

# Hotspots of potentially preventable hospitalisations in South Australia's public hospitals

Pinpointing potential health inequalities by analysis of public hospital activity data

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Health Performance Council



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### Pinpointing potential health inequalities by analysis of public hospital activity data

South Australia's public hospitals collect a wealth of data about every episode of care they provide, a data collection that not only serves useful administrative purposes but also allows for fascinating insights into health treatments and outcomes.

This bitesize report looks briefly into hospitalisations that are potentially preventable, how they vary according to where we live, and what that might say about regional inequalities.

### Potentially preventable hospitalisations

People often attend hospital for reasons that could have been attended to with preventative health care – by GPs, dentists or in other community health care settings – or with broader, public health interventions. In some cases these hospitalisations should not have occurred at all (e.g. vaccine-preventable admission), while in other cases, good primary care or public health would reduce the rate of admissions. There were about 39,000 such *potentially preventable hospitalisations* recorded in South Australia's public hospitals in the 2016-17 financial year, one out of every 11 inpatient hospitalisations.

But the potentially preventable hospitalisations were not evenly spread throughout the state. Comparing the number of hospitalisations against the population in each postal area reveals some areas with notably higher rates of such hospitalisations, indicating possible areas where primary care or public health programs might be able to reduce hospital admission rates.

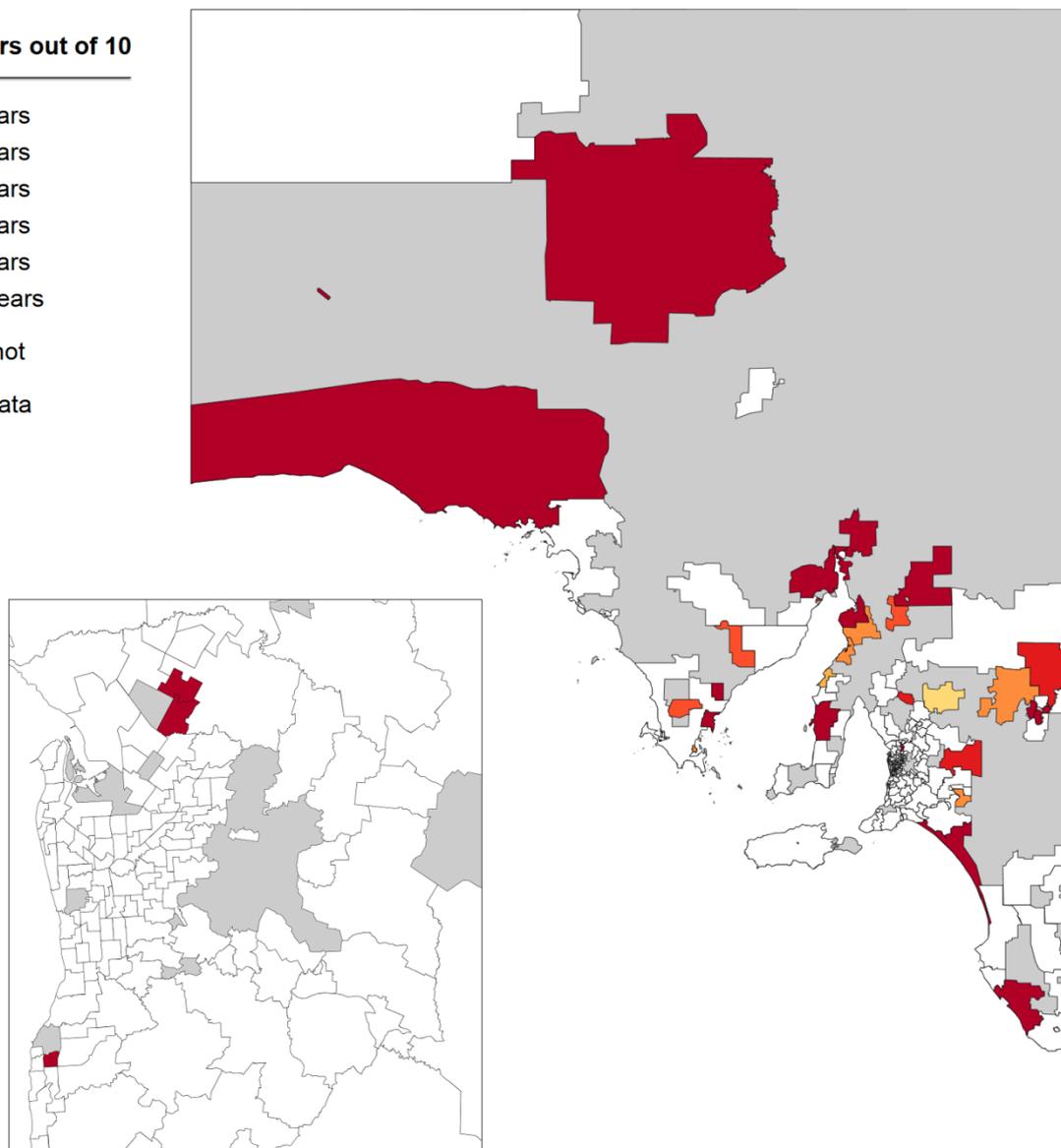
For this summary analysis, we have chosen to flag postal areas with a rate of potentially preventable hospitalisation which is at least 50% higher than the state-wide rate in any year. Where an area has a small population, small variations in numbers of hospitalisations from year to year can affect whether that area is identified by this method as a hotspot, and we therefore excluded from our analysis 143 postcodes which had an estimated population in 2016 of fewer than 1,000.

Looking across 10 years of data (financial years 2007–08 to 2016–17) reveals that some postal areas are persistent in being hotspots of potentially preventable hospitalisations. Being persistent – in some cases being hotspots in all 10 years – makes it far less likely that an area will be evaluated as a hotspot purely by random and expected fluctuations in the underlying data. We found that in 90% of cases, areas identified as a hotspot in at least three consecutive years of the first 9 years of our dataset were again identified as a hotspot in the following year. This suggests that persistently hot areas could, subject to more detailed analysis and investigation, be targets for place-based interventions. A different analysis, not considering year-on-year persistence, might provide additional insight.

**Persistent hotspots of potentially preventable hospitalisations in South Australia's public hospitals [inset: Adelaide metropolitan area]**

*Postal areas not shown as 'hot' unless identified as a hotspot for five or more years out of ten, including at least three consecutive years*

**Hot years out of 10**



Hot years out of 10	Postcode	Suburbs
10 years	5112	Elizabeth, Elizabeth East, Elizabeth Grove, Elizabeth South, Elizabeth Vale, Hillbank
	5113	Davoren Park, Edinburgh North, Elizabeth Downs, Elizabeth North, Elizabeth Park
	5164	Christie Downs

Hot years out of 10	Postcode	Suburbs
	5264	Coorong, Meningie, Meningie East, Meningie West, Salt Creek, Waltowa
	5280	Beachport, Canunda, Clay Wells, Furner, German Flat, Hatherleigh, Kangaroo Inn, Magarey, Millicent, Rendelsham, Rocky Camp, Sebastopol, Southend, Tantanoola, Thornlea, Wattle Range
	5343	Berri, Gerard, Gurra Gurra, Katarapko, Lyrup, Winkie
	5345	Barmera, Loveday, Spectacle Lake
	5422	Cavenagh, Dawson, Erskine, Hardy, Mannanarie, Minvalara, Oodla Wirra, Paratoo, Parnaroo, Peterborough, Sunnybrae, Ucolta, Waroonee, Yatina
	5433	Bruce, Quorn, Saltia, Stephenston, Willochra, Yarrah
	5540	Bungama, Coonamia, Lower Broughton, Napperby, Nelshaby, Pirie East, Port Davis, Port Pirie, Port Pirie South, Port Pirie West, Risdon Park, Risdon Park South, Solomontown, Telowie, Warnertown
	5573	Balgowan, Chinaman Wells, Maitland, Point Pearce, Port Victoria, South Kilkerran, Urania, Wauraltee, Weetulta, Yorke Valley
	5605	Butler, Tumby Bay
	5690	Thevenard, Uworra, Wandana, Watraba, White Well Corner, Yalata, Yellabinna, Yumberra, Ceduna, Charra, Chundaria, Coorabie, Fowlers Bay, Bookabie, Ceduna Waters, Kalanbi, Koonibba, Maltee, Denial Bay, Merghiny, Mitchidy Moola, Nadia, Nanbona, Nullarbor, Oak Valley, Penong
	5700	Blanche Harbor, Commissariat Point, Cultana, Davenport, Miranda, Mundallio, Port Augusta, Port Augusta West, Port Paterson, Wami Kata, Winninowie
	5723	Nilpinna Station, William Creek, Wintinna, Allandale Station, Anna Creek, Arckaringa, Coober Pedy, Evelyn Downs, Ingomar, Mabel Creek, Mcdouall Peak, Mount Barry, Mount Clarence Station, Mount Willoughby
9 years	5238	Ngas Valley, Big Bend, Bolto, Bowhill, Caurnamont, Claypans, Cowirra, Five Miles, Forster, Frahns, Frayville, Julanka Holdings, Lake Carlet, Purnong, Rocky Point, Teal Flat, Walker Flat, Wongulla, Younghusband, Younghusband Holdings, Mannum, Nildottie, Old Teal Flat, Pellaring Flat, Pompoota, Ponde, Port Mannum, Punthari
	5341	Renmark, Renmark North, Renmark South, Renmark West, Calperum Station, Chaffey, Chowilla, Cooltong, Crescent, Old Calperum
	5412	Rhynie, Riverton, Woolshed Flat
	5608	Whyalla Norrie, Whyalla Stuart
8 years	5491	Belalie East, Belalie North, Bundaleer Gardens, Bundaleer North, Hornsdale, Jamestown, West Bundaleer
	5631	Cockaleechee, Cummins

Hot years out of 10	Postcode	Suburbs
	5640	Campoona, Cleve, Jamieson, Waddikee
7 years	5260	Elwomple, Tailern Bend
	5330	Boolgun, Devlins Pound, Good Hope Landing, Hawks Nest Station, Holder, Holder Siding, Kanni, Lowbank, Markaranka, Overland Corner, Pooginook, Stockyard Plain, Taylorville, Taylorville Station, Waikerie, Wigley Flat, Woolpunda
	5522	Fisherman Bay, Port Broughton, Ward Hill
	5523	Beetaloo Valley, Clements Gap, Crystal Brook, Huddleston, Merriton, Narridy, Nurom, Wandearah East, Wandearah West
	5600	Whyalla, Whyalla Playford
	5606	Port Lincoln, Wedge Island
6 years	5556	Wallaroo Plain, North Beach, Wallaroo, Warburto
5 years	5374	Australia Plains, Bower, Brownlow, Buchanan, Eudunda, Frankton, Hampden, Hansborough, Julia, Mount Mary, Neales Flat, Ngapala, Peep Hill, Point Pass, Sutherlands

Some large parts of country South Australia have had to be excluded from the analysis because of small populations. Despite this, the bulk of the persistent hotspots in our analysis are in country areas. We think that it would be of interest in a more thorough analysis to consider country SA and the Adelaide metropolitan region separately, along with disaggregating the analysis to consider separately each of the several potentially preventable hospitalisation conditions.

We suspect that many patients, especially those residing in postal areas close to South Australia's borders, attend hospitals in neighbouring states and territories. As extra-territorial hospitalisations are not recorded in our data, some border areas – such as the large but sparsely populated 0872 postal area in the far north-west of the state – may be more persistently a hotspot than our summary analysis suggests.

### Find out more

This webpage is just a very brief dip into the data collected around potentially preventable hospitalisations. SA Health is currently working with the Health Performance Council, Adelaide PHN and Country SA PHN to produce a more detailed and robust study of the data. In the meantime, we would appreciate any feedback from readers on this preliminary report: email [healthhealthperformancecouncil@sa.gov.au](mailto:healthhealthperformancecouncil@sa.gov.au) with your thoughts.

Although we are confident that our analysis is sound, we would be cautious about concluding from this brief report that any particular postal area is necessarily a candidate for place-based intervention without the benefit of more detailed analysis.

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## Acknowledgements

This work was inspired by, and borrows heavily from the methods of, the Grattan Institute's *Perils of Place* [1] analysis of Queensland and Victorian hospital data. Dr Stephen Duckett, a member of the Health Performance Council, is Health Program Director at Grattan Institute.

## Key technical notes

- > Hospital inpatient activity data used in this analysis is limited to South Australia's public hospitals for patients whose principal residence was recorded as being in South Australia
- > Multiple episodes of care have in some cases been coalesced into a single episode for analytical purposes in accordance with standard SA Health business counting rules. Figures produced by other methods, or which include data for private or cross-border hospitals, may differ.
- > Analysis has been performed using the most recently available postal geographies and population estimates from the 2016 census. Derivation of number of 'hot' years will have inaccuracies resulting from non-uniform changes in population over time and from the application of historic postcodes of residence to the more recent geographical boundaries assigned to that postcode.
- > Postal areas excluded from all analysis which did not have at least one potentially preventable hospitalisation recorded for each of the 10 years of data or with an estimated population in 2016 of under 1,000. A large part of the west of the state, around Maralinga Tjarutja, was also excluded from analysis as it does not have a postcode in the postal area database that we used.
- > Postcode 0872 straddles parts of South Australia, Northern Territory and Western Australia. The population estimate for this postal area has been limited to those people who have South Australia recorded as their state of residence.

## Notes and references

1. Duckett S, Griffiths K, 2016. *Perils of place: identifying hotspots of health inequalities*. Grattan Institute. <https://grattan.edu.au/report/perils-of-place-identifying-hotspots-of-health-inequality/>
2. Hospital activity based on SA Health data, 2017. Custom data extract, unpublished.
3. Population estimates based on Australian Bureau of Statistics data, 2017. *2016 Census - Counting Persons, Place of Usual Residence*, TableBuilder. Findings based on use of ABS TableBuilder data.
4. Postal area boundaries based on data from Department of Planning, Transport and Infrastructure [Government of South Australia], 2016. *Suburbs* dataset. Retrieved from <https://data.sa.gov.au/data/dataset/suburb-boundaries/resource/55b319d9-c0f2-42a8-9afc-f126406ec673>.
5. South Australia state boundary data incorporates or developed using Administrative Boundaries, © PSMA Australia Limited, licensed by the Commonwealth of Australia under [Creative Commons Attribution 4.0 International licence \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/). Retrieved from <http://data.gov.au/dataset/sa-state-boundary-psma-administrative-boundaries>.