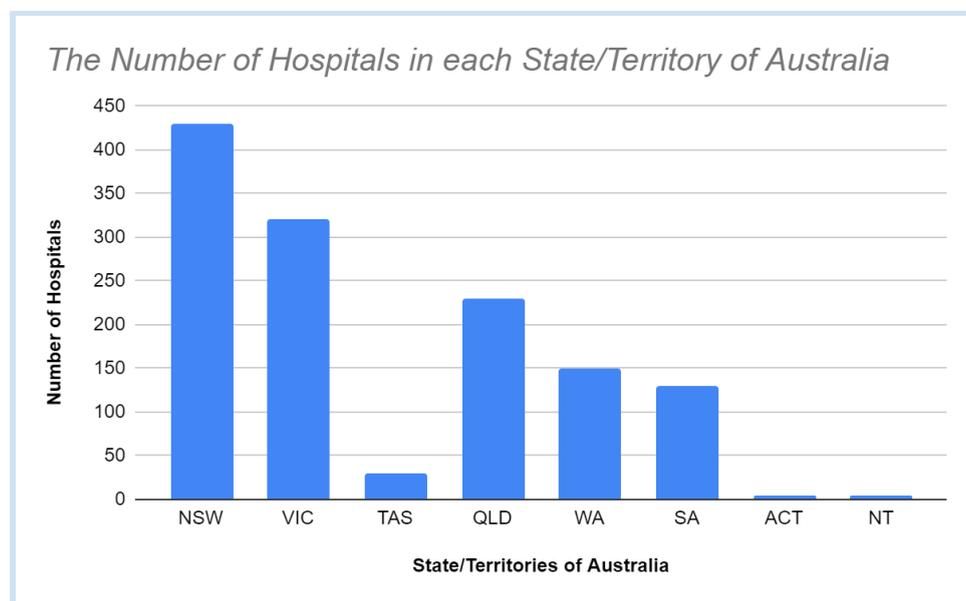


Kara Giardullo - Does your address affect your healthcare in Australia?

In Australia, each resident is entitled to free healthcare, whether it be free checkups at the doctors or a check-in at the emergency room at a hospital. Although all citizens have the same rights in regards to healthcare, each state provides varying levels of care for their citizens. The motivation for asking a health-related question comes from the recent COVID-19 outbreak and the strain it placed on the health system, and through conversing with those around me, I first questioned if each state/territory had enough hospitals, building on this, I finally questioned if our address can affect our healthcare in Australia?

Hospitals in each State and Territory

Australia has a continuously growing population that currently sits at almost 26 million. Of this 26 million, a varying number of citizens live in one of the eight states and territories. From this, we would assume that each state government would provide an adequate number of hospitals to support the health needs of their residents. To create the graph, I have utilised data from the Australian Institute of Health and Welfare, which included the number of public and private hospitals in Australia. I then combined the number of private and public hospitals in each state/territory and developed the column graph below.

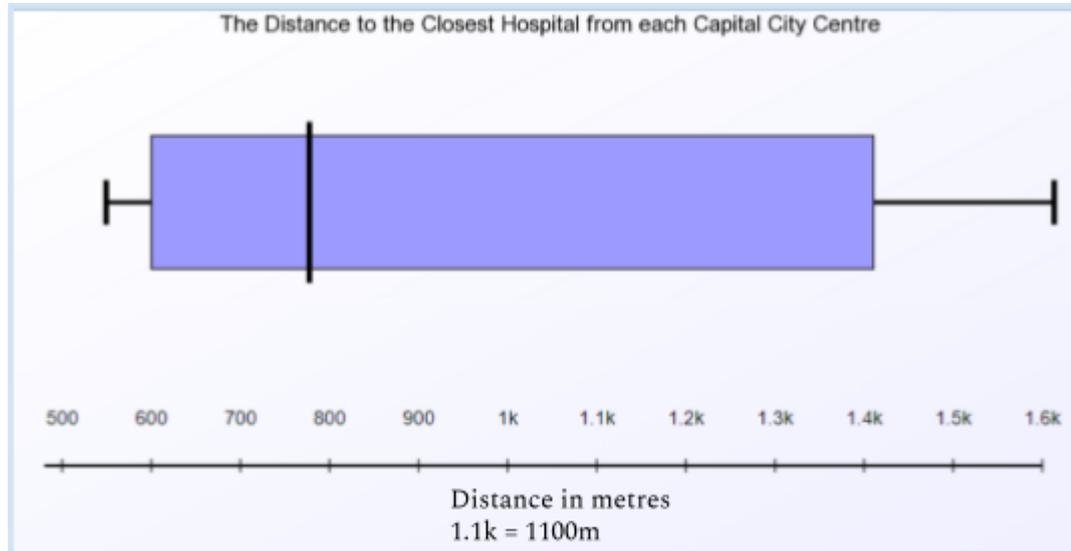


Note: Graph strictly shows the number of public and private hospitals (excludes doctor's practices, specialists etc.).

From this graph, it can be determined that Australia has an approximate total number of hospitals of 1300 and that New South Wales had the upper extreme of hospitals (430) and the Australian Capital Territory had the lower extreme (4). We can also determine that the mean number of hospitals in each state or territory is 162 (rounded to the nearest whole number), from this we can determine if it falls near the centre and if some scores bring it down or push it up. The statistical evidence of the number of hospitals in each state/territory reveals that each state accommodates for their population, as larger populated areas of Australia such as New South Wales, Victoria and Queensland are well equipped with each state having over 200 hospitals each. And areas such as the Australian Capital Territory, Tasmania and the Northern Territory had a sufficient number of hospitals, even so, are these hospitals strategically placed for each state or territory's demographic?

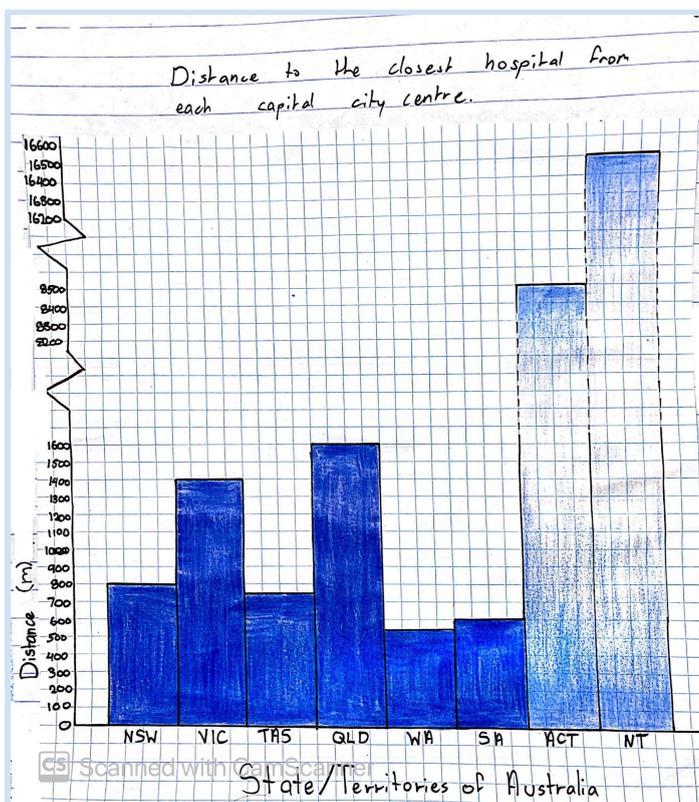
Hospital Distance

Due to the fact that in different regions of Australia the number of hospitals differs vastly, we can also allude to the fact that each state/territory would have differing travel distances. Utilising Google maps, I used the centre of each capital city; as the capital cities are more densely populated than other areas, then found the closest hospital from this point for the capital city and repeated this to ensure it was a fair test.



Note: Box and whisker plot excludes two outliers (8.5km and 16.5km)

From this box and whisker plot excluding both outliers, it is clear that in NSW, VIC, TAS, QLD, WA and SA all have strategically placed their hospitals to cope with the demands of health needs in their most populated areas, making a hospital easily accessible, visually shown as the box plot is relatively equal and the upper and lower extreme give a range of 1000m.



When comparing this set of data, there were two outliers, the Northern Territory (16.5km) and the ACT (8.5km). In collaboration with Mrs Brooker, we came up with the following method for displaying outliers and the vast difference they have in comparison to the other distances.

This connects with the previous column graph as it showed that the Northern Territory and the ACT had the lowest number of hospitals which can thereby be the cause of such extreme distances to travel in comparison to other states, as they have a smaller population, meaning the health demand on hospitals is far smaller. Additionally, this data is not compatible with the other distances, as it creates a skew. Although the distance was measured from the centre of each capital city, NT and ACT distances do not follow the same trend as the distances in the other states.

Money Budgeted for Healthcare

When consulting with adults (neighbours, uncles, aunts, parents) and questioning them what their main concern was with the Australian healthcare system, they answered: how much money is dedicated to healthcare in each state/territory, as they are tax-payer dollars.

Dollars (\$) budgeted for healthcare	Class centre (\$)	Frequency
1,000,000,001 - 5,000,000,000	2,500,000	4
5,000,000,001 - 10,000,000,000	7,500,000.5	1
10,000,000,001 - 15,000,000,000	12,500,000.5	1
15,000,000,001 - 20,000,000,000	17,500,000.5	0
20,000,001 - 25,000,000,000	22,500,000.5	1
25,000,000,001 - 30,000,000,000	27,500,000.5	1

From this frequency distribution table, it is revealed that the mode budget for healthcare in Australia is 5 billion or less with states/territories such as the ACT, NT, WA and SA falling under this class, highlighting how these states/territories are accommodating for their population; as these states/territories had the smallest of the eight. However, Tasmania, which also had one of the smallest populations, budgeted larger amounts of money for healthcare (approx, \$10.7 billion). NSW and QLD continued following their trend of being well-equipped for their large populations, dedicating enough money for the maintenance of the hundreds of hospitals in their states.

Conclusion

Ultimately, your address undeniably impacts your healthcare in Australia, as the intensity of health centres and hospitals differs significantly, with some states not providing enough for their population and this, therefore, negatively impacts the distance to the closest hospital. Nevertheless, the number of hospitals can improve the level of care as more of the financial budget can be put towards improving pre-existing health centres.

Future Queries

Many other factors could impact the healthcare of citizens in Australia, such as living in remote or rural areas. In future, this data could be gathered by asking similar or the same questions in this report and then comparing the number of hospitals, the distance from the most populated rural area and how much money is budgeted to assist healthcare in remote regions. Using the above steps, you could also answer how healthcare could differ in varying countries? Another query in regards to healthcare is: does each state offer the same expertise in areas (e.g. neuro-surgeons, cardiac specialists, orthopedics, pediatrics etc.)? This could be conducted by gathering the number of specific specialists in each state/territory and then comparing them to determine if the number of specialists is proportional to the population of the state/territory?