Epidemiological Studies of Cervical Cancer Survival in New Zealand

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Abstract

In this thesis I describe a series of studies of the stage at diagnosis and subsequent survival of women registered with cervical cancer in New Zealand during the period 1994 to 2005, and the factors that may contribute to the demographic differences that were found in both stage at diagnosis and survival.

The studies involved all of the cervical cancer cases registered on the New Zealand Cancer Registry between 1994 and 2005. The cases were linked to the National Mortality Collection (for mortality data), the National Cervical Screening Programme-Register (for screening history), and the hospital events on the National Minimum Dataset (for information on comorbid conditions). The studies assessed what proportions of the ethnic differences in late stage diagnosis (after adjustment for socio-economic position) were due to various factors such as screening history and urban/rural residency, and what proportions of the ethnic differences in survival (after adjustment for socio-economic position) were due to various factors including stage at diagnosis, comorbid conditions, and travel time and distance to the nearest General Practitioner and cancer centre.

Māori and Pacific women had a higher risk of late stage diagnosis compared with 'Other' (predominantly European) women. Screening history did not entirely explain the increased risk in Māori women, but did explain that in Pacific women. More than half of the women with cervical cancer had not been screened, while those that had been 'regularly' screened had a considerably lower risk of a late stage diagnosis. Stage at diagnosis accounted for some but not all of the ethnic differences in survival. Comorbidity explained a moderate proportion of the ethnic differences in survival, while travel time may account for a small proportion of the ethnic differences in stage at diagnosis, and to a lesser extent mortality, particularly for Pacific women.

The higher risk of late stage diagnosis in Māori women remains largely unexplained, whereas in Pacific women it is almost entirely due to differences in screening history and travel time. More than one-half of the higher risk of mortality in Māori and Pacific women is explained by differences in stage at diagnosis and comorbid conditions.

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Abbreviations

AIS	Adenocarcinoma in situ
BDM	Births, Deaths, and Marriages
CAU	Census Area Unit
CCI	Charlson Comorbidity Index
CI	Confidence intervals
CIN	Cervical intraepithelial neoplasia
CRSR	Cumulative relative survival ratio
DAG	Directed acyclic graph
FIGO	International Federation of Gynecology and Obstetrics
GIS	Geographical Information System
GP	General Practitioner
HPV	Human papillomavirus
HR	Hazard ratio
ICD-10-AM-II	International Classification of Diseases, 10th Revision, Australian Modification, 2nd Edition
ICD-9-CM-A	International Classification of Diseases, 9th Revision, Clinical Modification (Australian version)
ICD-O	International Classification of Diseases for Oncology
km	Kilometres
LBC	Liquid-based cytology
MoH	(New Zealand) Ministry of Health
NCSP	National Cervical Screening Programme
NCSP-R	National Cervical Screening Programme-Register

NHI	National Health Index
NMDS	National Minimum Dataset
NSU	National Screening Unit
NZ	New Zealand
NZCR	New Zealand Cancer Registry
NZDep2001	New Zealand Deprivation Index 2001
OR	Odds ratio
Pap	Papanicolaou
RR	Relative risk
RSR	Relative survival rate
RSRR	Relative survival rate ratio
SEER	Surveillance, Epidemiology, and End Results
SEP	Socio-economic position
TNM	Tumour, node, metastasis
WHO	World Health Organization