Evaluation of a program implemented to reduce surgical wound infection in an acute care hospital in India: A clinical practice improvement project

Sr. Alphonsa Ancheril

A thesis submitted in accordance with the requirements for admission to the Degree of Doctor of Philosophy

University of Technology, Sydney

May 2004

CERTIFICATE OF AUTHORSHIP/ORIGINALITY

I hereby certify that this thesis entitled “Evaluation of a program implemented to reduce surgical wound infection in an acute care hospital in India: A clinical practice improvement project” is the outcome of the original research undertaken and carried out by me. I also certify that the material of this thesis has not formed in any way, the basis for the award of any previous Degree, Diploma, Title or Recognition.

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

…….

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

APIC	Association for Practitioners in Infection Control
CDC	Centres for Disease Control and Prevention
CQI	Continuous Quality Improvement
EPINE	Nosocomial Infections Prevalence Study in Spain
HAI	Hospital Acquired Infection
HIC	Hospital Infection Control
ICPs	Infection Control Professionals
JCAHO	Joint Commission of Accreditation of Healthcare Organisations
MRSA	Methicillin Resistant Staphylococcus Aureus
NI	Nosocomial Infections
NNIS	National Nosocomial Infections Surveillance
NSW	New South Wales
PAR	Participatory Action Research
SENIC	Study on the Efficacy of Nosocomial Infection Control
SHEA	Society for Hospital epidemiology of America
SIS	Surgical Infection Society

ACKNOWLEDGEMENTS

The researcher is extremely grateful to all those who have contributed to the successful completion of this project.

My sincere and heartfelt thanks to Professor Judith Donoghue, Head of the department of Acute Care Nursing Research Unit, St. George Hospital, Kogarah, for her constant support, guidance, valuable suggestions, constructive criticism and encouragement given all throughout the project. She had been very patient with me and we have spent hours together to discuss, interpret the findings and refine this thesis.

I am equally grateful to Professor Lesley Barclay, for her valuable guidance whenever needed and her sustained interest in the project as well as helping me to get a scholarship from the Faculty of Nursing, Midwifery and Health, University of Technology, Sydney (UTS).

I am extremely grateful to the Faculty of Nursing, Midwifery and Health, UTS, not only for the professional advice and interest they showed in the project but also for providing me with a scholarship to undertake this study.

I wish to express my love and gratitude to the staff of Acute Care Nursing Research Unit, St. George Hospital Kogarah, Family Health Research Unit, Broadway and my colleagues for their friendship and in particular Ms Priya Nair for her assistance with printing and binding of the thesis.

A sincere thanks to Mr. Suresh, Statistician, for his expert guidance in statistical analysis and helping to workout the many statistical issues.

A special thanks to my nephew Jinto, for helping me with computer typing and preparing the “booklet” and Mr. Christopher Sudhaker, my former student and friend, for helping in the preparation of the “Infection Control Manual”.

Words are inadequate to express my sincere love and gratitude to Sr. Anne O’Shaughnessy and all the members of ‘Our Lady’s Nurses for the Poor’, who met all my needs while I undertook my study at UTS. They were not only kind enough to accommodate me but generously provided me with all the financial, moral, and spiritual

support I needed and made sure that I was not in want of anything. Thanks to all of you for your love, friendship, constant support and encouragement.

I will be failing in my duty if I do not thank Sr. Patricia Davis for being a good friend of mine, constantly encouraging me and supporting me with her prayers and patiently editing my thesis.

I am also grateful to the friends, relatives and well wishers of 'Our Lady's Nurses for the Poor' for the sincere interest they showed in me and a special thanks to Diane for helping me with computer work as well as for the many little things she did to make my stay in Sydney a comfortable one.

Thanks to Thomas & Lissy, Rojo & Asha, and many other Indian friends who are settled in Sydney, for their friendship, love, and support of me; each in different ways while I undertook my study at UTS.

I owe my sincere thanks to Fr. Baptist Menenzes, Director of Fr. Muller Charitable Institutions and Fr. Lawrence C D'Souza, Administrator, Fr. Muller Medical College and College of Nursing, for deputing me for higher studies, for their constant help, support and encouragement and permitting me to undertake the study at the particular Institution.

I wish to express my deep sense of gratitude to the Superior General, Provincial, Superiors and sisters of my religious family, my mother and dear ones, friends and well wishers, for their constant encouragement, help and prayerful support.

A big thanks to the Nursing Superintendent and all the nurses who participated in the project. This project would not have been possible without their enthusiasm, co-operation and commitment.

Finally my sincere thanks to the many people who directly or indirectly have contributed to my safe stay at Sydney, study at UTS and successful completion of this project.

ABSTRACT

This research project investigated the impact of an action research intervention implemented to reducing surgical wound infection in one of the acute care hospitals in India. The study aimed to develop and implement a clinical practice improvement program in reducing surgical wound infection by improving the hand washing and wound dressing practices of nurses. The study also aimed to identify the important contributing factors to a model that predicts surgical wound infection.

Pre-post evaluation measures were taken to compare the results of surgical wound infection rate before and after the implementation of the intervention. Surgical wounds of two thousand patients (one thousand before the intervention and another one thousand after) were assessed to determine the wound infection rate and severity of wound infection. The hand washing and wound dressing practices of forty nurses were observed. These same nurses were involved in the intervention using a participatory action research process.

The results of the study suggest that there was a marked, significant reduction in the rate and severity of wound infection following the implementation of the intervention. By increasing the hand washing facilities in the ward, educating nurses on the importance of better hygiene, pre-operative shaving and post-operative wound care, the hand washing and wound dressing practices of nurses improved considerably. These improvements resulted in a reduction in the number and severity of patients' surgical wound infections.

The study also examined the contribution of different factors to surgical wound infection in a Indian hospital. Significant predictive factors were the patients' age, longer pre-operative hospital stay, extended pre-operative shaving time before surgery, wound class, and co-morbidity of the patient. The identification of risk factors that contributed to increased surgical wound infection for example pre-operative skin preparation, pre-operative hospital stay of the patient would help in taking appropriate measures at the ward level and organisation as a whole. Nosocomial infections extends to an unnecessary lengthy hospital stay, additional treatment increased mortality and morbidity, and increased cost to the patients and the nation as a whole.

This project proved that educational mentoring, data surveillance processes and involving the nurses in an action research process were effective in enabling participants to improve their clinical practice and thereby reduce the incidence of patients' surgical wound infections. Establishing infection control teams, ongoing surveillance and feedback to staff of nosocomial infection rates is an urgent need in all Indian hospitals. Organisational management, as a priority, need to provide funding and staff dedicated to undertaking this essential work. Health care professionals can no longer plead ignorance of a situation for which all have a moral and professional responsibility.