The Geographic Classification for Health: A fit-for-purpose rurality classification

Policy brief prepared by Dr Jesse Whitehead

Executive summary

Generic rurality classifications have led to an underestimate of rural health need. The purposively designed Geographic Classification for Health (GCH) enables a more accurate picture of the state of rural health in NZ to be determined, and should be used in health analysis and to define rural populations in health policy. The GCH was designed, tested and validated as a fit-for-purposes rurality classification for health. It uses robust technical methods and is grounded in the experiences and understandings of the rural health community. Compared to generic rurality classifications, the GCH more accurately classifies the rural-urban status of primary health care enrollees. When applied to administrative health datasets, the GCH reveals that previous classifications have underestimated rural health outcomes, including mortality rates by as much as 71%. Differences in health outcomes between residents of rural and urban areas have also been underestimated. While Māori experience higher rates of all-cause and amenable mortality than non-Māori in all areas, the GCH reveals that rates are even higher among rural Māori. For instance, in the 15-29 year age group rural Māori amenable mortality rates are 56% higher than for urban Māori. An accurate and reliable rurality classification for health is vital for developing evidence-based rural health policy and meaningful interventions. The GCH provides an ideal opportunity for ensuring health analyses are fit-for rural health purposes, and contribute to the development of effective rural health policies. The GCH can also be used to compare health outcomes for people living in different types of urban areas. While the GCH is useful for describing rural and urban populations, and in the analysis of rural health needs, it is not a stand-alone resource allocation tool and should be used in conjunction with additional information and evidence.

Key messages and recommendations

- Generic rurality classifications underestimate rural health outcomes and needs

- **Recommendation 1:** Use the purposively designed GCH in rural health analyses

- **Recommendation 2:** Define rural and urban populations using the GCH when developing policy

- **Recommendation 3:** The GCH is not an accessibility index and users should consider and integrate additional information when allocating resources or funding

Context

For the past 20 years most rural health research and analysis in Aotearoa has been based on generic rurality classifications. These are not purpose designed for health and have been applied in over 30 different ways, producing inconsistent and likely inaccurate results. Using a well-designed and fit-for-purpose classification in analyses is vital. We have previously indicated that applying different rurality classifications to the same health

> " The definition of rurality is not just semantic, it has real implications for policy decisions and resource allocation."

[Hon Andrew Little, National Rural Health Conference 2021]

data produces very different conclusions.[2] One key problem, is that communities in the commuter zone (usually the wealthiest and healthiest) are often classed as rural, whereas small isolated towns (usually the poorest and unhealthiest) are considered urban in generic classifications. How rurality is defined matters, both from a policy and service delivery perspective, and for rural populations and communities. Poorly defined rural-urban divisions lead to poorly defined and implemented policies. The ad-hoc usage of generic rurality classifications means that, compared to similar nations, we still know relatively little about the actual health status of rural residents in New Zealand.

Designing the Geographic Classification for Health

In 2019, with Health Research Council funding, we began developing NZ's first purposively designed rurality classification for health purposes - the Geographic Classification for Health (GCH). Our methodology is both robust and original. We followed best-practice approaches to guide the technical development of the GCH, working closely with Statistics NZ. This means that the GCH is based on strong technical foundations, and can be integrated with other census-based data. We have also been strongly engaged with rural health stakeholders through a co-design process. This qualitative component ensures that the GCH reflects the 'on the ground' reality of rural NZ. The GCH is based on thresholds related to population size, and drive time to urban centres. The GCH contains five categories: two urban categories – U1 (major centres and the surrounding zone), and U2 (large urban centres and the surrounding zone) and three rural categories ranging from R1 (closest to urban centres) to R3 (the most remote category). These categories can be easily collapsed into a rural-urban binary classification. We have published detailed study protocols, technical reports, and peer-reviewed journal articles outlining the methods followed to produce, test, and validate the GCH.[1, 3, 4]

Generic classifications underestimate rural health outcomes

To highlight the issues that poor definitions of rurality can cause we have examined differences in health outcomes between urban and rural residents using the GCH compared to a previous generic classification (the Urban Rural Experimental Profile – UREP) and a current generic classification (the Urban Accessibility classification – UA). When the GCH is used **the crude rural mortality rate is 71% higher (851 deaths per 100,000 people) than using the UREP (498 per 100,000 people) and 27% higher than the UA (668 deaths per 100,000 people).** When rural-urban differences are examined, the UREP suggests that mortality rates are lower in rural compared to urban areas. In contrast, the GCH shows that rural mortality rates are in fact 21% higher in rural areas than in urban places. Preliminary research indicates that these differences in mortality continue to hold when mortality rates are age and sex adjusted and are also present in both hospitalisations and non-admitted patient events. Furthermore, the GCH reveals that **rates of amenable mortality are much higher in rural areas than would be estimated using generic classifications. Generic classifications could be masking avoidable deaths in rural areas.**

Rural Māori have the highest mortality rates

Additional research[5] carried out by our team indicates that Māori experience excess all-cause and amenable mortality compared to non-Māori. However, this is even worse for rural Māori. For instance, **the amenable mortality rate for rural Māori aged 15-29 years is 56% higher than for urban Māori in the same age group**. In both rural and urban areas, the ethnic inequities are greater for amenable mortality than all-cause mortality, reflecting the impact of ethnic differences in access to, and quality of, health care. The excess all-cause and amenable mortality experienced by rural Māori, compared to their urban counterparts, suggests that there are additional challenges associated with living rurally.

Key results and recommendations

The underestimation of poorer rural health outcomes - through the use of classifications that are not purpose designed - is likely to lead to incorrect understandings of rural health needs, and inappropriate rural health policy settings. If unaddressed, this has the potential to exacerbate rural-urban differences in health outcomes, and particularly poorer health outcomes already experienced by rural Māori. The GCH can mitigate against this as a technically robust and heuristically valid fit-for-purpose classification. The GCH also provides a strong platform for rural health research. Our research team has received additional Health Research Council funding to continue to investigate the impact of rurality on health outcomes and healthcare delivery using the GCH.

Recommendation 1: Use the GCH to include rurality in health analyses

Our extensive development, testing, and validation of the GCH as a fit-for-purpose rural health classification[1] shows that it is more appropriate than generic rurality classifications. When applied to Primary Health Organisation data, the GCH accurately classified the urban or rural residence of 95% of enrolled patients, compared to 81% using the UA and only 70% using the UREP. Generic classifications also significantly underestimate rural health outcomes, and in many cases mask the differences between outcomes in rural and urban areas. The GCH is a more accurate representation of rurality for health purposes and therefore leads to more meaningful results that can inform better rural health policy and interventions.

Recommendation 2: Use the GCH to define rural and urban populations in health policy

When applied to 2018 census data, 19% of the population is defined as rural by the GCH. Overall, the GCH defined rural population is substantially different from that defined as rural by either the UREP or UA. In fact, only 9% of the total population is considered rural under all three classifications. It is therefore important to use the GCH to define the rurality of populations for health policy. The GCH indicates that a higher proportion of older people (25% of 60-74 year olds, and 23% of 75% years) and Māori (25%) live in rural areas, while the most remote areas (R3) also have a higher proportion of Māori residents (32%).

Recommendation 3: The GCH is not an accessibility index or resource allocation tool – use additional data

The GCH is a useful tool for identifying rural populations and estimating rural-urban differences in health outcomes that can inform the development of rural health policies. It has not been designed to uncritically guide health policy and funding decisions. It is not a formula for distributing health resources or funding, nor is it an index of healthcare accessibility or workforce shortage. Additional data and local knowledge are crucial when making policy or funding decisions. This could include: the distribution of population sub-groups; the locations of health services and workforce shortage; and the distribution of the social determinants of health.

Comparing classifications: Higher rural mortality rates (aged <75) are masked by generic classifications.
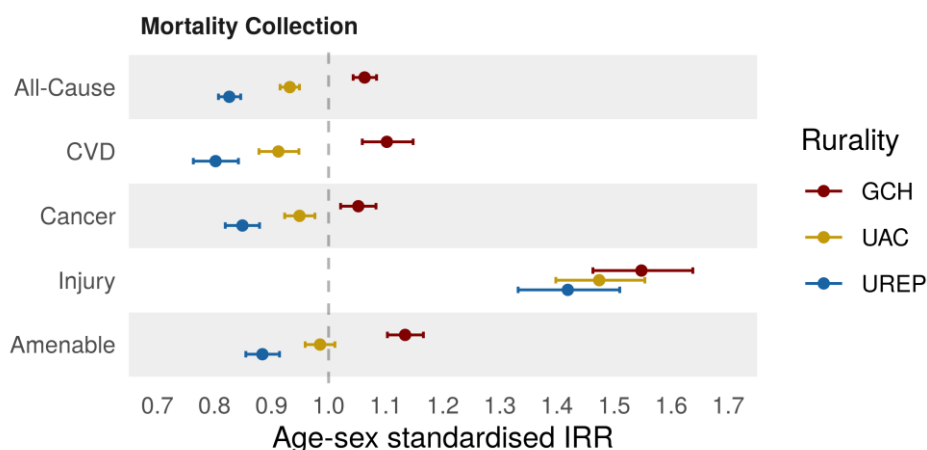
Research Team

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