

## 3.2 LINKAGE OF DATA IN THE STUDY OF ETHNIC INEQUALITIES AND INEQUITIES IN HEALTH OUTCOMES IN SCOTLAND, NEW ZEALAND AND THE NETHERLANDS: INSIGHTS FOR GLOBAL STUDY OF ETHNICITY AND HEALTH

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03-2.1

### LINKAGE OF DATA IN THE STUDY OF ETHNIC INEQUALITIES AND INEQUITIES IN HEALTH OUTCOMES IN SCOTLAND: THE SCOTTISH HEALTH AND ETHNICITY LINKAGE STUDY (SHELS)

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**Background** There are striking ethnic variations in health status, outcomes, and health service utilisation. Quantifying and understanding this variation is essential to identify the health needs of ethnically diverse populations and assess the extent to which healthcare is equitable. Incomplete ethnic coding in routine data collection in Scotland undermines these efforts.

**Methods** We examined ethnic variations in cardiovascular, cancer, maternal and child, and mental health using data linkage methods to bring together data on self-defined ethnicity and health outcomes. Personal identifiers available in both data sets were used to link the encrypted unique record identifiers (census number and Community Health Index number) using exact and probability matching to create a look-up file containing only corresponding encrypted record identifiers. These methods ensured that no personal information was shared between participating organisations. The resulting anonymised database included information on around 4.6 million people with 7 years' follow-up data.

**Results** Important ethnic differences in all health areas were observed. The White Scottish population had higher cardiovascular risks than Other White British, but Pakistani populations had the highest risks and Chinese the lowest. Breast cancer screening non-attendance was substantially lower in Pakistani women than White Scottish. White Scottish populations had higher hospital admission rates for mental health problems than most other groups, with the exception of African / Black women, and the Mixed groups.

**Conclusions** These findings contribute substantially to developing ethnicity and health research internationally and provide data that NHS Scotland can use to highlight ethnic inequalities and inform action to address them.

03-2.2

### LINKAGE OF CENSUS WITH MORTALITY AND CANCER DATA IN NEW ZEALAND. [PART OF SYMPOSIUM REF NUMBER 2353, "LINKAGE OF DATA IN THE STUDY OF ETHNIC INEQUALITIES ..."]

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**Introduction** Ethnicity is difficult to collect in a standard way between health and census datasets, meaning routinely calculated rates are prone to numerator-denominator bias.

**Methods** Census and mortality data have been routinely linked in the New Zealand Census-Mortality Study, creating time series data

from 1981. More recently, the Cancer trends study has linked cancer registrations. The proportion of eligible mortality / cancer records linked to a census record is now over 80%. Weighting is used to adjust for any linkage bias.

**Results** Previously calculated mortality rates for Māori and Pacific people were shown to be underestimated by a quarter due to numerator-denominator bias. Corrected trends in mortality rates since 1981 demonstrate little if any improvement in Māori mortality rates during the 1980s–90s, concurrent with major reforms that impacted more on Māori than non-Māori (eg, unemployment rates among Māori reached 25% in 1992, compared with 7% among Europeans).

Other analyses demonstrate that CVD is the major cause of death giving rise to ethnic inequalities in mortality, but as CVD rates fall for all ethnic groups inequalities in mortality are "relocating" to cancer. Inequalities in cancer incidence are less prominent than inequalities in cancer mortality, but nevertheless there are curious findings, such as: higher (and faster rising) breast cancer incidence among Māori, despite a more favourable risk factor profile; and particularly high endometrial and thyroid cancer incidence among Pacific women. There has also been a tremendous reduction in cervical cancer inequalities.

**Conclusion** This linkage has allowed accurate research on trends that was hitherto impossible.

03-2.3

### LINKAGE OF DATA IN THE STUDY OF ETHNIC INEQUALITIES AND INEQUITIES IN HEALTH OUTCOMES IN THE NETHERLANDS: INSIGHTS IN THE RISK OF CARDIOVASCULAR DISEASE AND IN THE USE OF HEALTHCARE FACILITIES

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**Background** Ethnic variation in health outcomes and in utilisation of health services has been observed worldwide. Quantifying and understanding this variation is essential to identify the health needs of ethnically diverse population. As many ethnic minority populations in the Netherlands, and elsewhere, are ageing the burden of cardiovascular diseases (CVD) is increasingly becoming important. Therefore, one major health task is the routine collection and production of ethnically disaggregated, national-level data on incidence of morbidity and mortality from CVD.

**Methods** Linkage methods were used to determine nationwide differences in short-term and long-term risk of death in patients hospitalised for the first time for various CVD by country of birth.

**Results** Lower survival after a first CVD event in ethnic minority groups than in native Dutch was observed after linkage of nationwide registers (Population Register (PR)\* Hospital Discharge Register (HDR)\* Cause of Death Register (CDR)). Evidence from the USA suggests that these differences may (partly) be explained by differences in specialised care between ethnic minority groups and their White counterparts. Our ongoing is currently using linkage methods to assess role of healthcare use on CVD outcomes in ethnic minority CVD patients and native Dutch CVD patients. In addition, specific (healthcare) factors that may contribute to the ethnic inequalities in the risk of (non-) fatal CVD events will be determined.

**Conclusion** Linkage methods provide huge opportunities for understanding ethnic inequalities in CVD.