrated through conducive policy from the national to the community level. The countries that were unsuccessful in the program, likewise, were identified to not have such supportive policies. A similar conclusion is also reached by Ghimire et al. (2010) in their study in Nepal.

The necessity of ensuring a conducive social and policy environment has been highlighted in the framework of CCM implementation as an intermediate result to obtain the ultimate goal (CORE Group et al. 2010). Supportive policy environment means that government, from national to district levels, is responsible for the sustainability of the program although the community is the core focus of CCM (CORE Group et al. 2010). Therefore, governments have to guarantee that standards, norms and regulations are well developed and managed so that the quality of the service is assured. Once the policy is developed, it is important to turn the policy into action by formulating and periodically reviewing policies, guidelines and action plans (Gill et al. 2013). Another important element in policy implementation is ensuring that it is periodically reviewed for the basis to make improved guidelines and plans (de Sousa et al. 2012).

One of the roles played by MCHIP in Kutai Timur was to advocate the development of written policy that supported maternal and child health development in the district. In order to understand how a policy is developed and implemented it is useful to examine the process of governance and policy

advocacy, which is called 'policy analysis' (Coveney 2010). Policy analysis is important because policy has become a fundamental concept and instrument in the way that a modern society is organised and managed, and how the authority is exercised (Coveney 2010). In the study context, policy becomes the central notion in how child health delivery service is governed and delivered.

This study proposes the policy cycle approach posed by Althaus, Brigman and Davis (2007) in examining how health policy is developed and implemented. Although the approach is developed within the Australian context which may be different to the Indonesian context, it can be said that there is general recognition that the cycle represents rigorous policy processes; that is, it is a framework for developing and implementing policy (Coveney 2010). The authors believe that the policy cycle allows some synthesis of existing knowledge about public policy (Althaus, Brigman & Davis 2007), and serves as a tool in understanding policy development and implementation (Coveney 2010).

The framework of policy cycle explains the process of policy development in discrete activities, one following the next in a sequential, cyclical fashion. The activities include identifying issues, policy analysis, policy instruments, consultation, coordination, decision making, implementation and evaluation (Althaus, Brigman & Davis 2007). There are critiques associated with the rigidly structured framework, arguing that policymaking is not as logical or as clear cut and the policy cycle approach is more of an ideal than a definitive explanation of practice (Colebatch 2005). However, Althaus, Brigman and Davis (2007) argue that the approach acknowledges that policymaking is non-linear and recognises the fluidity of the process.

The process of policymaking in the policy cycle approach can be seen in Figure 6.3.

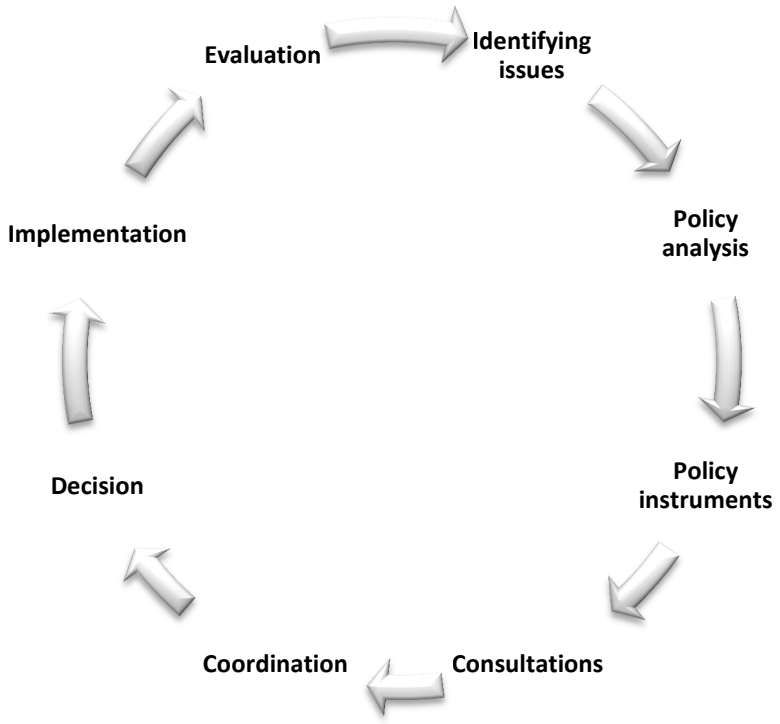


Figure 6.3 Policy cycle. Adapted from Althaus, Brigman and Davis (2007)

Upon examining earlier sections of this discussion, there is no doubt that supportive policy is required to achieve a reduction in infant and child mortality and support associated programs to obtain the aims of CCM. The initial phase of policy development is identifying issues (Althaus, Brigman & Davis 2007). In this phase, it is important to raise key issues that can draw the attention of interest groups including local government, local council/parliament, media, private companies and local communities. Contending voices may use parliament, the media, public events and private lobbying to press the issues (Althaus, Brigman & Davis 2007), while the outcome of the contest is policy agenda.

The overarching policy agenda that may be proposed is the concern about infant and child mortality and morbidity in the district. The complementary issues that may come with the main agenda include: the issue of inequality in health that hinders the acceleration of the government effort; the need of adequate skilled PHCWs that can support the achievement of child health outcomes; ensuring financial support for programs; and issues concerning supply chain management.

These issues can be flagged through a hearing with the local council, meetings with local communities, or using pressure groups such as media and NGOs.

Once the issues have caught the government's attention, the following crucial process would be policy analysis. In this phase, the government is guided by practitioners in health policy fields regarding broader debates on the policy agenda. The policy analysis will generate knowledge that provides governments with timely and relevant information to make informed judgements that will strongly influence the subsequent process of policy development (Lezine & Reed 2007). The analysis leads to identification of appropriate policy instruments. Policy instruments are the methods used to achieve policy objectives, which may include: advocacy through educating or persuading, using information available to the government; networking through enlightening relationships within and across government and with external parties to achieve desired goals; money through using spending and taxing powers; government action through delivering services through public services; and law through legislation, regulation, and official authority (Althaus, Brigman & Davis 2007).

The subsequent process is consultation that involves discussion and proactive interaction with a wide range of related agencies including NGOs. This process will result in an improved proposal, tested ideas and more support gained. Once a policy proposal is prepared, the next step is coordination. This process typically involves discussion with an authorised body about available funding for the policy as well as ensuring that the new proposal aligns with other government directions and policies. As the cycle proceeds, the time for a decision has come. In the context of the decentralisation system in Indonesia, the decision is made by the mayor of the district with agreement of local council (Lieberman, Capuno & Van Minh 2005). Once the decision is made, the following activity is policy implementation that is expressed through legislation and programs. The last phase of the policy cycle is evaluation where the practice is examined against the objectives of the original intention of the policymaking. Such evaluation in turn will generate new problems and need reconsideration, yielding a continual policy cycle that is always turning (Althaus, Brigman & Davis 2007).

This section has highlighted the importance of strengthening the health system that involves the recommendations of actions through scrutinising the components within the health system to improve child health delivery in rural areas in Indonesia. The summary of the recommended strategies is illustrated in Table 6.4.

Table 6.4 Recommended strategies for health system strengthening

Area of improvement	Recommended strategies
PHCWs support	Ensuring clear job descriptions and roles Strengthening supervision Increasing professional development Preserving professional confidence
Monitoring and evaluation of health information systems	Establishing health information systems improving data quality Considering the use of electronic data systems through mobile telephone Harmonising data collection items across projects
Supply management	Training about supply chain management Establish supply chain management system Improve coordination between health administrative levels Create policy for supporting the supply chain management system
Child health service delivery that is integrated with maternal and reproductive health	Cross-program alignment of strategic priorities Improving coordination of investments and resource allocation Improving managerial team's capacity in organising strategic priorities Ensuring activities are coordinated with priorities at the level of villages, districts, province and national level
Program financing	Increase PHCW's capacity in managing funding Increase advocacy to the local government Matching funding to burden of disease Ease the bureaucratic process Ensure transparency to avoid misuse Engage private and NGOs for sustained program
Program planning	Capacity improvement of program managers Improving reporting and documentation through supervision Improving information management systems Engage PHCWs' involvement in program planning
Policy	Developing standards, norms and regulations related to CCM in the district Turning the policy into action by formulating guidelines and action plans Periodically reviewing the policies, guidelines and action plans Considering a 'policy cycle approach' in the process of policymaking

In order to optimise the service coverage and health outcome, this study emphasises the importance of enhancing community participation in addition to health system strengthening.

Community Participation

The other component that is important for successful child health intervention in the community is community acceptability of the program, which is reflected in the community involvement and participation in the program. PHCW participants agreed that improving community awareness of the program would make the health intervention more effective to families. This finding is supported by the number of studies looking at acceptability of the CCM model by the community (George et al. 2011; Mukanga et al. 2010; Nanyonjo et al. 2012), which suggests that strengthening community participation should be taken into account for CCM to be accepted and adapted by the community. This section discusses the importance of enhancing community participation for successful child health implementation in community-based rural districts of Indonesia. The strategies include building relationships between public, private and NGOs that would be beneficial to generate funding, increasing community partnership, awareness and ownership of health, and ensuring cultural appropriateness.

Building Public – Private Partnerships

Public-private partnership is considered to have extraordinary potential, especially because there are a number of huge private coal and oil companies and non-governmental organisations operating in the district. One of the responsibilities of the companies and organisations was to allocate resources for district development. The government through the district health office may use this opportunity to absorb the funding for child health development activities in the district. This initiative was reported by a CHW participant in one village. The participant successfully lobbied the coal company near the village by writing a funding proposal. This innovation meant that the village did not rely on the funding from the local government; the activities in the village were partially funded by generating resources from private companies. This innovation, however, would be better if initiated by the local government through the district

health office so that the partnership can be better coordinated and on a larger scale.

Gill et al. (2013) suggest that to efficiently encourage public-private sector partnerships, key stakeholders in the private sectors should contribute to policy developments that include incentives for the public sector. Dissemination activities presenting success stories may also be considered to attract the private sector to promote and provide key intervention.

Community Partnerships, Enhancing Awareness, and Ownership of Health

Community participation in health care was a key principle of primary health care that was endorsed as the health policy of WHO country members (WHO 1978). Community participation means:

> … a capacity building process through which individuals, groups, or organisations plan, carry out, evaluate activities on a participatory and sustained basis to improve their health and other needs either on their own initiatives or stimulated by others (Rosato et al. 2008b, p. 962)

In other words, community participation means the community is actively involved to participate in activities and decisions that affect their own health. The definition implies that the community can be a resource to address any health problems and fulfil its own needs. This concept implies that the community is the one who 'owns' the program, not the government or another outside organisation.

To improve community awareness and ownership of the program, a number of strategies are proposed. First, ensuring community members and leaders are involved in planning and promotion of child health related programs in their villages. This can be done by establishing a local health committee who provides some form of management support to the program by addressing local issues in relation to child and family health. Secondly, a social marketing strategy can be considered. This can be done by undertaking community meetings facilitated by local health staff. In the meeting, the staff may promote community understanding and ownership of the program, identify the opportunity for community support and contribution, and generate demand for the service from

the community (Strachan et al. 2012). Lastly, by ensuring strong sustained advocacy at district, provincial and national levels (Gill et al. 2013).

Ensuring Socio-Cultural Appropriateness

Both PHCWs and mother participants confirmed that cultural values affected families' health practices and decision-making. One of the notable evidences outlined in the findings was the voluntary involvement of CHWs in community health programs in the country. The involvement of CHWs had been mentioned in the literature (Berman 1984) as reflecting the local Indonesian cultural value of *gotong royong* or mutual aid for community benefit (Munawaroh 2006). This value can be a potential asset to the community to strengthen community participation and ownership that eventually can positively affect the community health outcome.

However, PHCW participants noted that although most families did not have any problem with CCM intervention, there were some families who could not receive some of the available interventions due to the family's beliefs and culture, and this was confirmed by mother participants. For example, not all mothers allowed injections for their babies. In addition, there were some health practices based on local cultural values that may influence how CCM is implemented to families, such as a families' preference for traditional remedies and traditional healers (*Dukun*). This will influence CCM implementation. PHCWs would not be informed that a newborn needed assessment when the one who assisted the birth was a *Dukun*.

It is argued that ensuring socio-cultural appropriateness is crucial in the introduction of a new model of care. Program implementers should consider the community values that may affect positively on child health care delivery while at the same time they will need to negotiate any beliefs that may cause the introduced model to be seen as culturally inappropriate by some. This needs to be predicted. Therefore it is important for program implementers to consider and plan for support for families in incremental changes towards acceptance of the new ideas so that the program can be culturally acceptable. Furthermore the program material could also be revised in an incremental way to include more

culturally appropriate and consonant material over time. The following strategies are proposed to ensure cultural appropriateness in the adaptation of a new model of care: improving cultural competencies of PHCWs, promoting effective communication between PHCWs and families, strengthening coordination with traditional health healers, and involving families in care plan and care decision (Horton & Johnson 2010).

In summary, the strategies recommended to strengthen community participation can be seen in the table below.

Table 6.5 Recommended strategies to strengthen community participation

Area of improvement	Recommended strategies
Build relationships: Public–private for funding	Incentives for private entities to supply key commodities Coordinate activities with private and NGOs; create incentives for private agencies to work in support of government objectives Disseminating success stories to attract more private sector engagement
Partnerships, enhance awareness, and ownership of health	Strong sustained advocacy at district, provincial and national levels Include community leaders in planning and promotion of activities Social marketing
Ensure socio-cultural appropriateness	Improve cultural competencies Effective communication between PHCWs and families Coordinate with traditional health healers Involve family in care plan and care decision

This section has presented the recommendation towards an improved model of care for child health in rural contexts in Indonesia that involve health system strengthening and enhancing community participation. The next section will discuss how the proposed model is realised in practice.

Applying the Recommendations into Practice

After looking at the recommendation towards an improved model of care, it is important to translate the knowledge into practice. In doing so, a framework of change process from Lewin (1952) is used. Lewin's (1952) framework for change is selected because it takes into account the contribution people make in all aspects of change that affect them and enhances their recognition of change through a 'bottom up' approach (Murphy 2006). In community-based interventions such as CCM, participation is the key element that is essential for sustained success in population-level health outcomes (McLeroy et al. 2003): the capacity for the community to be a resource for change is dependent on its capacity to participate (McLeroy et al. 2003). PHCWs are embedded in the community they serve and may be in the position to increase engagement of all stakeholders.

Lewin's approach to change has received criticism. The opponents argue that the approach is dismissed and outdated (Dent & Goldberg 1999), is only suitable for small change projects, assumes that organisations operate in stable states, and it ignores organisational and political power (Burnes 2004). The criticisms of the concept may be understood to some extent as Lewin's theory is linear and structured, which may not be suitable for dynamic organisations such as in the context of community health. Burnes (2004), however, concludes that the theory remains relevant as the basic concepts explain change processes in general.

There are three stages in Lewin's (1952) approach to change. These include unfreezing, moving, and refreezing, involving the realisation of forces that affect change. 'Unfreezing' refers to unfreezing the existing situation to overcome the problem of individual resistance and group traditional values (Kristonis 2005). 'Moving' is the stage where the change agent moves the object system to a new desired level of balance; and 'refreezing' refers to ensuring the sustainability of the change (Kristonis 2005).

The 'Unfreezing' Stage

In relation to decreasing the infant mortality in Indonesia, the 'unfreezing' stage of the change will involve increasing the awareness of the community and related

stakeholders such as local government and the PHCWs that child morbidity and mortality in the district is a serious concern, and the current approach is not adequate to improve the situation. The ultimate aim of this stage would be the recognition of the need for change and the motivation of the target stakeholders to undertake the change.

In this first stage of the process, the program manager needs to encourage stakeholders to challenge the opinion they currently hold by 'marketing the change'. The process includes emphasising the dissatisfaction with the current situation, as well as presenting positive reasons for change to improve the model of care. The notion of 'marketing the change' is relevant to the introduction of a new model in the Indonesian context and can be applied by a program manager and PHCWs who can promote community discussion concerning infant death in their district and then present positive reasons to take action which justifies why change is urgently required. It is necessary at this stage to talk with the local authorities, such as the local government and community decision makers such as religious leaders, elders and local politicians, to understand the existing situation of child health in the district, and how it contributes to national figures that ultimately contribute to the achievement of the MDG targets. Another justification for change would be to understand that death in childhood is a preventable tragedy and it has economic repercussions: a healthy child makes economic sense, as less money will be spent on health care and results in a productive adult. For politicians this can be used as a means of getting votes, and for the community a means of keeping them to their promises. As a result, the stakeholders will be convinced that it is necessary to improve the current workforce distribution in remote district areas as well as the capacity of PHCWs to implement such a lifesaving intervention program.

Once the awareness is gained, the community and related stakeholders have to be convinced that change should be made and they have capacity to make such change. This can be done by identifying the resources of the community that can be mobilised to advance the change (McLeroy et al. 2003), as well as motivating the community and related stakeholders by preparing them for the change, building trust and conducting brainstorming solutions with the group (Kristonis

2005). In initiating such a change process, it is unavoidable that opponents resistant to change do exist (Hussey 2002; Murphy 2006). As well, the barriers from both the self and external environments should also be anticipated (Buonocore 2004). It is therefore essential for the people involved in the program development be equipped with fundamental leadership skills such as effective communication skills (Courtney, Nash & Thornton 2004).

The 'Moving' Stage

The second stage in Lewin's model (1952) is moving from the current position to desired outcomes where actual change is happening (Buonocore 2004). The activity of the agent of change at this stage is persuading the target group to leave the status quo and work together for a new fresh perspective (Kristonis 2005), as well as providing positive feedback on the change that has been made (Murphy 2006).

In relation to the adaptation of a new model of care in Indonesia, the activities in this phase include enabling an environment where social and political factors, from community to national level, encourage and support the new model of care. The strategies include policy advocacy, capacity building, and financial planning (CORE Group et al. 2010). Other strategies would be increasing access to intervention and services by minimising barriers such as geographical and social barriers; increasing and assuring the quality of care delivery service provided by the PHCWs; and lastly, increasing the community awareness of the new model of service so that the community's demand for the service increases and the community's home management of sick children improves (CORE Group et al. 2010).

The 'Refreezing' Stage

The refreezing stage is the period of consolidation where new practices are obtained and commitment is therefore required to maintain the change (Lewin 1952). To ensure the implementation of the proposed model as the desired standard, a regular supervision and monitoring strategy may be employed. In addition, an audit on infant mortality would be beneficial in determining whether the change has been successfully achieved as expected. Perhaps most

importantly, strengthening the health system such as ensuring child health policy at all levels is in place; ensuring a dedicated budget for all aspects of the child health program; and guaranteeing that health workers are trained and certified and supervised to deliver the interventions. Since the organisational system in the community is dynamic in nature (Burnes 2004), it is important to recognise in the phase of refreezing that change evolves over time and should become part of the system values (Buonocore 2004).

In summary, the process of applying the proposed model into practice using Lewin's (1952) approach to change can be seen in the figure below.

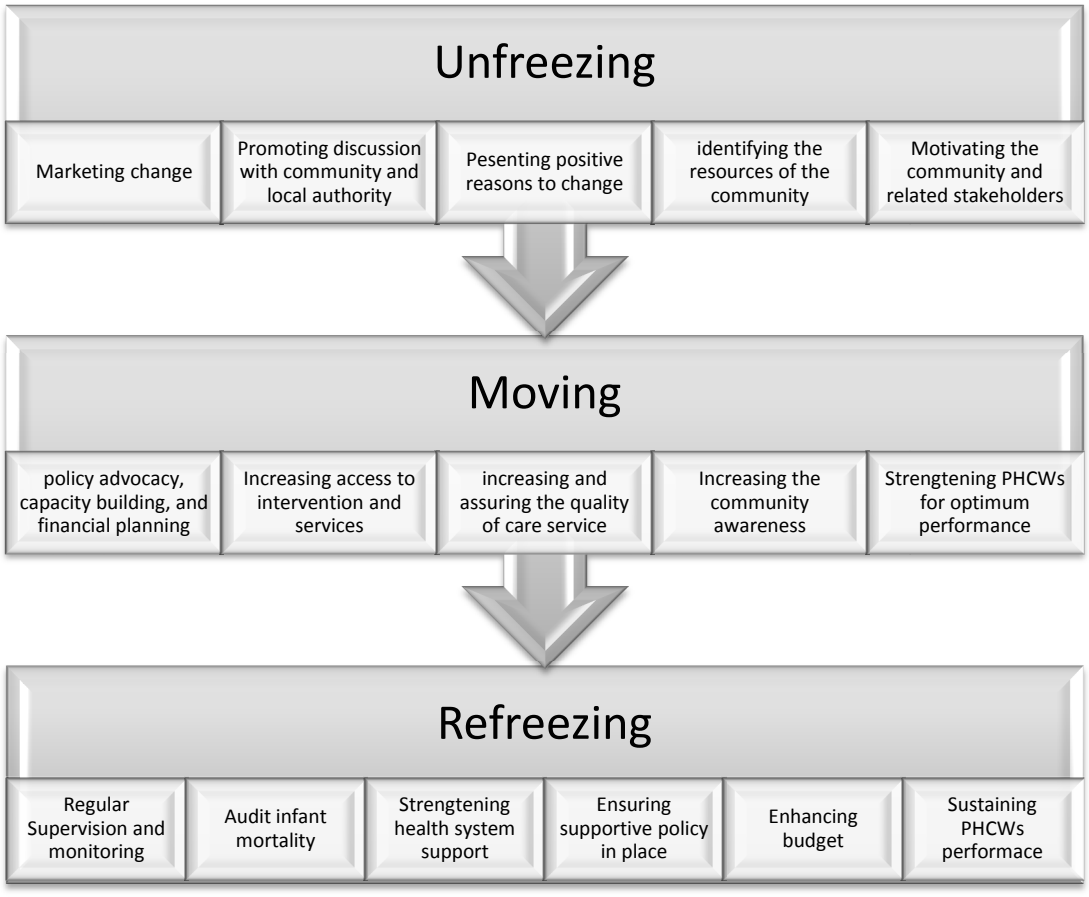


Figure 6.4 Applying the proposed model of care into practice using Lewin's theory of change

Conclusion

In conclusion, it is clear that the implementation of CCM in the Kutai Timur district was a complex process. Utilising an ID approach with its unique features, this study has provided insight into how a new model of care is implemented in a

rural context of Indonesia from the perspectives of PHCWs as the main implementers, and families as the care recipients. The participants affirmed that CCM had made a difference to family wellbeing and improvement in PHCWs practice, supporting earlier studies that were conducted in CCM implementation in other contexts. In addition, this study has also provided new knowledge about barriers and cultural constraints in CCM implementation, supplementing earlier evidence from other studies.

The health system strengthening approach has been used to explain the strengths as well as to provide a means to address the barriers to CCM implementation to reveal an improved model of child health service delivery relevant to the Indonesian context. The framework provides a useful way of incorporating the findings into the specific recommendations emphasising the importance of supporting PHCWs' practice, and integrating child health delivery services with maternal and reproductive health and enhancing community participation.

In order to translate the new proposed model into practice, a change process approach is required. Despite some criticisms, Lewin's theory of change is useful in clarifying and guiding stakeholders through a step-by-step process in relation to change. Further comprehensive investigation is proposed, particularly in gaining understanding of the CCM implementation at later stages, and examining the implementation of the proposed model.

It is recommended that further research be undertaken to investigate the impact of CCM on child mortality in Kutai Timur. In addition, studies should consider applying the proposed model of care and associated strategies using Lewin's theory of change. Insight into the effectiveness of these proposed interventions is essential to improving practice and health outcomes.

Appendix 1: Invitation to participate for primary health care workers

Understanding the implementation of community case management of childhood illness in Indonesia: families' and primary health care workers' perspectives

Dear ……..

My name is Agus Setiawan and I am a student at the University of Technology Sydney.

I am conducting research into gaining understanding of the implementation of the community case management model in Indonesia from the families' and community health workers' perspectives, and would welcome your assistance. The research will involve participant observation, focus group discussion (FGD) and interview and should take no more than one hour of your time. I have asked you to participate because you are eligible to participate in the study.

This research is for my studies in the Faculty of Health, University of Technology Sydney.

If you are interested in participating, I would be glad if you would contact me at *agus.setiawan@student.uts.edu.au*, or contact me at:

You are under no obligation to participate in this research.

Yours sincerely,

Agus Setiawan
University of Technology Sydney,
PO Box 123 Broadway, NSW 2007
Email: *agus.setiawan@student.uts.edu.au*

Appendix 2: Information sheet for primary health care workers

Understanding the implementation of community case management of childhood illness in Indonesia: families' and primary health care workers' perspectives

WHO IS DOING THE RESEARCH?

My name is Agus Setiawan and I am a student at UTS. (My supervisor is Dr Cheryl Waters).

WHAT IS THIS RESEARCH ABOUT?

This research is to understand the implementation of community case management of childhood illnesses in Indonesia.

IF I SAY YES, WHAT WILL IT INVOLVE?

I will ask you to be part of a focused group discussion, let me watch you as you work with family/carers in health centres and homes, and being able to be interviewed lasting up to one hour in which I will ask you to talk about your thoughts about and experiences in delivering care under the CCM implementation framework. I may contact you later by email, phone or in person in order to ask follow-up questions and/or ascertain your opinion regarding ideas and themes emerging from the analysis.

The interview, observation and focus group discussion will be conducted by me.

The interviews will be recorded with a digital recorder, and transcribed and labelled with a pseudonym of your choice. This data will be stored securely for a period of minimum five years. I propose to publish results from this study in academic publications.

ARE THERE ANY RISKS/INCONVENIENCE?

There are very few, if any, risks because the research has been carefully designed. However, it is possible that you may feel embarrassed, or self-conscious, talking about particular issues or feeling uncomfortable at being observed. Information which could identify you will be removed from any submissions made for publication and the data you provide will be kept confidential.

WHY HAVE I BEEN ASKED?

You are able to give me the information I need to find out about how the community case management is implemented in Indonesia.

DO I HAVE TO SAY YES?

You don't have to say yes.

WHAT WILL HAPPEN IF I SAY NO?

Nothing. I will thank you for your time so far and won't contact you about this research again.

IF I SAY YES, CAN I CHANGE MY MIND LATER?

You can change your mind at any time and you don't have to say why. I will thank you for your time so far and won't contact you about this research again.

WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think I or my supervisor can help you with, please feel free to contact me (us) on agus.setiawan@student.uts.edu.au, phone: 0811165236 or cheryl.waters@uts.edu.au

If you would like to talk to someone who is not connected with the research, you may contact the Research Ethics Officer on +61 2 9514 9772, and quote this number 2011-144 A

Appendix 3: Informed consent form for primary health care workers

I _____ *(participant's name)* agree to participate in the research project: "Understanding the implementation of community case management of childhood illness in Indonesia: Families' and primary health care workers' perspectives" being conducted by Agus Setiawan, student of the University of Technology, Sydney for his degree: Doctor of Nursing.

I understand that the purpose of this study is to gain understanding of the implementation of community case management in Indonesia.

I understand that my participation in this research will involve observation, focused group discussion (FGD) and one semi-structured interview. In FGD and interview, I will be asked to talk the implementation of CCM for up to one hour. The conversation will be recorded with a digital recorder. In observation, I will be watched as I work with family/carers in health centres and homes.

I understand that the researcher may contact me later in order to ask follow-up questions and/or ascertain my opinion regarding ideas and themes emerging from the analysis.

I am aware that I can contact Agus Setiawan or his supervisor Dr. Cheryl Waters if I have any concerns about the research. I also understand that I am free to withdraw my participation from this research project at any time I wish, without consequences, and without giving a reason.

I agree that Agus Setiawan has answered all my questions fully and clearly.

I agree that the research data gathered from this project may be published in a form that does not identify me in any way.

_____ ___/___/___

Signature (participant)

_____ ___/___/___

Signature (researcher)

NOTE:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee. If you have any complaints or reservations about any aspect of your participation in this research which you cannot resolve with the researcher, you may contact the Ethics Committee through the Research Ethics Officer (Ph: +61 2 9514 9772 Research.Ethics@uts.edu.au) and quote the UTS HREC reference number: 2011-144 A. Any complaint you make will be treated in confidence and investigated fully and you will be informed of the outcome.

Appendix 4: Information sheet for mothers

Understanding the implementation of community case management of childhood illness in Indonesia: families' and primary health care workers' perspectives

WHO IS DOING THE RESEARCH?

My name is Agus Setiawan and I am a student at UTS. (My supervisor is Dr. Cheryl Waters).

WHAT IS THIS RESEARCH ABOUT?

This research is to understand the application of community case management for childhood illnesses in Indonesia.

IF I SAY YES, WHAT WILL IT INVOLVE?

I will ask you to be interviewed for up to one hour during which I will ask you to talk about your thoughts and experiences in receiving care under the CCM implementation framework. The interview will be recorded with a digital recorder. I may contact you later by email, phone, or in person in order to ask follow-up questions and/or ascertain your opinion regarding ideas and themes emerging from the analysis.

The interview will be conducted by me. It will be recorded and transcribed and labelled with a pseudonym of your choice. This data will be stored securely for a period of at least five years. I propose to publish results from this study in academic publications.

ARE THERE ANY RISKS/INCONVENIENCE?

There are very few if any risks because the research has been carefully designed. However, it is possible that you may feel embarrassed, stressed or self-conscious talking about particular issues, such as your child's sickness. Information which could identify you will be removed from any submissions made for publication and the data you provide will be kept confidential.

WHY HAVE I BEEN ASKED?

You are able to give me the information I need to find out about how the community case management is implemented in Indonesia.

DO I HAVE TO SAY YES?

You don't have to say yes.

WHAT WILL HAPPEN IF I SAY NO?

Nothing. I will thank you for your time so far and won't contact you about this research again.

IF I SAY YES, CAN I CHANGE MY MIND LATER?

You can change your mind at any time and you don't have to say why. I will thank you for your time so far and won't contact you about this research again.

WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think I or my supervisor can help you with, please feel free to contact me (us) on agus.setiawan@student.uts.edu.au, phone: [redacted] or cheryl.waters@uts.edu.au

If you would like to talk to someone who is not connected with the research, you may contact the Research Ethics Officer on +61 2 9514 9772, and quote this number 2011-144A

Appendix 5: Informed consent form for mothers

I _____ *(participant's name)* agree to participate in the research project: "Understanding the implementation of community case management of childhood illness in Indonesia: Families' and primary health care workers' perspectives" being conducted by Agus Setiawan, student of the University of Technology Sydney for his degree: Doctor of Nursing.

I understand that the purpose of this study is to gain understanding of the implementation of community case management in Indonesia.

I understand that my participation in this research will involve one semi-structured Interview, in which I will be asked to talk about the implementation of CCM for up to one hour. The interview will be recorded with a digital recorder, the data will be stored securely and confidentially. I understand that the researcher may contact me later in order to ask follow-up questions and/or ascertain my opinion regarding ideas and themes emerging from the analysis.

I am aware that I can contact Agus Setiawan or his in-country supervisor Dr Martin Weber (62 21 5204349) if I have any concerns about the research. I also understand that I am free to withdraw my participation from this research project at any time I wish, without consequences, and without giving a reason.

I agree that Agus Setiawan has answered all my questions fully and clearly.

I agree that the research data gathered from this project may be published in a form that does not identify me in any way.

_____ ___/___/___

Signature (participant)

_____ ___/___/___

Signature (researcher)

NOTE:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee. If you have any complaints or reservations about any aspect of your participation in this research which you cannot resolve with the researcher, you may contact the Ethics Committee through the Research Ethics Officer (Ph: +61 2 9514 9772 Research.Ethics@uts.edu.au) and quote the UTS HREC reference number: 2011-144 A. Any complaint you make will be treated in confidence and investigated fully and you will be informed of the outcome.

Appendix 6: Informed consent form for key informants

I _____ *(participant's name)* agree to participate in the research project: "Understanding the implementation of community case management of childhood illness in Indonesia: Families' and primary health care workers' perspectives" being conducted by Agus Setiawan, student of the University of Technology Sydney for his degree: Doctor of Nursing.

I understand that the purpose of this study is to gain understanding of the implementation of community case management in Indonesia.

I understand that my participation in this research will involve one semi-structured Interview, in which I will be asked to talk about the implementation of CCM for up to one hour. The interview will be recorded with a digital recorder, the data will be stored securely and confidentially. I understand that the researcher may contact me later in order to ask follow-up questions and/or ascertain my opinion regarding ideas and themes emerging from the analysis.

I am aware that I can contact Agus Setiawan or his in country supervisor Dr Martin Weber (62 21 5204349) if I have any concerns about the research. I also understand that I am free to withdraw my participation from this research project at any time I wish, without consequences, and without giving a reason.

I agree that Agus Setiawan has answered all my questions fully and clearly.

I agree that the research data gathered from this project may be published in a form that does not identify me in any way.

_____ ___/___/___

Signature (participant)

_____ ___/___/___

Signature (researcher)

NOTE:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee. If you have any complaints or reservations about any aspect of your participation in this research which you cannot resolve with the researcher, you may contact the Ethics Committee through the Research Ethics Officer (Ph: +61 2 9514 9772 Research.Ethics@uts.edu.au) and quote the UTS HREC reference number 2011-144 A. Any complaint you make will be treated in confidence and investigated fully and you will be informed of the outcome.

Appendix 7: Guideline of Focus Group Discussion (FGD)

Participant: Community health workers (nurses, midwives, CHWs)

Time required: One hour

Purpose: To generate themes surrounding the implementation of CCM in Indonesia

Introduction (10 minutes)

- Welcome participants and introduce myself.
- Explain the general purpose of the discussion and why the participants were chosen.
- Discuss the purpose and process of focus group.
- Explain the presence and purpose of recording equipment.
- Outline general ground rules and discussion guidelines, such as the importance of everyone speaking up, talking one at a time, and being prepared for the moderator to interrupt to assure that all the topics can be covered.
- Review break schedule and where the restrooms are.
- Address the issue of confidentiality.
- Inform the group that information discussed is going to be analysed as a whole and that participants' names will not be used in any analysis of the discussion.
- Read a protocol summary to the participants.

Topic generation (40 minutes)

- What and how services are delivered in the CCM framework?
    - How is CCM managed?
    - How do care providers work together, who do they talk to, what relationships do they have?
    - How is service delivered by PHCWs under the CCM framework?
    - What policies guide practice in this area?
    - What funding is set?
    - What education and training did PHCWs receive in the service?
    - How is CCM different from the usual approach to PHCWs' practice?
- What are the barriers and constraints to addressing CCM & why? How does this impact on PHCWs' performance and CCM outcomes?
- What interventions are required to address these barriers and constraints?
- What are the cultural influences in CCM implementation?

Closing (10 minutes)

- Closing remarks
- Thank the participants

Appendix 8: HREC approval - UTS

UNIVERSITY OF TECHNOLOGY SYDNEY

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6 June 2011

Dr Cheryl Waters
Nursing, Midwifery and Health
KG05.02.219
UNIVERSITY OF TECHNOLOGY, SYDNEY

Dear Cheryl,

UTS HREC 2011-144 – WATERS, Dr Cheryl, DiGNAM, Professor Denise, DAWSON, Dr Angela (for SETIAWAN, Ms Agus, PhD student) – "Understanding the application of community case management model in Indonesia: Family's and community health worker's perspectives"

Thank you for your response to my email dated 25/05/11. Your response satisfactorily addresses the concerns and questions raised by the Committee, and I am pleased to inform you that ethics clearance is now granted.

Your clearance number is UTS HREC REF NO. 2011-144A

Please note that the ethical conduct of research is an on-going process. The *National Statement on Ethical Conduct in Research Involving Humans* requires us to obtain a report about the progress of the research, and in particular about any changes to the research which may have ethical implications. This report form must be completed at least annually, and at the end of the project (if it takes more than a year). The Ethics Secretariat will contact you when it is time to complete your first report.

I also refer you to the AVCC guidelines relating to the storage of data, which require that data be kept for a minimum of 5 years after publication of research. However, in NSW, longer retention requirements are required for research on human subjects with potential long-term effects, research with long-term environmental effects, or research considered of national or international significance, importance, or controversy. If the data from this research project falls into one of these categories, contact University Records for advice on long-term retention.

If you have any queries about your ethics clearance, or require any amendments to your research in the future, please do not hesitate to contact the Ethics Secretariat at the Research and Innovation Office, on 02 9514 9772.

Yours sincerely,
Production Note:
Signature removed prior to publication.
Professor Marion Haas
Chairperson
UTS Human Research Ethics Committee

Appendix 9: Ethics approval – Universitas Indonesia

UNIVERSITAS INDONESIA
FAKULTAS ILMU KEPERAWATAN
Kampus UI Depok Telp. (021)78849120, 78849121 Faks. 7864124
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ETHICAL CLEARENCE

The Ethical Committee of Nursing Research, Faculty of Nursing, Universitas Indonesia with regards of the protection of human rights and welfare in nursing research, has carefully reviewed the proposal entitled :

Understanding the application of community case managemet model in Indonesia: Families' and community health workers' perspectives

Name of researcher : Agus Setiawan
Name of institution : Faculty of Nursing Universitas Indonesia

And approved the above mentioned proposal.

Jakarta, 13 May 2011

Dean,

Production Note:
Signature removed prior to publication.

Dewi Irawaty, MA, PhD

Chairman,

Production Note:
Signature removed prior to publication.

Yeni Rustina, PhD

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