Administrative health data in New Zealand: we have come so far; where are the next opportunities?

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In this issue of the Journal, Blakely et al provide an update on their New Zealand health system cost estimates based on health events that were captured in the New Zealand administrative data by age, sex and proximity to death. Consistent with previous published studies, their work demonstrates that the captured health system costs were skewed to the last year of life. Furthermore, Blakely et al included an updated discussion on the strengths and limitations of the use of the New Zealand administrative data. We should celebrate the fact that New Zealand has a national unique patient identifier: the National Health Index (NHI) for all health care users in New Zealand, something that many developed countries cannot claim to have. There are ongoing processes in place to ensure duplicated NHIs are cleaned or merged as appropriate. The unique NHI has enabled many linkage studies to be carried out at the population level in New Zealand. The ongoing improvement of NHI coverage and data quality over time across a number of administrative health datasets has opened up a number of new opportunities, not just for ‘professional researchers’, but also for working clinicians who would like to undertake clinical audits or reviews, particularly in regard to longer term health outcomes, or identification of potential management gaps for improvement. Having a good visibility of longer term outcomes for our local populations can be challenging for clinicians because New Zealand has a very mobile population, and often there is no formal access to health care data outside one’s jurisdiction to capture the complete sets of subsequent health service events. Examples of research or clinical audit opportunities in the future that could be explored via data linkage of New Zealand administrative data may include (and not be limited to):

1. Describing possible treatment gaps in a patient subgroup where there may be clinical safety concerns or opportunity for quality improvement: eg, are there people with a mechanical heart valve who are not on any form of anticoagulation for more than a year?

2. Undertaking a retrospective cohort study to describe outcomes of patient subgroups who had a procedure in hospital where benefits and risks were less certain: eg, what is the 2-year case fatality rate for people over 80 years of age and who had a right hemicolectomy for colorectal cancer by cancer stage?

3. Facilitating an audit of a part of a treatment pathway: eg, what proportions of patients with breast cancer died prior to completing chemotherapy by age and stage?

4. Describing hospital events and costs associated with an entire interventional pathway: eg, transcatheter aortic valve implantations are often carried out in a tertiary facility, but costs for the associated procedures, such percutaneous coronary intervention or pacemaker implants, might sit in other hospitals where the tertiary facility may have limited visibility.

5. Describing practice patterns or service provision at a population level: eg, how many people with
prostate cancer were managed by immediate radical treatment at diagnosis, active surveillance or watchful waiting in the wider Auckland region in New Zealand?

Blakely et al have acknowledged Craig Wright and the New Zealand Ministry of Health (MoH) for the development of the Health Tracker. The MoH's Health Tracker has operationalised the concept of the "health service utilisation" population into a reality. Since the number of people in the health service utilisation population is very similar to the estimated resident population, this suggests the population coverage of the people who recently used health services is excellent. The Health and Disability Intelligence team from the MoH is expecting to lead ongoing updates of the Health Tracker in due course.

While there are many exciting opportunities to use administrative data more widely, potential interested users should be fully aware of the limitations related to the use of the administrative datasets, in particular in relation to cost estimates. As noted by Blakely et al, virtually all of the administrative health datasets list prices or cost weights related to the events, rather than the actual costs of events. District Health Boards (DHBs) are funded predominately on a capitation basis by the population-based funded formula, and only some of the pricing recorded in the datasets are used for reimbursement purposes between DHBs when a patient attends a facility outside the patient's own domicile DHB. Some services are funded based on inputs rather than based on outputs, such as mental health services; it is important this is kept in mind when undertaking analyses involving health system costs.

The New Zealand MoH is currently undertaking a review of the population-based funding formula. The analytical insights gained as part of the review will provide further understanding on how the administrative data could provide robust cost estimates in a pragmatic way.

The other limitation of administrative data is that it is often difficult to make definitive claims of attribution between cause and effect because there are likely to be confounding factors that are not captured by the administrative data. One option to mitigate this limitation is to combine some of the clinical data available from other sources and link them against the administrative data or use administrative data to facilitate part of the clinical audit. For example, alerting a clinician that there were other hospital events occurring outside the index hospital of interest may be helpful. In situations where quantitative adjustments for confounding factors are not feasible, then making such limitations explicit in the appropriate context is helpful to enable the reader make a more informed interpretation of the findings; eg, over the counter medications available in supermarkets or pharmacies are not captured in the Pharmaceutical Collection jointly owned by the MoH and PHARMAC.

While there are number of safeguards in place to ensure the administrative data is accurate, some errors do occasionally occur. If the actual errors are confirmed, they should be reported to the responsible department so that the administrative data can be corrected, or a system improvement can be put in place, so similar errors in the future may not recur. However, we also have to be cautious of the fact that many claims of data inaccuracies, particularly from inexperienced data users, could be related to poor understanding on how the original data is captured, the purpose of the data collection, and how they should be used, rather than actual errors related to the administrative data themselves.

It can be very helpful to liaise with the analytical, data quality and coding teams at the MoH to clarify coding practices, data enquiries and discuss how data should be used. The MoH teams can be contacted via: data-enquiries@moh.govt.nz and coding_helpdesk@moh.govt.nz Depending on the nature of the enquiry, a study protocol is often required, including the research questions to be answered and the proposed methods. If potentially identifiable data is requested, ethics approval may be required from Health and Disability Ethics Committees. Data security and safe guards to ensure privacy and confidentiality must be in place.

Finally, Blakely et al highlight the recent development of Integrated Data Infrastructure (IDI) by Statistics New Zealand.
The IDI combines information in an anonymous way from a number of sectors, including health sector, along with data from the Ministry of Education and the Ministry of Social Development. While IDI is at an early phase, it is potentially a very exciting platform to undertake research to gain better understanding of the broader determinants of health, and more importantly, to develop potential pragmatic solutions that improve population health and equity.

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