The data examined in this thesis was obtained from the Vietnam-Australia Primary Health Care (VAPHC) Project. This project was a collaborative project between the Ministry of Health, Government of Vietnam and the Australian International Development Assistance Agency (AusAID), Government of Australia and managed by Hassall and Associates. It was conducted in several southern Vietnam from 1999 till 2003.

At the beginning of the VAPHC Project, baseline surveys were conducted to gain information on health care for women and children (Vietnam Australia Primary Health Care Project Report, 1999). These surveys were implemented by staff at the Ho Chi Minh City Institute for Hygiene & Public Health, Tu Du Hospital for Obstetrics & Gynaecology, Paediatric Hospital No 1, University Training Centre for Health Professionals, Ho Chi Minh City, Child Nutrition Centre and MCH Centres of provinces where the surveys were conducted, in conjunction with Vietnamese and Australian consultants.

The author of this thesis was not involved in the design or development of these surveys, or the data collection. The secondary data analyses presented in this thesis were independently developed and were not included in any reports from the VAPHC project.
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ABBREVIATIONS

ACOG : American College of Obstetricians and Gynaecologist
ANC : Antenatal care
APNCU : Adequacy of Prenatal Care Utilisation Index
CHC : Community health centre
DHS : Demographic and Health Survey
GDP : Gross Domestic Product
LBW : Low birth weight
MNPI : Maternal and Neonatal Programme Effort Index
PEI : Prenatal Care Evidence-Based Index
PHS-REC : US Public Health Service Expert Panel on Prenatal Care
R-GINDEX : Graduated Index of Prenatal Care Utilization
TBA : Traditional birth attendants
UNFPA : United Nations Population Fund
UNICEF : United Nations Children’s Fund
WHO : World Health Organisation
ABSTRACT

**Objective:** To describe the levels of ANC adequacy and factors related in 3 provinces of Vietnam: Long an, Ben tre and Quang ngai.

**Method:** Data from three rural provinces of Vietnam collected by the Vietnam Australia Primary Health Care Project were analysed using descriptive and analytical statistical techniques including multivariate regression, multipart analysis and hierarchical techniques. A sample of 1335 eligible women was available for analysis. The Andersen Health Behaviour Model was utilised in analyses of ANC utilisation. The Donabedian Quality of Health Model was used in analyses of ANC content and overall adequacy.

**Results:** ANC was inadequate with only 71% of women having some ANC, 51% having initial visits within the first four months, 41% having three or more visits, 35% having three or more visits with the initial visits within the first four months, 17% of women reported three quarter or more of recommended ANC procedures/advice, 12% of women had enough ANC utilisation and fair ANC content.

Factors that existed prior to contact with health care providers such as external environment, predisposing and need were related to whether the women seek any ANC and to pregnancy duration at first visits. However, factors that resulted from initial contact with health care providers, such as satisfaction of women with ANC services and health care provider related characteristics, were important in the models examining total number of ANC visits, overall ANC utilisation, content of ANC reported and overall ANC adequacy. Province of residence related to all aspects of ANC adequacy. Different aspects of ANC adequacy were related to each other.

**Conclusion:** ANC adequacy levels in Vietnam were low. To increase the proportions of women who use ANC services and attend ANC early, promotion of ANC should be targeted at women at risk. However, to improve continuation with ANC, ANC content, and overall ANC adequacy, the quality of services provided needs to be improved. To reduce the gap between provinces, priority should be given to less developed provinces.
THESIS STRUCTURE

This thesis is divided into six chapters. Chapter one is the general introduction, Chapter two presents the settings and the data, Chapter three describes ANC adequacy level, Chapter four presents factors related to ANC utilisation, Chapter five focus on factors related to ANC content and overall ANC adequacy, and Chapter six is the conclusion.

Chapter one:

Chapter one describes magnitude of pregnancy and childbirth related mortality and morbidity, causes and solutions, roles of ANC in preventing maternal and infant mortality and morbidity, recommended ANC utilisation and content from the WHO and the Vietnamese government, and the current situation of ANC adequacy levels in the world and in Vietnam. This chapter concludes by identifying the knowledge gaps and need for research, and describing general aims and significance of this study.

Chapter two:

Chapter two starts with general background information about Vietnam in terms of geographic location, population, administration, socio-economic status, health system, general health, reproductive health and ANC services. Details are provided on the characteristics of the three provinces covered by the Vietnam Australia Primary Health Care Project (Long an, Ben tre and Quang ngai). There is also the description of the base line survey conducted by the project from which the data is analysed in this thesis.

Chapter three:

This chapter describes level of ANC adequacy in the three provinces. Available methods to measure ANC adequacy are identified. Studies applied these methods are reviewed. A set of indicators and indices are proposed and then utilised to measure ANC adequacy levels in the three provinces. Results obtained by using different indicators and indices are compared with each other and discussed.
Chapter four:

This chapter describes factors associated with ANC utilisation. Factors identified in previous researches are overviewed. The Andersen Health Behaviour Model used as the theoretical structure for the analyses is also reviewed and its previous applications in health research are described. Results of the application of this model to the data from the Vietnam Australia Primary Health Care Project are presented and discussed.

Chapter five:

This chapter describes factors associated with ANC content and overall adequacy. In this case, The Donabedian Health Quality Model is used as the structure for the data analysis.

Chapter six:

Chapter Six provides a summary of the results, presenting of strength, limitation, significances of the study and recommendations to improve ANC adequacy.