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**Analysis of Trends and Reasons for Rising
Acute Adult Medical Admissions in
Auckland's Public Hospitals**

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A thesis submitted in partial fulfilment of the requirements

for the degree of Doctor of Philosophy

The University of Auckland, 2007

The University of Auckland

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Abstract

The main purpose of this study was to examine empirically the trends and reasons for rising acute adult medical admissions at two major public hospitals in Auckland from 1997 to 2004. According to recent national and international literature published on the topic, there has been unsustainable growth in the adult medical admissions both in NZ and most of the other developed countries. Overall, the causes of this increase have not been explored sufficiently in the literature reviewed. The NZ research has largely focused on the macro-analysis of hospital throughput data from health policy points of view.

Methodology: A mixed methodology research design was applied to address the problem. Phase 1 quantitatively analysed adult medical hospital admission data (N = 277,416) obtained from the two hospitals (Middlemore and Auckland Public Hospitals), and phase 2 qualitatively explored the responses and views of the health professional expert panel (n = 16) in relation to the findings of phase 1 of the study.

Findings: Overall, the crude number of admissions and age-standardised admission rates at both hospitals increased more rapidly than actual population increases. Approximately 1/3 of the patients accounted for 2/3 of the total admissions. Five major diagnostic categories accounted for 70%-80% of total acute admissions, with circulatory and respiratory system disorders being the leading causes of medical admissions. There was a strong relationship between age and increased admissions. MMH hospital overall, and its ethnic groups separately, had significantly higher admission rates than APH. Comparison of ethnic groups highlighted significant variations in the admission rates at the two hospitals despite adjusting for age, morbidity and deprivation.

Conclusions: Overall the increase and variation in admission rates between the hospitals and ethnic groups was dependent on factors such as the characteristics of the population and patients, hospital admission and administration processes, availability of hospital beds, medical management at the hospital, and availability of primary and community care services. By making changes to those factors in the control of hospitals and District Health Boards, hospitals can potentially influence the trajectory of rising medical admissions. These factors include systems for managing patients with chronic illness, and pathways from community services to hospital. Finally, a number of future research areas, such as a large-scale study to explore the health service utilisation of the 55+ age groups, have been proposed.

Dedication

This thesis is dedicated to my wife Dr Maria Kobe, who has supported me unconditionally throughout my study period, and our daughter Ahnoor and son Ishaan for cheering me up throughout this project and for their patience, with love and thanks.

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Abbreviations

ACS	Acute coronary syndrome
ADHB	Auckland District Health Board
ADU	Assessment and Discharge Unit
AH	After hours
ALOS	Average length of stay
AMA	Acute medical admission
APH	Auckland Public Hospital
APU	Assessment and Planning Unit
ASR	Age-standardised rate
CHD	Coronary heart disease
CHF	Congestive heart failure
CI	Confidence interval
CMDHB	Counties Manukau District Health Board
COPD	Chronic obstructive pulmonary disease
CP	Chest pain
DALYs	Disability adjusted life years
DHB	District health board
DRG	Diagnostic related group
EC	Emergency Care
ED	Emergency Department
GP	General practitioner
HF	Heart failure
IHD	Ischaemic heart disease
IPA	Independent practitioner association
IQR	Interquartile range
LOS	Length of stay
MA	Medical admission
MDC	Major diagnostic category
MI	Myocardial infarction
MMH	Middlemore Hospital
NHI number	National health index number
NSTEACS	Non-ST elevation acute coronary syndrome
PCO	Primary care organization
PHO	Primary health organization
POAC	Primary options for acute care
STEMI	ST elevation myocardial infarction
TIA	Transient ischaemic attack
UTI	Urinary tract infection