Variation in the rates of potentially preventable hospitalisations are geographically consistent over time across Australian states and territories.

What do we know?

The ever-increasing number of hospitalisations place an enormous strain on the hospital system in terms of the quality of the care provided and on healthcare resources. One approach to reduce these admissions is through improved access to and stronger effective management of conditions in a primary care setting. This approach is formally reflected in the use of the Potentially Preventable Hospitalisations (PPH) indicator which is a national accessibility and effectiveness health performance progress measure within the Australian National Healthcare Agreement [1].

PPHs are hospitalisations for a condition where an admission to hospital could have potentially been prevented through the provision of an appropriate individualised preventative health intervention and early disease management, usually delivered in primary care and community-based care settings [1]. PPHs are classified based on the condition at admission into three categories; Acute, Chronic and Vaccine-preventable, with the type of category advocating what action could be taken:

1. Hospitalisations for Acute conditions may not be preventable when the hospitalisation occurs, but this hospitalisation should not occur if timely and adequate access to primary care was received earlier;
2. Admissions for Chronic conditions may be been prevented through behaviour modification and lifestyle change to prevent the condition from worsening and requiring hospitalisation; and
3. Vaccine-preventable conditions can generally be prevented by receiving a vaccination.

These measures have an inherent geographic enquiry to them, i.e., which locations have high rates of PPH and which locations don't. This information is lacking at a local area level, where decisions on access and effectiveness of treatments can be made.

What did we do?

The traditional PPH measure is an age-standardised rate of hospital admissions per capita for each type of category or condition. We took five years of Australian hospital admission data geocoded to our Population Health Areas (PHAs). This data was used to calculate how many times over each year the PHA's rate (for a total number of PPHs or by PPH category) was under or over a chosen threshold (i.e. the Australian average rate for a PPH category). The number of times for each PHA was then graded into one of five values, ranging from cold to hot. This categorisation gauged the "heat" of an area in relation to whether the PPH rate was persistently over the threshold. The analysis gave rise to two outputs:

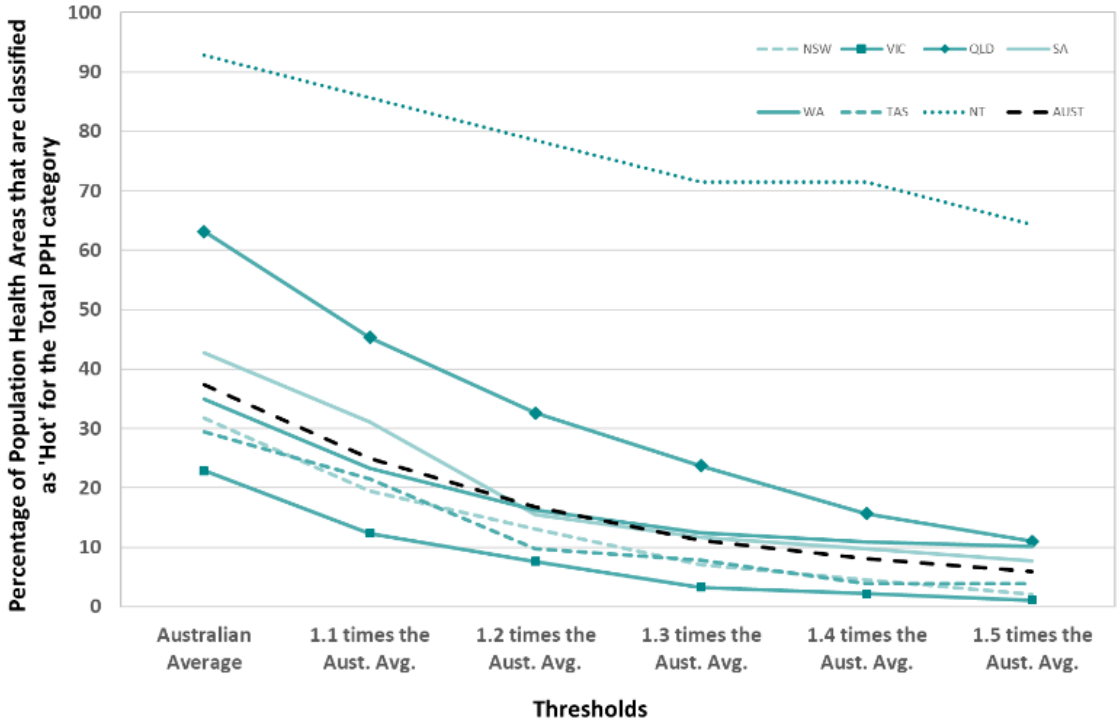
1. to illustrate the differences of PPH heat between PHAs, we created web-based interactive atlases, which highlight the level of heat and the clustering of like heat values; and
2. to illustrate the category and condition differences within a PHA, we created PHA based heat map graphs, which also included a proxy indicator of the health status of the PHA, based on rates of non-PPH conditions.

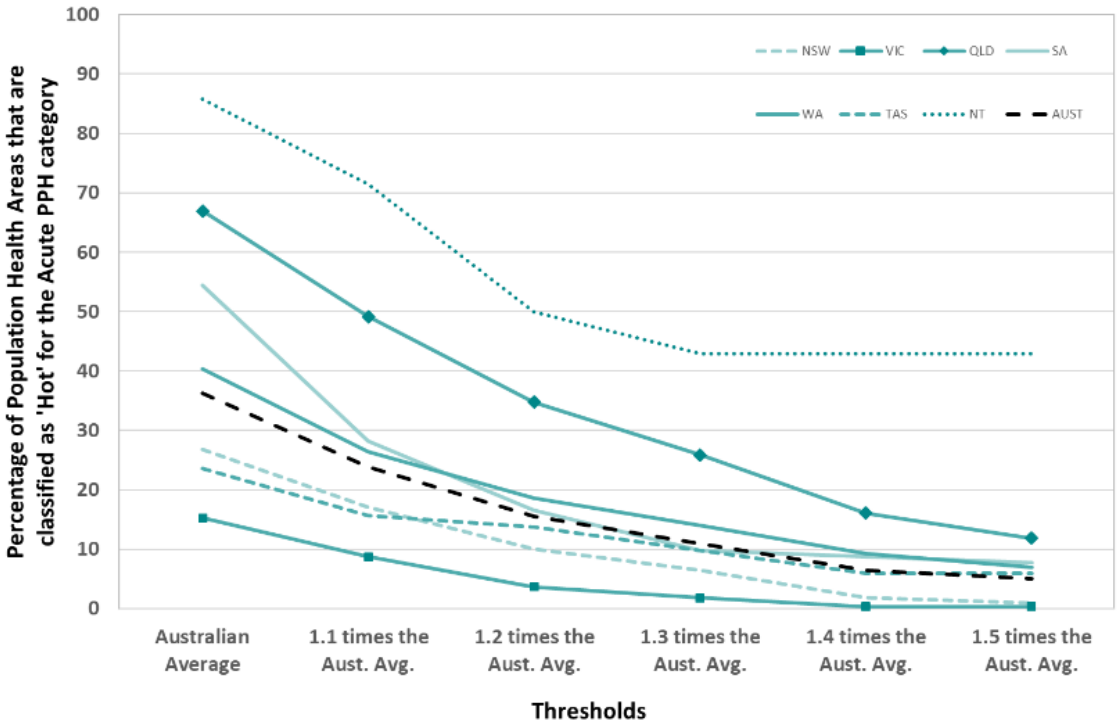
In this fact sheet, we have estimated the percentage of 'hot' PHAs across Australia, its states and territories.

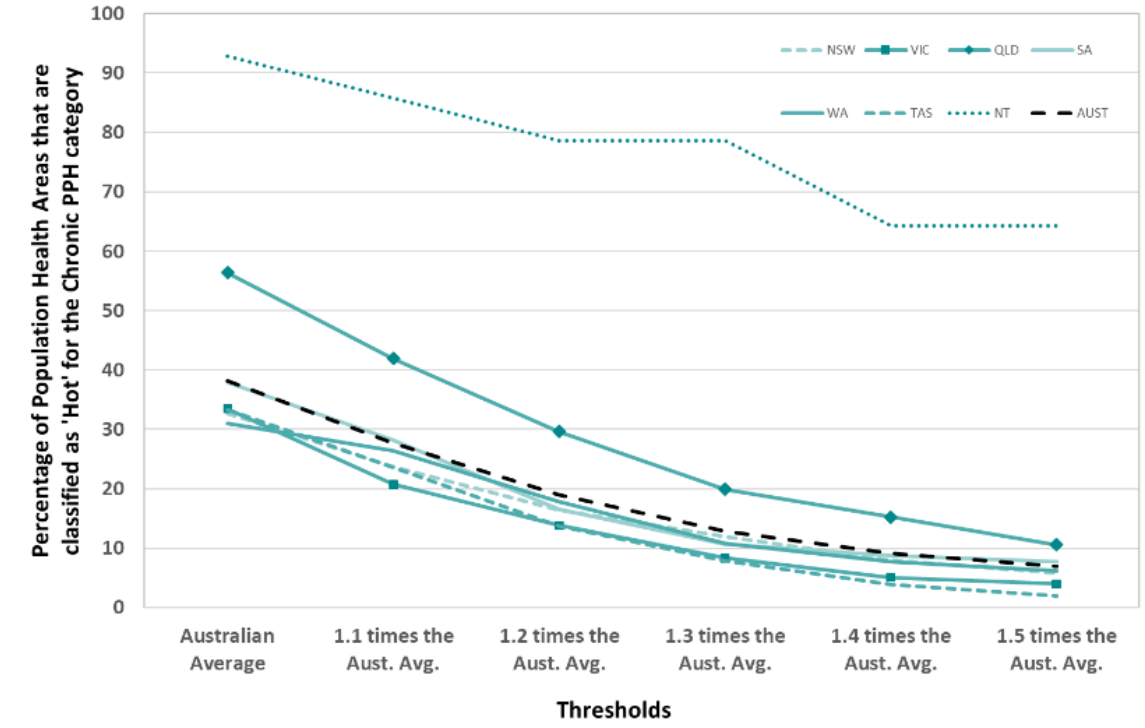
What does it show?

We identified that the heat for each PPH category varied across Australia, with around 37% of all PHAs, or around 440 PHAs, being classified as 'hot' when the rates were compared to the annual Australian average rate (Figure 1). The exception was in the Vaccine-preventable PPH category in which 24% of all PHAs across Australia were classified as 'hot'. The percentage classified as hot for Australia decreased to less than 10% as the threshold increased to 1.5 times the Australian average. The percentages of PHAs within the states and territories also varied, with the majority of PHAs in the Northern Territory classified as 'hot' followed to

a lesser extent by the number of PHAs in Queensland across the PPH categories. This trend was found for all categories except for the Vaccine-preventable PPH category where South Australia had the second highest percentage of 'hot' PHAs. Once again as thresholds were increased the percentages of PHAs in each state and territory reduced. No PHAs in the ACT were classified as 'hot'.







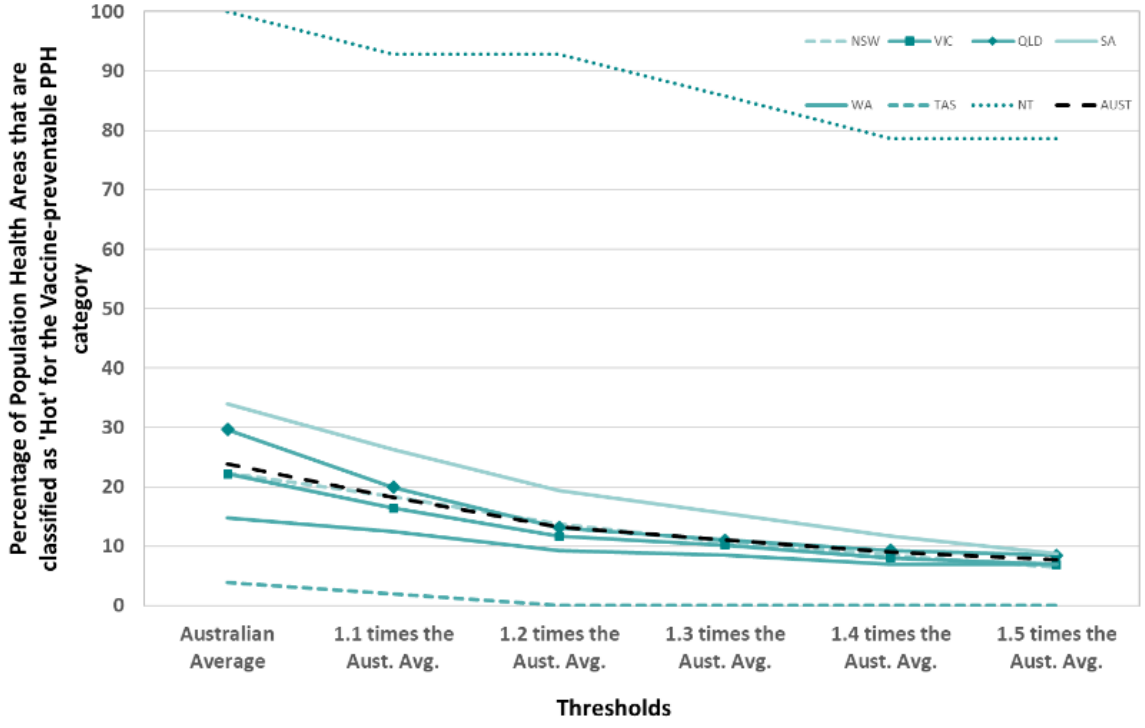


Figure 1: Percentage of Population Health Areas that are classified as 'hot' for Total, Acute, Chronic and Vaccine-preventable PPH categories, by threshold and State and Northern Territory.

Where to next?

We have created a multifaceted dataset reflecting the geographic variation and temporal persistence for a suite of PPH indicators. How this variation reveals itself at the local level needs to be investigated further to address primary care issues. The web-based atlases and heat map graphs provide the next step to investigate these issues locally. These visualisations offer a powerful policy, planning and evaluation tool to many different types of decision makers concerned with reducing preventable hospitalisations across Australia.

References

1. Australian Institute of Health and Welfare (AIHW). 2020. National Healthcare Agreement: PI 18– Selected potentially preventable hospitalisations, 2020 (aihw.gov.au) Australian Institute of Health and Welfare; 2020 (accessed 03/08/2021).

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