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An Investigation of Variation in Emergency Admission Rates between New Zealand General Practices: a national database linkage study

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Objectives

To quantify variation in emergency admission rates between all New Zealand general practices and to investigate the influence of patients with long-term conditions.

Approach

This retrospective cohort study linked three national data collection. The Primary Health Organisation (PHO) Enrolment Collection provided practice register data on age sex ethnicity and deprivation. The National Minimum Dataset for Hospital Events (NMDS) allowed access to discharge data. The national Pharmaceutical Collection enabled medicine use to provide a proxy measures of patient morbidity.

Expected emergency admission rates for each practice in 2014 were calculated using indirect standardisation with the total registered patient population of all study practices as the reference population. A standardised emergency admission ratio (SAR) of the actual admission rate to the expected admission rate was calculated for each practice.

Results

Over the fourteen year period 2001-2014 total emergency admissions from all causes in New Zealand increased by 42%. Arranged and waiting list admissions increased by 29% over the same period. Emergency admissions represented 54% of all admissions by 2014 and increased by 56%.

Patients with hospital diagnoses for long-term conditions accounted for 56.5% of all emergency admissions and 78.6% of all associated bed days. More females had unplanned admissions than males ($p < 0.001$, 95% CI 0.48%-0.59%) and more Maori ($p < 0.001$, 95% CI 1.33%-1.49%) and Pacific Island patients

($p < 0.001$, 95% CI 0.96%-1.17%) were admitted than Europeans. Increasing deprivation status was significantly associated with an increased likelihood of admission ($p < 0.001$; chi-squared test for trend).

Practices with the highest SARs in 2014 tended to have the highest admission rates in that year and in previous years. They also had high admission rates for both high and low risk patient groups.

Conclusion

This study indicates that there is considerable variation in the emergency admission rates of New Zealand general practices and in their standardised emergency admission rates after adjusting for differences in patient demography. A more meaningful measure of true disease morbidity is required to understand more the role 'models of care' play in the degree of variation of emergency admission.

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