



NEW SOUTH
WALES

Mapping

Patient Experience and Economic Disadvantage in NSW

FOR NSW Council of Social Service (NCOSS)

BY Yogi Vidyattama, Brenton Prosser and Robert Tanton

Correspondence: yogi.vidyattama@canberra.edu.au

September 2020

ACKNOWLEDGEMENTS

This study is undertaken by the National Centre for Social and Economic Modelling (NATSEM) at the University of Canberra and is commissioned by the New South Wales Council of Social Services (NCOSS).

The report authors acknowledge the important contribution of researchers at NCOSS and the staff at ABS Datalab in the production of this report.

The cover artwork was designed by Coco Liu at CoDesign Creative Studio.

AUTHOR NOTE

The authors of this report are:

Dr Yogi Vidyattama
Professor Brenton Prosser
Professor Robert Tanton

The authors can be contacted via NATSEM:

Building 11, Kirinari Street
University of Canberra
Bruce, ACT 2617
Phone: +61 62012074
Email: natsem@canberra.edu.au
Web: www.natsem.canberra.edu.au

COPYRIGHT

©NATSEM, University of Canberra 2020 All rights reserved. Apart from fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright Act 1968, no part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing of the publisher.

SUGGESTED CITATION

Vidyattama, Y., Prosser, B., Tanton, R., and NSW Council of Social Service (NCOSS)., (2020), *Mapping Patient Experience and Economic Disadvantage in NSW*, NATSEM & Institute for Governance and Policy Analysis, Canberra. Report commissioned by NCOSS.

ACRONYMS

ABS	AUSTRALIAN BUREAU OF STATISTICS
COVID-19	CORONAVIRUS DISEASE 2019
GP	GENERAL PRACTITIONER
IGPA	INSTITUTE FOR GOVERNANCE AND POLICY ANALYSIS
IVF	IN-VITRO FERTILISATION
MBS	MEDICARE BENEFITS SCHEME
MPHS	MULTIPURPOSE HOUSEHOLD SURVEY
NATSEM	NATIONAL CENTRE FOR SOCIAL AND ECONOMIC MODELLING
NCOSS	NEW SOUTH WALES COUNCIL OF SOCIAL SERVICE
PES	PATIENT EXPERIENCE SURVEY
SA2	THE ABS'S STATISTICAL AREA 2
SA4	THE ABS'S STATISTICAL AREA 4
SES	SOCIOECONOMIC STATUS
UC	UNIVERSITY OF CANBERRA



NEW SOUTH
WALES

TABLE OF CONTENTS

6	CEO's Message
8	Executive Summary
10	Key Findings
12	Introduction
13	The findings in this report are built on the available literature
14	The methodology is rigorous and reliable
14	What we mean by patient experience
14	Our approach to SA2 small area estimation and sample size
15	We partnered with NCOSS to identify priority health service types
16	We implemented a three-stage approach to data analysis and reporting
16	This report comes with some important clarifications and caveats
18	Our overview of Patient Experience points to the importance of having a job
18	Unemployment is a key factor (but not the only factor) in poor patient experience
19	Cost is a major factor in delays to GP visits, especially for the unemployed
21	If you are employed, you are more likely to see a GP within 24 hours
22	Older Australians are more satisfied with the time GPs spend with them
26	The cost of visiting the dentist causes delay for one in five people
28	If you are on a low income, you are more likely to wait to access a public dentist
30	Satisfaction in dentist time is lower for those unemployed or on low incomes
33	The unemployed are more likely to delay visits to medical specialists
35	More than one in five people think they wait too long to see a medical specialist
36	The unemployed are more likely to be dissatisfied with medical specialist time
40	Discussion – trends in patient experience
40	Why was employment such a factor in medical practitioner results?
42	What was notable about the experiences of people living alone and lone parents?
42	Is unemployment also a major factor in patient experience of dentist services?
43	What is the influence of private health insurance on patient experience in NSW?
44	What is behind the varied results on experience of medical specialist services?
45	Health service provision is challenging in regional and remote NSW
48	Conclusion
50	About NCOSS
50	About NATSEM
51	Glossary
51	References
51	Additional information

LIST OF TABLES

- 18** Table 1: Average NSW figures by 3 types (GP, dentist, specialist) and 2 groups (low income & unemployed)
- 19** Table 2: The proportion of people who delayed seeing or did not see GP in last 12 months due to the cost among those who need services
- 21** Table 3: The proportion of people who wait for more than 24 hours for urgent GP visit
- 22** Table 4: The proportion of people who felt not enough time when visiting GP
- 26** Table 5: The proportion of people who delayed seeing or did not see dentist in last 12 months due to the cost among those who need services
- 28** Table 6: The proportion of people who wait for more than a month for public dentist visit
- 30** Table 7: The proportion of people who felt not enough time when visiting the dentist
- 33** Table 8: The proportion of people who delayed seeing or did not see medical specialist in last 12 months due to the cost among those who need services
- 35** Table 9: The proportion of people who wait an unacceptable time for a medical specialist visit
- 36** Table 10: The proportion of people who felt not enough time when visiting medical specialist

LIST OF FIGURES

- 41** Figure 1: Equivalised disposable income by age group
- 45** Figure 2: Remoteness area in NSW
- 46** Figure 3: Delay visiting a GP, dentist or medical specialist due to cost in NSW by remoteness area
- 46** Figure 4: Long wait time to see GP, dentist or specialist in NSW by remoteness area
- 47** Figure 5: Perception of not enough time with GP, dentist and specialist in NSW by remoteness area

LIST OF MAPS

- 20** Map 1: The distribution of people who delayed seeing or did not see GP in last 12 months due to the cost among those who need services
- 24** Map 2: The distribution of people who wait for more than 24 hours for urgent GP visit
- 25** Map 3: The distribution of people who felt they did not have enough time when visiting GP
- 27** Map 4: The distribution of people who delayed seeing or did not see dentist in last 12 months due to the cost among those who need services
- 29** Map 5: The distribution of people who wait for more than a month for public dentist visit
- 31** Map 6: The distribution of people who felt not enough time when visiting dentist
- 34** Map 7: The distribution of people who delayed seeing or did not see medical specialist in last 12 months due to the cost among those who need services
- 38** Map 8: The distribution of people who felt not enough time when visiting medical specialist

CEO'S MESSAGE

It is well known that early and timely access to health services can improve outcomes for a range of health conditions. We also know that where you live and the social circumstances of your household can be a strong predictor of your health – economic disadvantage is both a product and a predictor of poor health and poor access to health care.

The analysis in this report tells us that NSW citizens who are unemployed have the poorest access to and the worst experience of health services in the state; that those living in regional areas, living alone or parenting alone are also more likely to have a poor experience; and that cost continues to be a major barrier for many people, particularly when it comes to their teeth.

But the picture is complicated. Having a low income – as opposed to being unemployed – tends to result in a significantly better experience; more advantaged areas can face health challenges; and locations that are close by or share similarities can have vastly different experiences.

The report draws on ABS survey data which collates people's experiences of health services – pre-COVID-19 – and uses complex mapping techniques to estimate how these play out across different areas of NSW.

While reported experience brings with it a degree of subjectivity, analysis of this data allows us to identify common themes for particular groups and the effect of geographic factors. Importantly, it puts the experience and perspective of the individual, and not that of the health care provider, at the centre.

This report comes at a time of unprecedented change in our society. COVID-19 has brought into stark relief the intersection between public health, social issues and economic factors, and their impact on the well-being of individuals, families and communities.

In the wake of the pandemic, as we experience the worst recession since the Great Depression, it is apparent that the impacts are not being felt evenly. Job losses are concentrated in less affluent areas and impacting some groups more significantly.

The health implications of the pandemic are also far reaching. Prior to COVID-19 our health system faced the challenges of an ageing population, more people living with chronic health conditions, poorly coordinated pathways of care and continued concentration of resources at the crisis end.

There is now evidence of increasing mental health issues, alcohol dependence, poor diet and exercise, and a rise in family and domestic violence as a result of the pandemic. There is also evidence that lockdown has resulted in a drop-off in usual testing rates for cancer and other diseases. Even with the coronavirus supplement, the cost of health services continues to be a major challenge for unemployed people, with many still struggling to pay for medicines and specialist services.

Yet the crisis has also shown that our health system can quickly reconfigure to rise to the challenge and that data can be effectively harnessed to target responses where needed.

We also now know that people can heed messages and change their behaviour, and the potential for tele health to expand access and availability of services.

The current extraordinary circumstances present an opportunity to ensure that we don't further entrench and widen health inequality. Central to this is listening to the voices of individuals, families and different groups in the community – including those who often don't have a voice – to understand their experience of health services.

The rich data in this report and available through the interactive online mapping tool is intended to help consumers, advocates, planners and service providers, along with policy and decision makers at all levels of government to do just that – thereby contributing to improved social, economic and health outcomes, and a fairer NSW, for everyone.

Joanna Quilty

NCOSS CEO

September 2020

EXECUTIVE SUMMARY

This report explores the relationship between economic disadvantage and patient experience of health services across New South Wales.

It focuses on the costs, delays and expectations of General Practitioner, private and public dental, and medical specialist services. It recognises that not everyone accesses or experiences health services equally, while there is significant variation by region. Importantly, this report considers economic disadvantage in terms of relative unemployment, low income and labour force status, not just low income.

Using complex modelling techniques, NATSEM has identified key social factors that affect patient experiences and then mapped these by ABS small area (SA2 or suburb). This clearly shows the variations in patient experience by geography, demography and socioeconomics. This analysis of multiple variables aligns with a social determinants of health perspective, which emphasises the multiple influences on health outcomes.

Overall, this report finds that in NSW, people who are unemployed have the poorest patient access and worst experience of health services. Unemployed people in regional NSW are most likely to delay seeing a GP due to cost and are least likely to access GPs fast for urgent services. When it comes to accessing medical specialists, between 20% and 25% of people living in NSW think they wait too long. Again, it is unemployed people who are most likely to delay visits because of cost, followed by those living alone and young people aged between 15-24.

Across NSW, the health service people are most likely to delay because of cost is seeing their dentist. The problem is most acute in regional areas, and particularly for people who are unemployed or living alone. However, across NSW people are more likely to be satisfied with the time their dentist spends

with them. In regional NSW, they are least satisfied with time spent by medical specialists, while in metropolitan Sydney it is GPs who give rise to the most dissatisfaction.

The report highlights that as well as employment status, being a single parent, living alone and living in regional NSW can be factors associated with poorer experience of health services. And that overall, it is older Australians who are least likely to delay accessing services and more likely to be satisfied with their experience.

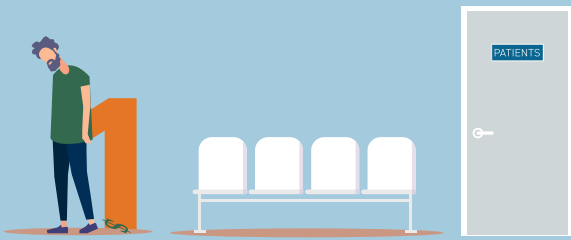
However, the report finds that there is no consistent link between low income and poorer access to health services. Some more affluent areas also experience significant health challenges and factors such as access to bulk billing, private health insurance, age and cultural and generational expectations can play a part. These and other findings are explored in detail throughout the report, its accompanying maps and technical appendix.¹

This report uncovers trends that confirm and contradict commonly held views on poverty and health, revealing a need for policy makers, health and social service providers to continue developing a deeper understanding of the nature, diversity and complexity of patient experience. This research helps contribute to this understanding and provides robust data and evidence to inform stronger policy and better health outcomes for all.

1. Available at www.ncoss.org.au



Key findings



PEOPLE WHO ARE UNEMPLOYED HAVE A POORER PATIENT EXPERIENCE

People who are unemployed have a poorer patient experience than the overall NSW population. Notably, unemployed people are twice as likely as those on a low income to delay seeing a GP or a medical specialist due to cost.



PEOPLE WHO ARE UNEMPLOYED ARE MORE LIKELY TO DELAY A VISIT TO A GENERAL PRACTITIONER

If you are unemployed or live in regional NSW, you are twice the average to delay a visit to the GP due to cost. If you live alone in Sydney, it also doubles the likelihood. If you are a lone parent in regional NSW it increases the chances even more.



OLDER AUSTRALIANS ARE MORE SATISFIED WITH THE TIME GPs SPEND WITH THEM

The average NSW adult is almost two times less satisfied with the time GPs spend with them than their counterparts over 65 years. In this case, not working or looking for employment has little effect. Neither does living outside of Sydney, with only minor difference between metropolitan and regional satisfaction levels.



IF YOU ARE EMPLOYED, YOU ARE MORE LIKELY TO SEE A GP WITHIN 24 HOURS



If you are unemployed, you are likely to wait more than 24 hours between booking and receiving GP services. In fact, you are two and a half times less likely to receive urgent services than those on a low income. The further you head west in NSW, the more likely the wait.

THE COST OF VISITING THE DENTIST CAUSES DELAY FOR MANY NSW RESIDENTS



1 in 5

In NSW, up to 1 in 5 people delay a visit to the dentist due to cost. Among people on low incomes, up to 30% report delaying dental treatment, while similar delays are seen with unemployed Sydneysiders. In regional NSW, almost half of those unemployed are delaying a dental visit due to cost.



IF YOU ARE ON A LOW INCOME, YOU ARE MORE LIKELY TO WAIT TO ACCESS A PUBLIC DENTIST

Those on a low income are around three times as likely to wait to receive public dental care than the metropolitan or regional averages. If you are unemployed and living in Sydney, things are a little better, in regional NSW they are a little worse. Those full time employed are four times more satisfied than the average.



1 in 5

MORE THAN ONE IN FIVE PEOPLE THINK THEY WAIT TOO LONG TO SEE A MEDICAL SPECIALIST

Between 20% and 25% of people living in NSW think they wait too long to see a medical specialist. For those unemployed, it is between 29% and 32%. For people who live on their own, this increases to between 28% and 38%.



THOSE UNEMPLOYED OR ON LOW INCOMES REPORT LOWER SATISFACTION WITH DENTIST TIME



If you are unemployed and living in Sydney, or on a low income in regional NSW, you are twice as likely to be dissatisfied with the time spent with the dentist. Those who are unemployed in the rest of NSW are three times as likely. Meanwhile, lone parents with children are more satisfied with time spent by dentists.



IF YOU ARE UNEMPLOYED, YOU ARE MORE LIKELY TO BE DISSATISFIED WITH TIME SPENT BY MEDICAL SPECIALISTS

If you are unemployed, you are twice as likely to be dissatisfied with the amount of time provided by medical specialists. If you are over 65 years and living in regional NSW, you are more likely to be satisfied by a factor of two. Living alone in regional NSW dramatically reduces levels of satisfaction.



IF YOU ARE UNEMPLOYED, YOU WILL BE MORE LIKELY TO DELAY VISITS TO MEDICAL SPECIALISTS DUE TO COST

If you are unemployed and require a medical specialist, you will be more between two and a half and three times more likely to delay this due to cost. People living alone and those under 24 years also experience higher levels of delays.

INTRODUCTION

This report looks at the 'patient experience' of health services for different population groups across NSW. This experience data includes frequency, wait times, cost of care and satisfaction with consultation times. It does not include estimates of improved health status or overall satisfaction with services. However, it does provide important insight into early and timely access to services, which can contribute to better health outcomes.

The report aims to explore the relationship between patient experience and economic disadvantage. While we recognise that disadvantage is much broader than the purely economic (Prosser & Hellen-Smith, 2020; Vinson & Rawsthorne, 2015), the data available via the Patient Experience Survey (PES) for this report only supports using economic indicators.

The report uses complex statistical modelling techniques to analyse the different demographic groups in terms of health provision and spatial distribution in patient experience across NSW.

Working in partnership with research and health policy leaders at NCOSS, priority service types were identified, before commencing analysis identifying significant patterns in the data. These patterns were then interrogated for demographic and regional trends.² This document reports the findings from this method.

The outcomes of spatial distribution analysis are provided in this report, while online maps are also available.³ In particular, this online mapping presents the extent of the impact of the provision of health services by indicators of economic disadvantage. This work builds on the previous research partnership formed between NCOSS and NATSEM through the *Mapping Economic Disadvantage in NSW* project (Vidyattama, Tanton & NCOSS, 2019). Together, these resources can assist with policy design and targeting resources to where they are needed most to improve health and wellbeing in communities.

It is important to view the results in the following pages within this context of communities. What may seem like small percentages of poor patient experience across different demographics can still translate to large population groups in real numbers who are being impacted, with significant consequences.

Even short delays in access to services for the large number of families with children can have significant developmental impact for a child. Meanwhile, the growing number of older Australians, if experiencing poor health services, can soon see conditions exacerbate with chronic or life-threatening implications.

We know that rarely is one person or one family limited to one category in these tables. Often there are intersecting and compounding impacts of poor experiences. We also know that for groups who are vulnerable in the community, such as those experiencing economic and other disadvantage, the impact of poor patient experiences is disproportionate with far greater impact on individuals, demands on services (including hospitals) and costs to the community.

This report will be valuable to a range of audiences. It is intended for use by Commonwealth, state and local governments for their policy planning, particularly to guide place-based community approaches. It is intended for use by regional health leaders (such as Primary Health and Local Health Networks), health service providers and private practitioners. This resource will assist decision makers to plan nationally, allocate resources regionally and coordinate services locally. It will help direct services to where they are needed and in a way that targets economic disadvantage.

This report is arranged in three parts. The first describes the literature and method that underpins its findings. The second summarises the ten key findings from the analysis. The third provides high-level analysis of the findings and seeks to provide insight and possible explanations for policy leaders, service providers and the public.

2. More detail is provided in the method section of this document.

3. www.maps.ncoss.org.au/patientexperience

In line with the principles of the social determinants of health, it is hoped that this report will be used across a range of sectors and professions to create new partnerships in areas of need. Most importantly, it will inform NCOSS and its partner social service organisations to continue to enhance the vital role that they play in supporting integrated, holistic and inclusive health outcomes in their communities.

THE FINDINGS IN THIS REPORT ARE BUILT ON THE AVAILABLE LITERATURE

Where you live or, more accurately, the social situation of your household, can be a strong predictor for your future health. This is because economic disadvantage is not just the predictor, it is also the product, of poor health and poor access to health services (Productivity Commission, 2013).

Generally, the higher a person's socioeconomic position, the better their health (AIHW, 2018; NCOSS 2016). Low SES can result in lower levels of health literacy, which contribute to higher rates of hospitalisation and adverse outcomes (ACSQHC, 2020). Meanwhile, the growing cost of health services has a disproportionate influence on families at risk of poverty (NCOSS, 2016).

This is a particular concern because of the impact on children living in poverty for their future productive capacity and life prospects (Productivity Commission, 2018). Family socioeconomic status is amongst the strongest predictors of child learning outcomes, but even stronger for children with a chronic health issue (Barnett et al, 2018).

It is for these reasons, that policymakers, community planners and service providers are very interested in the spatial distribution of social predictors and health indicators. They are informed in this view by the growing body of literature on the social determinants of health (Turrell et al, 1999; WHO, 2008; DSS, 2018). Recent reports on spatial disadvantage in NSW and Victoria have contributed to the debate on the social determinants of health (see NCOSS, 2019; VCOSS, 2018).

However, this work also involves risk. It can (unintentionally) stigmatise and entrench stereotypes. It can result in the community resilience of towns, suburbs and individuals being overlooked because of pervasive poverty labels. From the outset, this is the opposite of what the research partnership between NATSEM and NCOSS sets out to do. Our work is informed by the growing policy interest in regional capacity building and place-based community responses.

In our previous report (Vidyattama, Tanton & NCOSS, 2019), we looked at economic disadvantage. We did so by mapping through 26 different filters.⁴ This is because we know that there is no single story. Some groups fare better (or worse) not just between suburbs, but within them. Also, as Australian research on longitudinal disadvantage has shown (Vinson & Rawsthorne, 2015), the levels of social, educational, health and economic disadvantage can vary significantly (Prosser & Hellen-Smith, 2019).

This report takes the approach of this previous partnership one step further. While still aware of economic disadvantage, it looks at its interface with health access and patient experience. This is not only vital to quality of life and wellbeing, but social participation and economic productivity.

Interestingly, this study does not find a consistent link between low income and poorer access to health services.⁵ Some more affluent areas also experience significant health challenges. In some places, employment status may be a more significant factor than low income. For some vulnerable groups,

4. See: <https://maps.ncoss.org.au/>

5. Due to data limitations in our modelling, 'low income' is the proportion of people living in households earning approximately \$400 a week. This is about half of the median gross household income across Australia.

bulk-billing practices are central to patterns in patient experience (Khan et al 2004; De Abreu et al. 2015). For other groups, generational or cultural expectations can play an important part – particularly in satisfaction with time spent by health practitioners.

What these different empirical results present is a rich tapestry for policy leaders, service providers and community groups to explore. By mapping these patterns and making them publicly available, we hope to prompt debate about potential predictors, possible responses and different perceptions of service provision to inform better patient experiences for all.

THE METHODOLOGY IS RIGOROUS AND RELIABLE

This report and accompanying maps provide estimates of different patient experiences of NSW health services across NSW. It draws on the PES component of the Australian Bureau of Statistics (ABS) Multipurpose Household Survey (MPHS). This survey was last conducted from July 2018 to June 2019 and collects information about people's experiences with aspects of the health system in the 12 months prior.

The ABS's Statistical Area 2 (SA2), small area or suburb level has been used for the mapping with this report. It is important to note that the PES data is provided at the larger SA4 level. This required NATSEM to use its expertise in microsimulation modelling to scale down results to the SA2 level. A high-level summary of the method used to do this is also provided below.

As noted above, the 'patient experience' captured in the survey is a specific term and relates more to efficient access than overall experience. This distinction is important in understanding the results and is outlined below.

What we mean by patient experience

The ABS PES is focussed on people's experiences of health services. It does not collect information from health service providers or capture changes in respondents' health status or overall satisfaction with health services. The survey collects information on people's experiences with medical professionals, the frequency of their visits, waiting times, and barriers to accessing care. The PES also includes questions on self-assessed health status, long term health conditions and private insurance levels.

Our approach to SA2 small area estimation and sample size

The PES does not provide results that are cross-tabulated with other data at the SA2 level. However, in recent years, NATSEM has developed expertise in spatial synthetic estimates based on ABS survey and Census data (using a technique called spatial microsimulation). These techniques were applied to the PES data in this report to produce SA2 suburb-level data.

Specifically, this report uses a methodology developed for highly confidential data (Vidyattama et al, 2013) that combines spatial microsimulation and regression approaches. The regression method was used to impute the specific conditions that are available from the PES onto the synthetic database. Given most of the variables of interest were likely to be 0/1 variables (True/False, Yes/No, etc), the variable was estimated using a regression model appropriate to this type of variable (a probit model). The subsequent application of coefficients from this model allows us to find the probability of the result for each observation on our raw dataset. This was conducted via the ABS DataLab, which provides a method for researchers who want to undertake real time complex analysis of highly confidential microdata. The regression method on variables of interest from the PES is described in the technical appendix.

The response rate for the 2018-2019 PES was 71.8% (this takes into account sample loss). In total, information was collected from 28,719 responding persons. This includes 477 proxy interviews for people aged 15 to 17 years (where permission was not given by a parent or guardian for a personal interview). The spatial microsimulation results covered 97.92% of SA2s and 99.19% of the NSW population. In our method, we exclude less populous areas based on the different demographic groups that need to access health services as there are not enough people in these demographic groups to derive a reliable estimate.

Further information on the method used in this analysis can be found in the accompanying technical appendix.

We partnered with NCOSS to identify priority health service types

The PES includes information on 13 different medical and health service types.⁶ When combined with the multiple economic indicators on the survey, the result was a rich source of data that was beyond the scope of this report and the online mapping resources. Drawing on the expertise in health policy and services amongst the NCOSS team, three health service types were selected for reporting. This was due to their broad relevance to NSW patient groups and significant role in primary health care and/or referrals.

GENERAL PRACTITIONERS

General Practitioners (GPs) are doctors who have completed a basic medical degree and internship, before undertaking additional medical training in general practice. This qualifies them to provide continuing primary care to the community. They are usually the first point of contact for health issues and referrals to medical specialists or other health professionals. Their services are funded through both the Medicare Benefits Scheme (MBS) and a service

charge, with individual Health Care Card status or bulk billing clinics enabling services without an additional charge to people with low incomes. GPs were selected for analysis due to their pivotal role in the Australian primary health care system.

DENTAL PROFESSIONALS

This category includes registered dentists, dental hygienists and dental specialists (such as periodontists, orthodontists, and oral and maxillofacial surgeons). However, this report refers to dentists for simplicity. Almost 60% of dentist services are privately funded in Australia, with many using private health insurance to offset this cost. Private health insurance is accessed less by people on low incomes, while recent media reports indicate a significant recent decline in memberships (especially for 21 to 29-year olds). A range of public services are also funded by the MBS through specific item codes. Dental professionals (or dentists) were selected for analysis both due to their relevance across the life course and the contribution of poor dental health to poor overall health for individuals.

MEDICAL SPECIALISTS

Medical specialists play a diverse but crucial role in the expert management and treatment of complex health conditions. For the purposes of this survey, if respondents sought clarification on the definition of medical specialist, they were advised that these were those referred by a GP and for which costs were covered (at least in part), by the MBS. The medical specialists most commonly referred to in the survey were dermatologists, cardiologists, neurologists and gynaecologists. Medical specialists were selected for analysis due to their handling of persistent, debilitating and chronic conditions, which involve significant costs to the individual, community and health service budgets.

6. i.e., Self-assessed health status; General Practitioners (GPs); After hours GP care; Three + health professionals; Medical specialists; Dental professionals; Long term health conditions; Pathology Tests; Imaging tests; Hospital emergency department; Hospital admissions; Other Health Professionals; Private health insurance.

We implemented a three-stage approach to data analysis and reporting

After identifying these three priority health service types, our strategy for data analysis and reporting involved three stages.

STAGE 1 – IDENTIFY MOST IMPORTANT MEASURES

In discussion with the NCOS team, it was decided to focus on patterns in the data around cost, waiting time, duration of consult and other notable aspects that emerged. This approach allowed analysis according to commonly cited influences on access and experience, but also allowed the opportunity to explore less common or surprise findings. These notable results were identified by large score variation compared to other scores in that measure.

STAGE 2 – IDENTIFY MOST PROMINENT PATTERNS

The results from the above selective analysis were too extensive to analyse in one report and the online mapping. Hence, we interrogated patterns by key themes in this study (e.g. regional/city vs state averages or income measures). We also identified prominent results within the selected service types to identify groups that varied significantly in their access or satisfaction results.

STAGE 3 – DOCUMENTARY AND ONLINE REPORTING

The high-level outcomes of this process are provided in this report. Further and more detailed results are provided through the online mapping tool. The design of the mapping tool was conducted in partnership with the NCOS team based on information needed by government, social service providers and communities.

Note: Further information on the above stages is available through the technical appendix that comes with this report.

This report comes with some important clarifications and caveats

This report provides estimates based on the PES survey, which records patient experience, rather than information from the health service providers. This introduces levels of subjectivity into the data, particularly in relation to satisfaction with time spent.

The report also provides its small area estimates based on where people were living when they were surveyed. Hence, it is only indirectly estimating the health services in a specific suburb as people may seek services from facilities outside their residential area (particularly specialists). However, what it does capture is the patient experience of services for households within a suburb, which can be linked to economic disadvantage, low income or unemployment levels.

The report also shows the frequency, timeliness and satisfaction of groups of people's interactions with health services. Our method cannot (and is not designed to) identify causation, just correlation. That is, we can't prove that negative interactions with health services cause low SES, or vice versa - just that there is an association between the two.

Further, our analysis provides averages. A high proportion of people delaying a visit to a medical professional due to cost in a certain area does not mean that every person will delay a visit due to cost. Other factors, outside this data set, may be at play that will affect a visit to a medical professional, including severity of the condition.



OUR OVERVIEW OF PATIENT EXPERIENCE POINTS TO THE IMPORTANCE OF HAVING A JOB

Despite Australia's healthcare system being ranked amongst the best in the developed world and NSW investing more than any other state in health expenditure, not everyone accesses or experiences health services evenly across NSW.

Table 1 reports the NSW averages in terms of delays to all three service types by unemployment and low income. It shows that overall 2.8% are delaying GP visits, 17.2% delaying dentist visits and 7.9% medical specialist visits due to cost.

Table 1: Average NSW figures by 3 types (GP, dentist, specialist) and 2 groups (low income & unemployed)

	delays to GP due to cost	delays to dentist due to cost	delays to specialist due to cost
Overall	2.8	17.2	7.9
Unemployed	5.7	34.5	24.4
Low income	2.9	27.3	10.8

This table also shows that there are higher perceived delays experienced by people who are unemployed accessing all services investigated, but low-income groups do not perceive the same level of delay as people who are unemployed. For people who are unemployed, the proportion who delay due to cost

is more than double the overall average. At 2.9%, low income is slightly higher than average for GP access and at 10.8% is about a third more than medical specialists. At 27.3%, having a low income is associated with delaying dentist treatment, but being unemployed has an even higher rate at 34.5%.

What we do know is that any delays due to financial cost come at a great cost to individuals, hospitals and the system through escalating chronic conditions.

Unemployment is a key factor (but not the only factor) in poor patient experience

Across the results in this report, the prominence of being unemployed is a consistent theme. However, factors such as age, household composition and regional location also play a part in access to different health services.

When it comes to satisfaction with the timeliness of service provision, this also varies by age, employment status and type of service. The following pages draw out these and other findings in more detail, as well as identify demographic and regional variations within these results.



Cost is a major factor in delays to GP visits, especially for the unemployed

Across NSW, the group affected most by the cost of GP services are people who are unemployed. People in regional NSW are twice as likely to delay seeing a GP due to cost, while being a single parent is another major barrier in regional NSW.

Table 2 shows that the groups who delay a GP visit in Sydney are people who are unemployed (4.9%), those living alone (4.7%) and those of working age but not looking for work (3.5%). In regional NSW, the main groups are people who are unemployed (7.3%), lone parents (7.0%), and those employed part-time. Lone parents also experience greater delays in visiting a GP in regional NSW (7.0%). Interestingly, older people had significantly lower levels of delay in (0.3%) and outside (0.9%) Sydney.

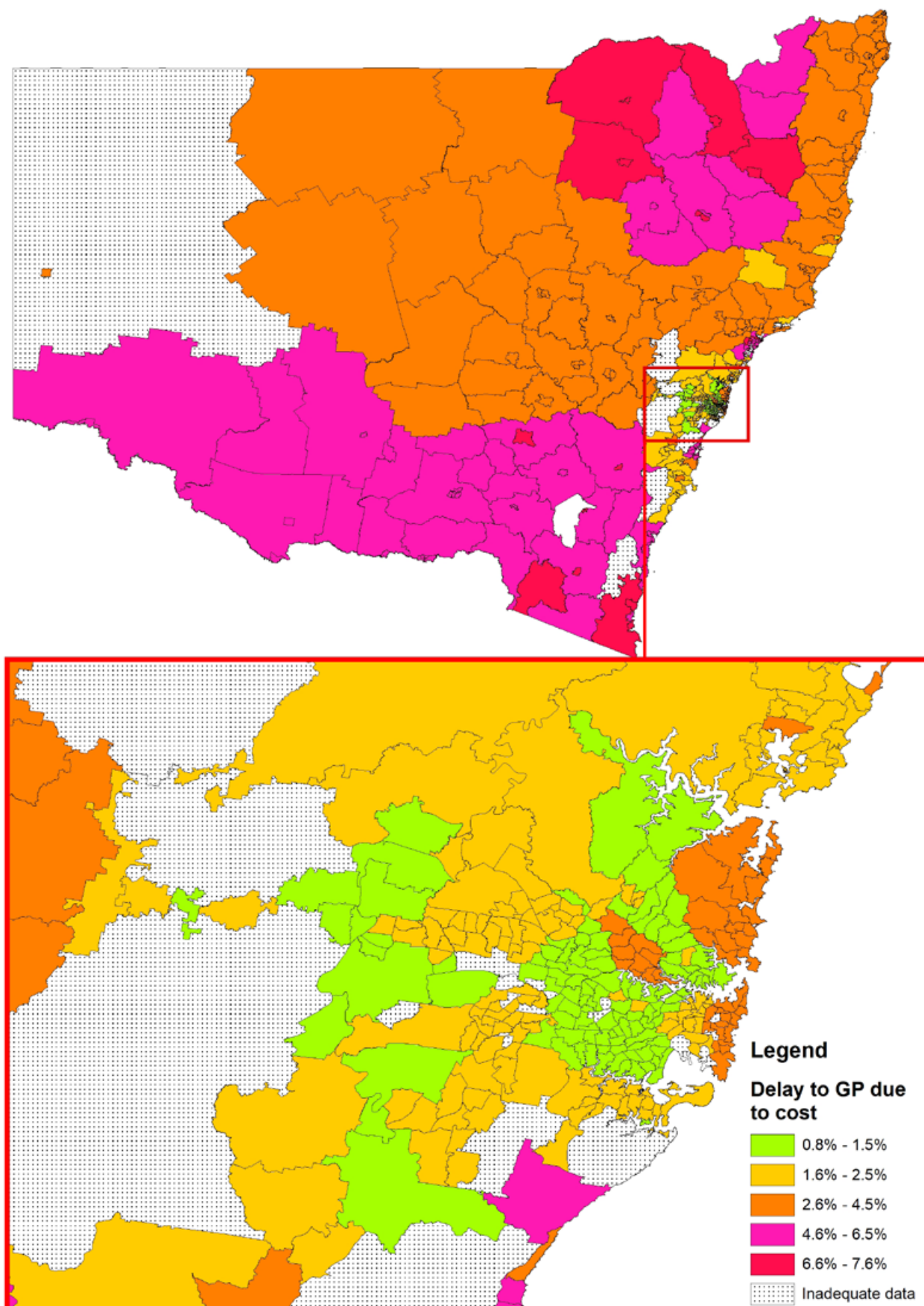
Map 1 shows the distribution of delays in GP access by SA2 suburb. Clearly, delays are more prevalent in the regions, particularly in the north east around New England (Tamworth, Moree, Narrabri, Armidale) and southern NSW especially around the capital region. That said, there is also a pocket of greater delays in Sydney's eastern suburbs (Kensington, Kingsford, Maroubra) and northern beaches. This points to an interesting finding across the results that there is not a positive correlation between low income rate and delays in access for cost across all NSW.

The reasons behind these regional trends are not immediately clear, but may relate to bulkbilling practices, travel costs or other factors. These factors and potential insights from the literature are considered in the summary of this report.

Table 2: The proportion of people who delayed seeing or did not see GP in last 12 months due to the cost among those who need services

	Greater Sydney (%)	Rest of NSW (%)
Overall	1.89	4.38
Aged 15-24	1.93	5.83
Aged 25-64	2.32	5.63
Aged 65+	0.28	0.90
Male	1.38	3.59
Female	2.32	5.07
Couple only	2.13	4.11
Couple with dependent children	1.15	2.09
Lone parent with dependent children	2.03	7.02
Lone person	4.66	6.40
Employed full-time	1.60	5.02
Employed part-time	1.68	5.80
Unemployed	4.94	7.28
Aged 15-64 not in labour force	3.49	5.49
Aged 65+ not in labour force	0.21	0.91
Low income	2.72	3.04
Medium and high income	1.82	4.53

Map 1: The distribution of people who delayed seeing or did not see GP in last 12 months due to the cost among those who need services



If you are employed, you are more likely to see a GP within 24 hours

The further you head west in NSW, the greater the likelihood you will wait for more than 24 hours for an urgent GP visit. The best way to secure such consultations is to have a job. If you are unemployed, you are around three times less likely to access GPs fast.

Table 3 examines accessibility of GP services not by cost, but by availability when urgently needed. These results point to employment status as an important factor. In Sydney, full (1.5%) or part (0.7%) time employment places you below the overall average (2.1%), while being unemployed more than triples your likelihood of not receiving urgent access (7.4%). The trend is similar in the rest of NSW with full (3.5%), part (5.2%) time work and overall (5.5%) being well below people who are unemployed (15.7%). Low income would not seem to play as strong a role

with low income results in (2.8%) and outside (6.3%) Sydney, closer to the overall results.

Demographic factors emerge as important in these results. If you are living in Sydney and are younger (0.9%) or a lone parent (1.3%) you are more likely to receive urgent GP services within twenty-four hours. If you are an older Australian (3.4%) or unemployed (7.4%) you are not. In the rest of NSW, the ability to access a GP urgently is relatively equal for each group, unless you are an older Australian (4.9%) or unemployed (15.7%), where you are much more likely to experience delays.

Together these results reveal the challenges of accessing a GP urgently across regional NSW. People are more than twice as likely to experience delays in regional NSW (5.5%) than in Sydney (2.1%). As Map 2 shows, the further west of Sydney one lives, the more likely the wait. The highest proportion of people experiencing delays in Sydney is North St Marys in Penrith (4.0%), while Walgett-Lightning Ridge is the highest in the state (15.4%).

Table 3: The proportion of people who wait for more than 24 hours for urgent GP visit

	Greater Sydney (%)	Rest of NSW (%)
Overall	2.05	5.49
Aged 15-24	0.88	5.44
Aged 25-64	1.92	5.75
Aged 65+	3.37	4.93
Male	2.35	4.92
Female	1.80	5.99
Couple only	1.74	6.70
Couple with dependent children	2.87	5.18
Lone parent with dependent children	1.30	5.69
Lone person	3.15	5.85
Employed full-time	1.49	3.46
Employed part-time	0.71	5.17
Unemployed	7.43	15.71
Aged 15-64 not in labour force	2.58	7.90
Aged 65+ not in labour force	3.41	5.43
Low income	2.77	6.31
Medium and high income	1.99	5.40

The above results are not unexpected. In a large and sparsely populated state like NSW, the inability to make local GP practices in small towns economically viable and the travel time to access metropolitan GPs has been recognised widely. However, these results highlight the importance of innovative policy that makes GP services accessible to regional Australians in times of urgent need.



Older Australians are more satisfied with the time GPs spend with them

Satisfaction in time spent when visiting a GP is one indicator of holistic and comprehensive primary health care. There are some inconsistent patterns in this set of data. However, across the board, older Australians seem more satisfied with the time spent with them.

Table 4 presents the proportion of people who are not satisfied with the time spent with them by their GP. This is an important measure because the number of people who come away from consultations with some health needs unmet is an indicator of poor service quality. Due to the set times under MBS item codes for GPs, it can reveal levels of financial and time

pressure on GP practices. It can also point to health costs shifting to other parts of the system (such as hospitals) in the future. That said, satisfaction can also be influenced by generational or cultural expectations. These factors may, in part, explain some of the different patterns in the data set.

Table 4: The proportion of people who felt not enough time when visiting GP

	Greater Sydney (%)	Rest of NSW (%)
Overall	7.57	8.84
Aged 15-24	5.76	8.49
Aged 25-64	8.88	10.93
Aged 65+	4.04	4.34
Male	6.98	7.71
Female	8.07	9.84
Couple only	8.95	10.94
Couple with dependent children	7.38	5.80
Lone parent with dependent children	6.25	11.06
Lone person	9.98	15.30
Employed full-time	7.99	9.79
Employed part-time	7.50	9.67
Unemployed	13.70	8.37
Aged 15-64 not in labour force	8.42	12.29
Aged 65+ not in labour force	4.11	4.16
Low income	7.02	12.06
Medium and high income	7.62	8.48

Broadly speaking, less than one in ten people in NSW are dissatisfied with the time spent with them by their GP. Of those groups that are more dissatisfied, only people who are unemployed in Sydney (13.7%) and single people in the rest of NSW (15.3%) have levels of dissatisfaction five percentage points greater than the overall average. The reasons for these two variations from associated variables are not immediately clear and are worthy of exploration.

Lone persons (10.0% Sydney and 15.3% outside Sydney) and lone parents (6.3% and 11.1%) are less satisfied with the time spent with their GP overall. However, older Australians are happier with the time spent with their GP compared to the NSW total (4.0% Sydney and 4.3% outside Sydney). The high levels of satisfaction for those aged 65 and over and lower levels of satisfaction for those aged 25 to 64 suggest generational or cultural factors may underpin expectations of how much time with a GP is enough.

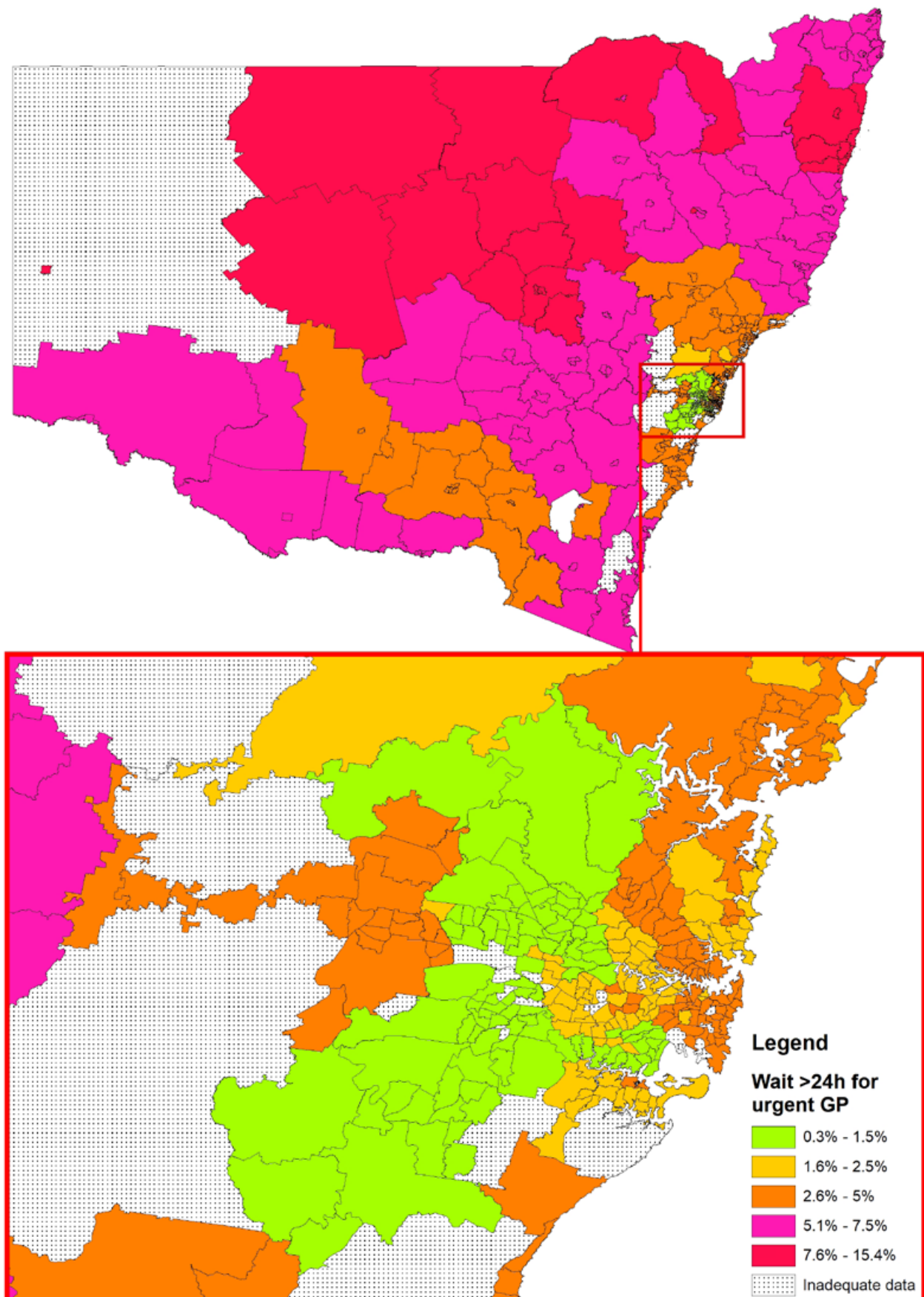
Based on this table, these results do not show the difference between Sydney and the rest of NSW that we see across the rest of the analysis. While low income (12.1%) and people aged 15-64 that are not looking for work (12.3%) may have lower levels of satisfaction with the time spent with the GP in regional NSW, dissatisfaction amongst people who are unemployed in the regions and couples with children are lower than in Sydney. However, Map 3 sheds light on the narrative behind these averages.

In Sydney, we see pockets of deep dissatisfaction with the time spent with GPs in inner Sydney (more than 10% in Darlinghurst, Erskineville – Alexandria, Newtown – Camperdown – Darlington, Potts Point – Woolloomooloo, Redfern – Chippendale, Surry Hills, Sydney – Haymarket – The Rocks). Generally, results around Greater Sydney average 7.6%, although satisfaction is higher just north of the city and the near southern beaches.

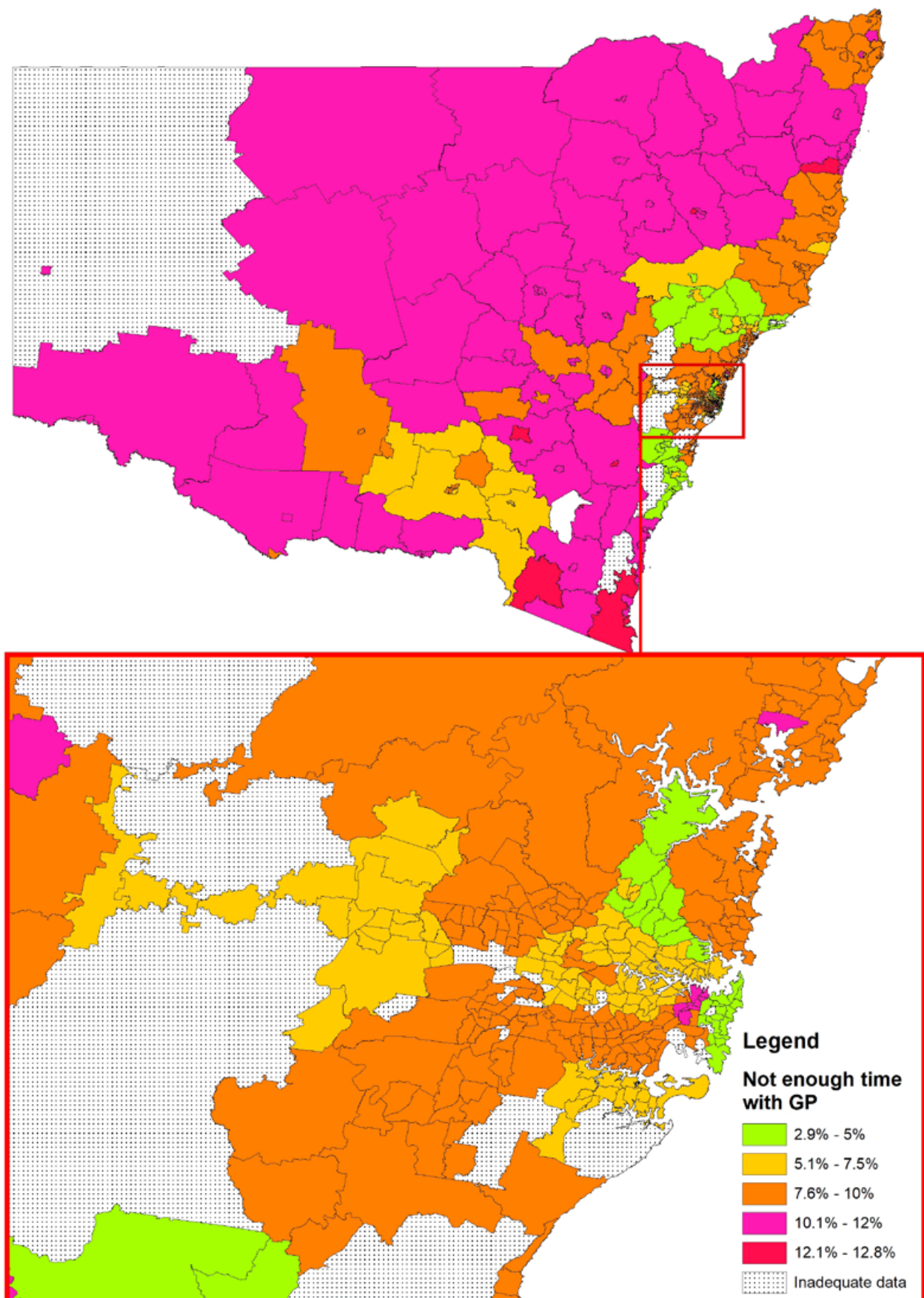
However, when we look to the rest of NSW, higher levels of satisfaction in the Southern Highlands, Shoalhaven, Hunter Valley region and to a lesser extent the Riverina area contrast with lower levels of satisfaction across the west and to the south of the state. These results highlight the importance for policy makers and sector leaders to be responsive to the diversity of GP services and service expectations across regional, rural and remote Australia.



Map 2: The distribution of people who wait for more than 24 hours for urgent GP visit



Map 3: The distribution of people who felt they did not have enough time when visiting GP



The cost of visiting the dentist causes delay for one in five people

In NSW, up to 1 in 5 people are delaying a visit to the dentist due to cost. This is despite potential subsidies from private health insurance and the public MBS. If you need dentistry services, almost a quarter of regional NSW and almost half of people who are unemployed are delaying a visit.

Table 5 reports the proportion of NSW residents who delayed a visit to the dentist due to cost. On average, 14% of people are delaying a visit to the dentist in Sydney and 23% are delaying outside Sydney.

In Sydney, almost three in ten of people who are unemployed and those on low income (28.8% and 25.9% respectively) put off visiting a dentist due to cost, while one in five lone persons (23.9%) also delay seeing the dentist due to cost. In regional NSW, the numbers are even higher. People who are unemployed (44.2%) and lone persons (37.9%) are all above one in three people. Notably, delays amongst couples; women; and those aged 25 to 64 are almost double the Sydney figures in regional NSW.



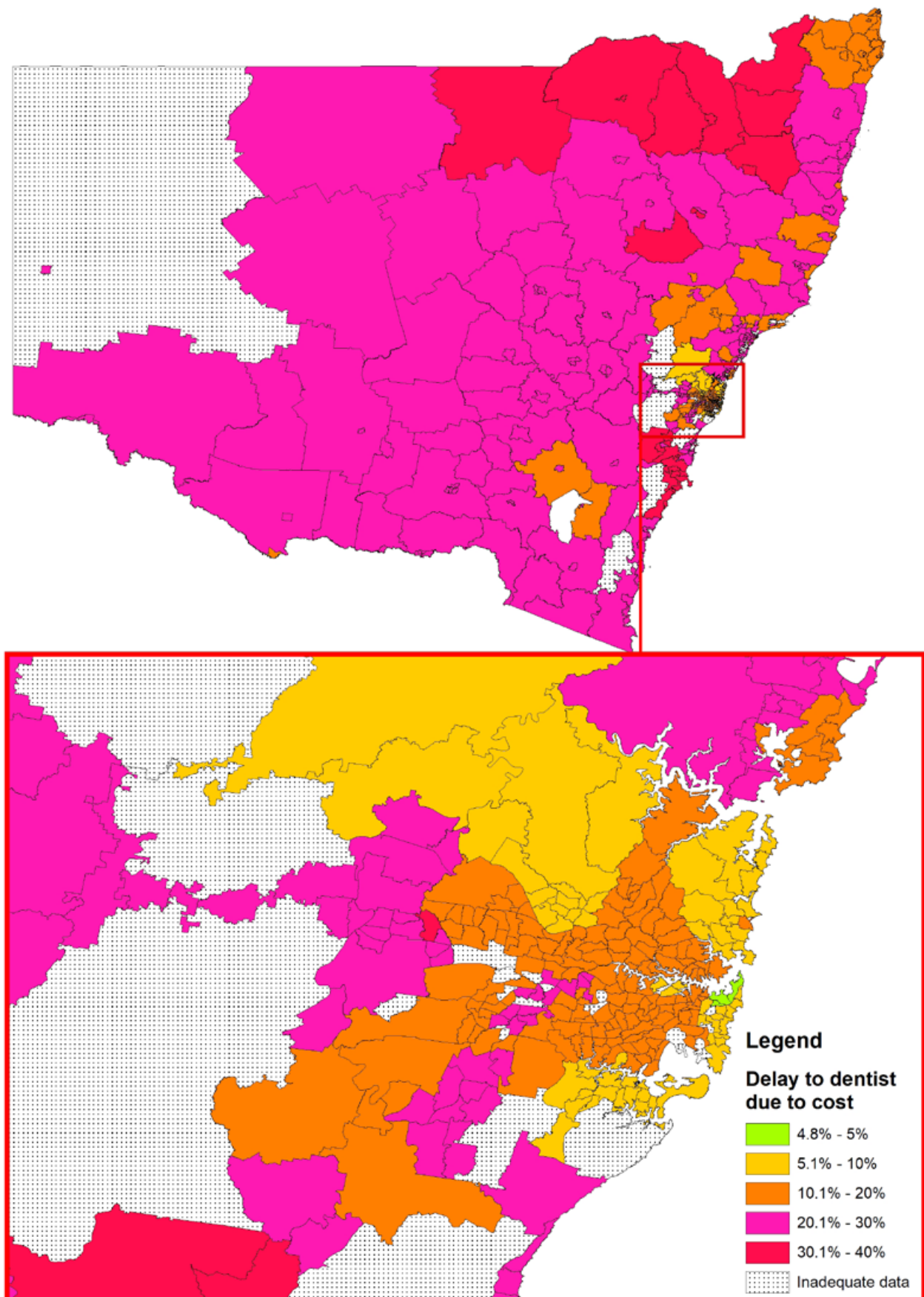
Table 5: The proportion of people who delayed seeing or did not see dentist in last 12 months due to the cost among those who need services

	Greater Sydney (%)	Rest of NSW (%)
Overall	14.41	23.17
Aged 15-24	11.69	12.59
Aged 25-64	16.22	29.19
Aged 65+	9.87	12.77
Male	13.19	20.70
Female	15.42	25.21
Couple only	15.68	28.64
Couple with dependent children	11.35	16.57
Lone parent with dependent children	12.89	21.37
Lone person	23.86	37.87
Employed full-time	13.87	19.47
Employed part-time	11.65	26.53
Unemployed	28.84	44.22
Aged 15-64 not in labour force	19.63	32.20
Aged 65+ not in labour force	10.16	12.40
Low income	25.91	29.38
Medium and high income	13.57	22.51

Interestingly, levels amongst low income households in metropolitan and regional areas are similar, while there is significant disparity between those aged 15-64 not looking for work (19.6% and 32.2% respectively).

Map 4 reports the distribution of delays in seeing a dentist due to cost. It is a map that provides stark contrast to Map 1 (GP delays) and where only inner Sydney and a small part of the northern beaches have relatively low delays. It also shows that apart from very high delays in north eastern NSW, there are consistently high delays across all regional NSW.

Map 4: The distribution of people who delayed seeing or did not see dentist in last 12 months due to the cost among those who need services



In the case of dentist delays, private health insurance appears to be a significant factor. Our analysis shows that in Sydney the overall proportion of people delaying a visit to the dentist because of the cost was 8.4% for those with private health insurance and 29.0% for those without. Outside Sydney, the figures rose to 11.5% with insurance and 38.1% without.

There is also a potential impact of subsidised dental services for children which may contribute to the lower proportion of families with children experiencing delays. This will be discussed further in the summary.

If you are on a low income, you are more likely to wait to access a public dentist

Everyone finds it a challenge to access a public dentist in NSW. A higher proportion of people who are unemployed and those on low incomes experience delays of more than a month to visit a public dentist. If you are an older Australian, you are better off in regional Australia than Sydney, as you are less likely to wait for a public dentist.

Although the previous finding highlights the influence of private health insurance and individual affordability in accessing dentist services, it is also important to analyse access to dentists for those who rely on the public system. Table 6 reports data on ability to access a public dentist within a month.

Clearly, not being in well-paid work is a key factor in delays. Unemployment (8.6% in Sydney and 18.1% in the rest of NSW), not looking for work (11.2% in Sydney and 19.4% outside Sydney) and low income (14.5% in Sydney and 15.2% outside Sydney) are all well above the overall rates in NSW (3.6% and 5.9%). For these groups, they neither have the income to access private dentistry nor avenues to access public dentistry when urgent services are required.

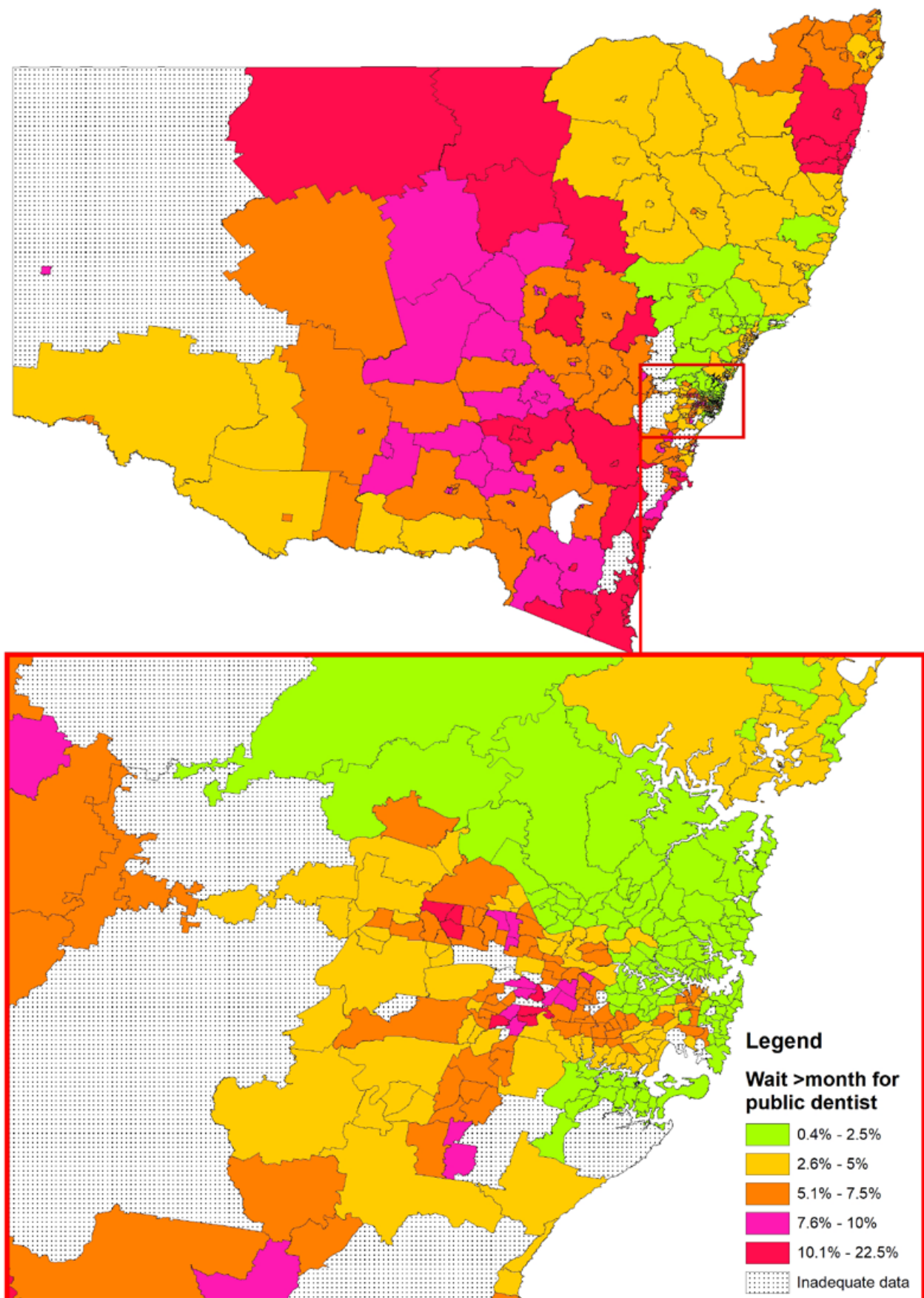
Other notable results in this table include longer waits for singles (7.9% and 16.4%), couples (6.9% and 10.5%) and older Sydneysiders (6.0%). That said, older Australians (4.8%) experience quicker access across the rest of NSW.

Table 6: The proportion of people who wait for more than a month for public dentist visit

	Greater Sydney (%)	Rest of NSW (%)
Overall	3.58	5.90
Aged 15-24	3.66	6.13
Aged 25-64	2.98	6.26
Aged 65+	5.96	4.78
Male	3.14	5.12
Female	3.94	6.56
Couple only	6.94	10.53
Couple with dependent children	2.18	3.00
Lone parent with dependent children	1.76	3.83
Lone person	7.93	16.35
Employed full-time	0.45	1.25
Employed part-time	1.36	2.92
Unemployed	8.62	18.05
Aged 15-64 not in labour force	11.17	19.35
Aged 65+ not in labour force	7.43	5.39
Low income	14.50	15.22
Medium and high income	2.89	5.01

Across most of the results in this table, levels of access in regional Australia are double that of Sydney. When we look to Map 5, we see this trend borne out visually.

Map 5: The distribution of people who wait for more than a month for public dentist visit



However, what we also see is that this trend in spatial distribution is not consistent. For instance, Ashcroft - Busby - Miller in Sydney South West (11.8%) and Bidwill - Hebersham - Emerton in Blacktown (11.9%) have a higher proportion of people waiting more than a month for a dentist. Meanwhile, Castle Hill West, Kellyville, and Beaumont Hills in Sydney North West (0.4%) have low proportions of people that have to wait. In regional Australia, the highest wait times are in Eden (Capital Region) (16.6%) and Dorrigo near Coffs Harbour (16.3%), while Maitland - North (1.3%) and Seaham - Woodville (1.2%) in Hunter Valley areas are lower. What this highlights is the importance of examining different geographical, workforce and health policy influences on public dentistry services in different regions.

Satisfaction in dentist time is lower for those unemployed or on low incomes

The residents of NSW are relatively happy with the time spent with them by dentists. However, Sydneysiders are less content if they are unemployed, while outside the city, low income appears to influence satisfaction.

As discussed above, most dental services are funded by the individual rather than governments or private health insurance. This provides private dentists greater discretion over the time they spend with patients. Public dentists also have discretion but within the parameters of their funding. Table 7 looks at patient levels of satisfaction with time spent by both public and private dentists.

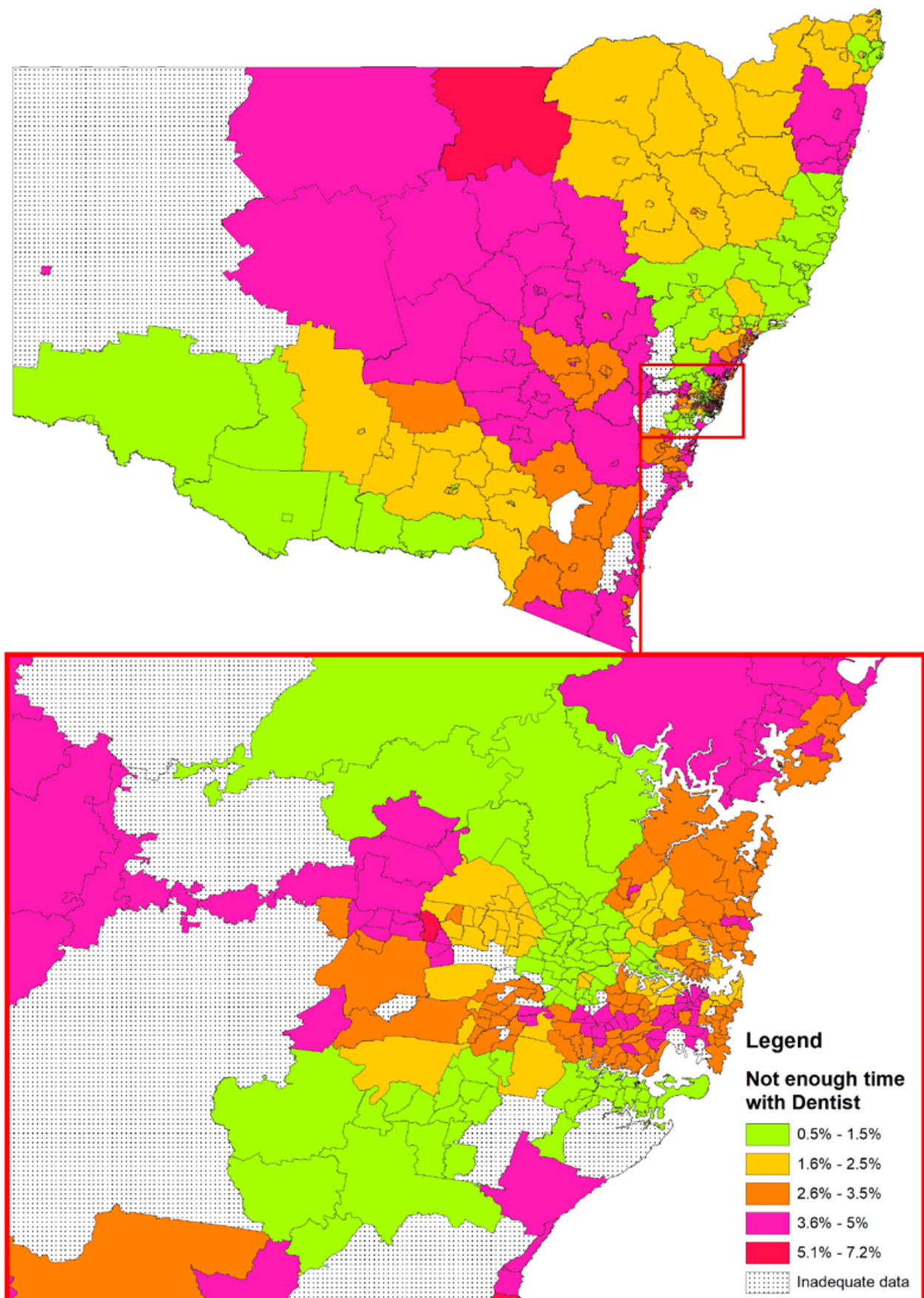
Table 7: The proportion of people who felt not enough time when visiting the dentist

	Greater Sydney (%)	Rest of NSW (%)
Overall	2.61	2.63
Aged 15-24	2.36	1.39
Aged 25-64	2.79	3.15
Aged 65+	2.17	2.04
Male	2.45	2.58
Female	2.74	2.68
Couple only	3.72	2.25
Couple with dependent children	2.47	2.03
Lone parent with dependent children	1.65	2.71
Lone person	3.28	3.92
Employed full-time	2.45	2.16
Employed part-time	2.19	1.97
Unemployed	5.36	8.50
Aged 15-64 not in labour force	3.44	4.29
Aged 65+ not in labour force	2.17	1.94
Low income	3.83	5.44
Medium and high income	2.54	2.36

This table shows that the proportion of people who are dissatisfied with time spent with their dentist is relatively consistent across demographic groups and between Sydney and the rest of NSW (at around 2.6%).

Despite this consistency, there are some differences to note, again around employment and income. Low income is a contributing factor (3.8% in Sydney and 5.4% outside), as is, to a lesser extent, people not looking for work (3.4% and 4.3%). Dissatisfaction amongst people who are unemployed is high in Sydney (5.4%) and the rest of NSW (8.5%). This means that you are twice as likely to be dissatisfied with the time spent by your dentist if you are unemployed and in Sydney and three times as likely if you are unemployed in the rest of NSW.

Map 6: The distribution of people who felt not enough time when visiting dentist



When we look at the spatial distribution in Map 6 it shows that central west NSW and western Sydney have the highest proportions of dissatisfaction (but not by a large extent).

In Sydney, the pockets of deep dissatisfaction with time by dentists are in the western areas, including Penrith, Colyton - Oxley Park, North St Marys (at around 5%). The lowest proportion of dissatisfaction was in the Sutherland area, south of Sydney (near Cronulla) in areas such as Lilli Pilli, Port Hacking, Dolans Bay, Woronora Heights (where only 0.5% are dissatisfied with the time provided by dentists). Outside Sydney, the Port Macquarie area has the lowest dissatisfaction (at around 0.8-0.9%) while Illawarra regions such as Berkeley - Lake Heights - Cringila Port Kembla - Warrawong have around 6.3-6.7%.

It is important to contrast these levels of dissatisfaction in time spent with dentists to that with GPs. What we see here is that GP dissatisfaction (7.6% in Sydney and 8.8% outside) is more than double that of dentists (both 2.6%). The message to be taken from this is that although costs are causing delays and public dentists are hard to access, once patients receive services, they are relatively satisfied with the time spent with them. This may be due to the quality and efficiency of service provision. It might also be due to subjectivity around the nature of services (e.g., a long GP visit is a good visit, a long dentist visit is not).



The unemployed are more likely to delay visits to medical specialists

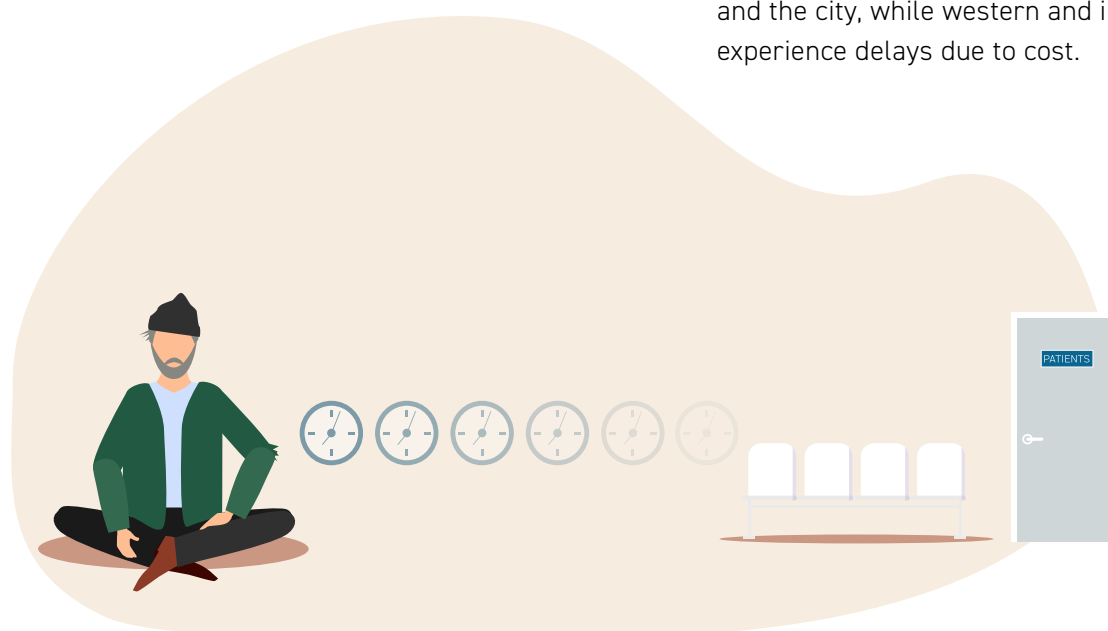
If you are unemployed in NSW, you are more likely to delay seeing a medical specialist because of cost. While overall the situation is similar in metropolitan and regional NSW, household composition appears to be a factor in delays, although this may just reflect the type of services that people require.

Table 8 presents patterns in the proportion of people delaying seeing a medical specialist. Across the results, the proportions are quite similar. Being unemployed (20.8%) and living alone (10.4%) are relatively high factors, and even higher outside Sydney (29.9% and 20.3% respectively). What is interesting are results where Sydney is higher than regional NSW. These include low income (12.0%), couples without children (10.1%) and lone parents with children (9.9%).

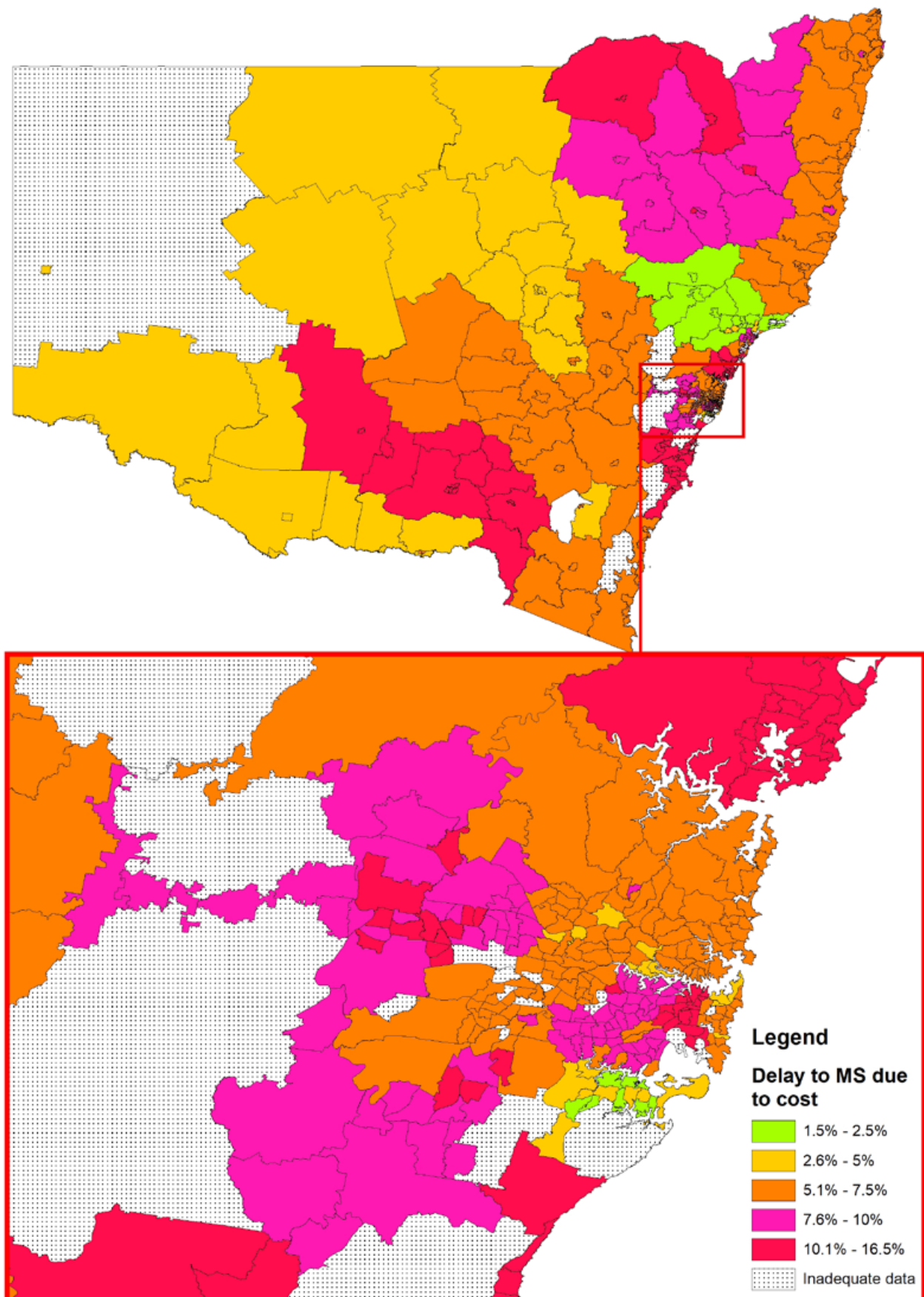
Table 8: The proportion of people who delayed seeing or did not see medical specialist in last 12 months due to the cost among those who need services

	Greater Sydney (%)	Rest of NSW (%)
Overall	7.85	7.94
Aged 15-24	13.40	13.47
Aged 25-64	9.44	9.96
Aged 65+	1.97	2.90
Male	6.99	6.85
Female	8.52	8.91
Couple only	10.06	7.28
Couple with dependent children	5.88	4.47
Lone parent with dependent children	9.88	8.78
Lone person	10.41	20.27
Employed full-time	9.38	7.50
Employed part-time	7.79	8.90
Unemployed	20.75	29.89
Aged 15-64 not in labour force	10.24	10.77
Aged 65+ not in labour force	1.63	3.02
Low income	12.03	9.24
Medium and high income	7.47	7.78

When we look at Map 7, we see greater levels of delays in both the far north and far south of the state and the city, while western and inner Sydney also experience delays due to cost.



Map 7: The distribution of people who delayed seeing or did not see medical specialist in last 12 months due to the cost among those who need services



Behind these results may be a hidden story. It is a story about the different nature of services and types of services that different demographics need. Broadly speaking, GP and dentist services are generalist, sought directly by the public and paid in part by individual financial contributions. Medical specialist services are largely by referral, can be very expensive and the level of Medicare subsidy is important.

There may also be other specialist service-specific factors. It may be that the higher delay for couples in Sydney is related to seeking IVF services. It also appears that the proportion of delays is low for those 65 years and above in Sydney. This may be due to this group requiring ageing condition specialists that are not included in the survey data. One would expect that people on low incomes in regional NSW would be more likely to experience delays due to cost. However, the opposite is the case with Sydney (12.0%) higher than the rest of NSW (9.2%). It may be that there are pathways between school communities and medical service referrals for parents across the rest of NSW. What the above suggests is that there may be complex factors at play, beyond travel and cost, including the type of specialist service needed. These factors are worthy of further examination.

More than one in five people think they wait too long to see a medical specialist

What is an acceptable wait for accessing a medical specialist varies by type of specialist and nature of treatment. But what is clear is that between 20 and 30 percent of people in NSW think that their waiting time was unacceptable.

The following results examine people's expectations about waiting times to see a medical specialist. As these results are about expectations, they need to be considered in three ways. The first is in relation to the urgency of health need, which requires an objective

assessment by different specialists of the patient's situation. This expectation is beyond the scope of this report. However, it leads to a second point. The more serious a condition, the more likely that either swift access to a medical specialist or hospital admission will occur. This needs to be considered in relation to the types of conditions different demographic groups experience and their impact on expectations recorded in the PES.

The third is a subjective assessment of patient satisfaction with timeliness. It is to this that Table 9 pertains.

Table 9: The proportion of people who wait an unacceptable time for a medical specialist visit

	Greater Sydney (%)	Rest of NSW (%)
Overall	22.23	24.30
Aged 15-24	21.30	14.89
Aged 25-64	24.49	27.91
Aged 65+	17.53	20.06
Male	21.25	20.11
Female	23.00	27.91
Couple only	18.43	21.59
Couple with dependent children	19.86	22.40
Lone parent with dependent children	25.54	26.13
Lone person	28.53	37.90
Employed full-time	22.73	20.96
Employed part-time	21.73	28.98
Unemployed	32.03	29.06
Aged 15-64 not in labour force	25.58	31.10
Aged 65+ not in labour force	17.72	19.31
Low income	21.50	29.66
Medium and high income	22.30	23.61

Looking across the results, the levels of dissatisfaction with timely access to medical specialists are relatively high and consistent with the overall results (22.2% and 24.3%). Of the demographic groups that have the highest proportion dissatisfied, single people (28.5% and 37.9%) and lone parents (25.5% and 26.1%) are highest.

Again, employment is a factor. People who are unemployed (32.0% and 29.1%), and those of working age but not looking for work (25.6% and 31.1%) experience high levels of dissatisfaction, as do those on low income (29.7%) or employed part time (29.0%) in regional areas. Due to the consistency of results across all these groups, low income alone would not seem to be the driving influence on dissatisfaction.

While expectations of different groups are important considerations in policy design, they relate to attitudes rather than accessibility patterns. This makes mapping by SA2 small area a less useful exercise, which is why it is not provided here.

The unemployed are more likely to be dissatisfied with medical specialist time

If you are unemployed, you are less likely to be satisfied with the amount of time provided by medical specialists. If you are over 65 years and living in regional NSW, you are more likely to be satisfied with the amount of time provided by your medical specialist, by a factor of two compared to the State average.

Medical specialists provide private, private health insurance and publicly funded services. They have significant discretion over the time they spend with patients. In Table 10, we report on the proportion of people who were dissatisfied with the time spent by medical specialists.

Table 10: The proportion of people who felt not enough time when visiting medical specialist

	Greater Sydney (%)	Rest of NSW (%)
Overall	6.46	9.89
Aged 15-24	7.61	4.44
Aged 25-64	7.70	12.94
Aged 65+	3.31	5.84
Male	4.62	8.47
Female	7.88	11.18
Couple only	5.80	12.04
Couple with dependent children	6.68	7.90
Lone parent with dependent children	7.30	9.54
Lone person	7.13	19.29
Employed full-time	7.21	11.40
Employed part-time	7.18	10.50
Unemployed	13.40	20.03
Aged 15-64 not in labour force	7.27	11.90
Aged 65+ not in labour force	3.33	5.57
Low income	7.00	9.44
Medium and high income	6.41	9.95

This table shows some variation around overall levels of dissatisfaction in Sydney (average 6.5%) and the rest of NSW (average 9.9%).

In terms of demographic groups, a higher proportion of women (7.9%) and lone parents (7.3%) in Sydney are dissatisfied with the amount of time spent by their medical specialist. While the proportion dissatisfied is consistent amongst most age groups, a greater proportion of older Sydneysiders are satisfied (3.3%). Broadly, these trends are similar (but higher) across the rest of NSW, with women higher (11.2%) and older persons lower (5.8%). A few regional results contradict Sydney trends, with lone parents lower (9.5%) than the overall average and lone persons much higher (19.3%).

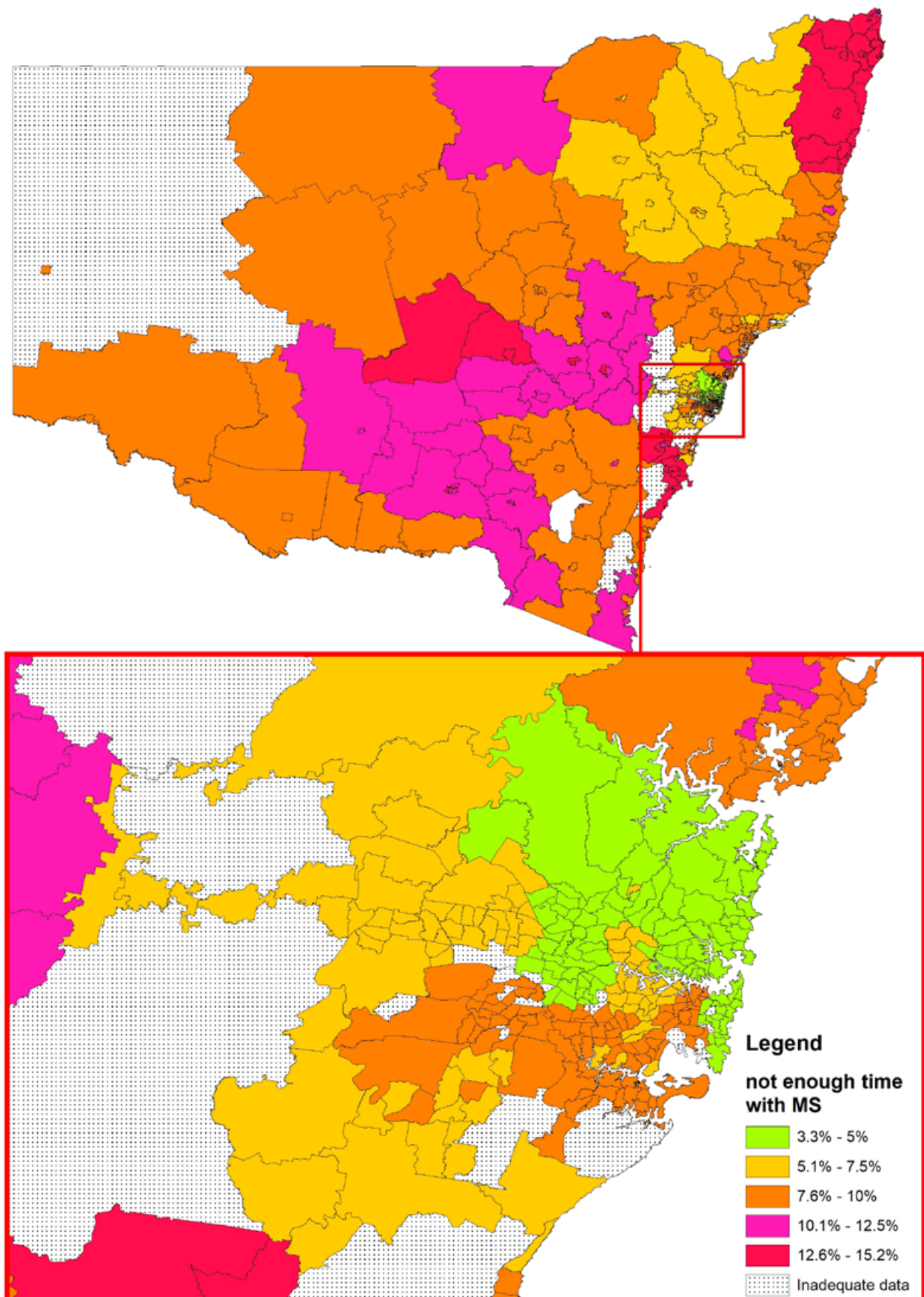
Unemployment also appears to be a prominent factor in levels of dissatisfaction. Levels of dissatisfaction amongst people who are unemployed in metropolitan (13.4%) and regional (20.0%) areas were double their respective averages. However, low income did not appear as a major contributing factor in this data and was slightly lower (9.4%) than the overall average in the rest of NSW (9.9%).

In terms of the spatial distribution, Sydneysiders appear relatively satisfied with the time spent with them by medical specialists (see Map 8). Where things vary is across the rest of NSW.

Based on the previous results around satisfaction with GP time, one might expect lower levels the further one heads west into regional and remote NSW, but this is not the case. Notably, the proportion of dissatisfaction in Richmond-Tweed (Brunswick Heads - Ocean Shores, Byron Bay, Mullumbimby, Lismore) and Southern Tableland-Shoalhaven (Nowra, St Georges Basin - Erowal Bay, Tomerong - Wandandian - Woollamia, Ulladulla Region, Hill Top - Colo Vale, Moss Vale - Berrima) is particularly high (at above 14%). These are followed by Coffs Harbour - Grafton areas and central west NSW (Bathurst, Condobolin, Parkes, Orange). Again, the reason for this is not immediately apparent, which makes it worthy of further examination.



Map 8: The distribution of people who felt not enough time when visiting medical specialist





DISCUSSION – TRENDS IN PATIENT EXPERIENCE

The Australian health system involves multiple layers of responsibility and funding provided by governments, individuals and private health insurers. In this analysis, we have examined data about NSW patient health experience which can be influenced by each of these layers.

As indicated earlier in this report, it can often be assumed that low income aligns with particular suburbs and poorer health indicators. This perspective has been reinforced in the literature around poverty, inequity and disadvantage (Martinez et al, 2017). While this may often be the case, it has not been borne out consistently in this data.

Rather, this analysis has shown a range of different and sometimes competing geospatial trends. In this summary, we explore some of these trends from the analysis.

Why is employment such a factor in medical practitioner results?

In Australia, primary care is provided mostly by private General Practitioners, who refer patients to specialist medical services where needed. To support this, the national public health insurance scheme, Medicare, provides subsidies for most medical and diagnostic and some allied health services. When these subsidies are applied without an additional charge (known as a co-payment or gap fee) it is referred to as bulk billing.

In the past, the percentage of consultations that are bulk billed by medical practitioners has declined (Moynihan and Birrell, 2016). This may result in situations where cost is presenting a barrier to accessing medical services, which can contribute to negative health incomes for vulnerable groups

(NCOSS, 2016). Further, bulk billing practices have historically varied significantly across Australia (Khan et al, 2004). It is likely that these practices contribute to the trends found in this data.

When we look at the results for GPs and medical specialists by employment factors there are several groups that show poorer experiences. People who are unemployed across NSW delay GP services due to cost and experience delays in urgent access to GPs, while those in Sydney report dissatisfaction with the time spent with them by GPs. They also delay seeing a medical specialist due to cost and are dissatisfied with the time spent with them, while unemployed Sydneysiders are unhappy with the amount of time it takes to secure a specialist consultation. Those who are in Sydney and are not looking for work tend to delay specialist visits due to cost and experience delay with urgent services, also reporting that they are not satisfied with the time spent with them in consultations. Further, those in part-time work in regional NSW also report delaying GP visits due to cost and higher than average delays to see medical specialists. In summary, if you are not in or looking for full time work, it is likely that your experience has been poorer.

However, the trends for those on low incomes do not align. For the purposes of this study, this group are only earning half the average median income, or four hundred dollars a week. One might expect that they are delaying GP visits due to cost, but they are not. Nor are they reporting delays in accessing urgent services. In Sydney, this group are more satisfied than other groups with the time spent with them by GPs, although this is not the case in the rest of NSW. Where there are challenges for those on low incomes, it is cost, delays and wait times to access medical specialists. The questions that this raises is why one group experiencing economic disadvantage, those on low incomes, have such a different experience to another, those not in full or part time work?

One explanation for these differences might come from patterns in the bulk billing of medical services. Previously, De Abreu and colleagues (2015) have

found that bulk billing is less likely in households with higher incomes, while it is more likely for those with government concessions. If one assumes that those on low incomes are on Health Care Cards and can access bulk billing, this would also seem to explain their lower levels of dissatisfaction. However, why is it in Sydney where the unemployed (many of whom are eligible for bulk billing) or those not looking for work (who may be on other government concessions) experience dissatisfaction and delays due to cost?

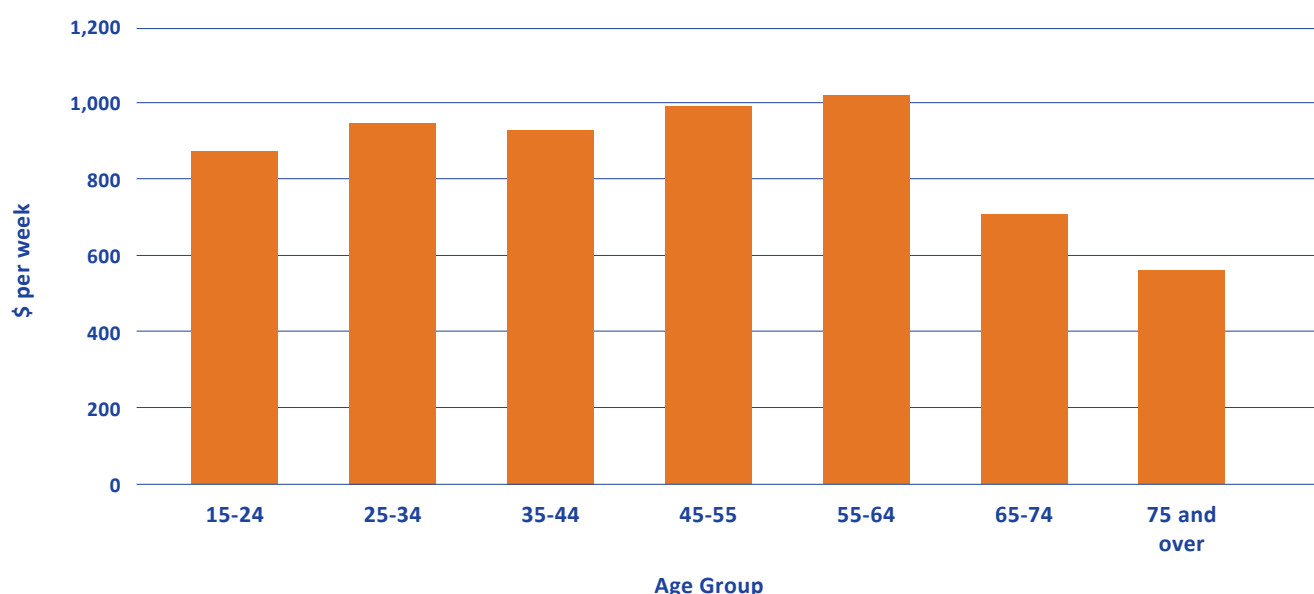
It is possible that becoming unemployed or not looking for work may increase the influence of cost on delays and dissatisfaction, particularly if bulk billing is not accessible. Tefft and Kageleiry (2014) have found that a one percentage point increase in unemployment rates can result in a 1.5% decline in care service use. They also find that females who are unemployed and other economically disadvantaged groups are very sensitive to economic variations. Meanwhile, Catalano, Satariano, and Ciemins (2003) found that people may delay seeking routine medical and dental care in times of economic stress. What this suggests is that access to bulk billing is a factor in delays and dissatisfaction by different groups experiencing disadvantage, but it not the sole answer

to why those outside of full-time work report poorer patient experiences.

Another explanation may be that those on low incomes are generally pensioners. This would be seen to be confirmed by PES results that show older NSW residents (many with senior concessions) report significantly lower delays in accessing GPs due to cost. Data from the 2017-18 Survey of Income and Housing shows that the median income for households with the head of household aged 65 and over is the lowest (Figure 1). Those aged 65 and over will also have more serious health conditions, so won't experience the delays that younger and unemployed people may experience.

The prominence of low income and employment as positive factors and unemployment as a negative factor in this data (along with the role of bulk billing) is an important consideration as Australia moves toward a post-COVID19 economic world. It may be that the large numbers of newly unemployed people will shift the trends within these results, while it may also be that there will be growing delays and dissatisfaction with medical services amongst the unemployed. Either outcome is worthy of close attention by policymakers and social service providers.

Figure 1: Equivalised disposable income by age group



Source: ABS, 65230D0010_201718 Household Income and Wealth, Australia: Summary of Results, 2017-18, ABS, Australia

What is notable about the experiences of people living alone and lone parents?

Living alone was shown to be an influence for NSW patients in this data. It found that people who live alone can be at risk of poorer health experiences, particularly in regional Australia.

If you are living alone in NSW, you are more likely to delay seeing a GP due to cost and be dissatisfied with the time spent with you. The same is true for access to medical specialists, although you will also be unhappy with the amount of time you have to wait for a consultation. In the case of dentist, cost is a disincentive for all. However, in Sydney you can also expect to wait for more than a month for an appointment with a public dentist. It is important to note that lone person households potentially cover three different life stages of people (young singles no children; middle-aged people who have separated; older people who are widowed), while people who are homeless or without secure housing are unlikely to have been included in the sample for the survey. When analyzing the lone person figures it is helpful to look at which other groups might be associated with this result, either between data groups (e.g., lone people and older people) or within groups (e.g., lone parents and gender).

Lone parents in wealthy countries often experience high levels of poverty and ill health (Gibson et al 2018) and the experiences reported by lone parents across NSW are similar to people living alone. Costs caused delays to GP visits and lone parents are unhappy with the time they have once they secure an appointment. This aligns with the experiences of those who are having difficulty accessing bulk billed MBS services. Lone parents are delaying access to medical specialists due to cost, but not to the level of other groups. The challenge for lone parents is the time it takes to see medical specialists and inadequate time once they secure a consultation.

Our analysis of the data shows that female lone parents with dependent children (2.44%) are more

likely to experience delays due to cost compared to male lone parents with dependent children (1.56%). In terms of not having enough time with the GP, 6.6% of female lone parents feel they do not have enough time with the GP compared to 5.9% of male sole parents. This suggests it is mainly female sole parents that are experiencing delays visiting a GP due to cost. Potential reasons for this may include differences in levels of pay by gender, guardianship arrangements where sole mothers have more weekly access or cultural attitudes to parenting roles. However, these reasons are speculative and worthy of further examination.

The contributors to poor health for lone parents can be stress from precarious work and conflicts between work and parenting demands, while welfare demands and returning to employment may not contribute to better health (Campbell, 2016). Lone parents and their children also experience higher than average levels of adverse health and social outcomes. However, if people have a child, there is some evidence of different experience in access to services. Neither lone parents nor couples with children report delays for visits to GPs with 24 hours.

What can be seen from this analysis are clear trends about the negative health experiences of lone adult patients. Hence, policymakers and social service leaders should read the above results in conjunction with the above insights on low income and unemployment due to the potential overlaps between these groups.

Is unemployment also a major factor in patient experience of dentist services?

Historically, Australia's health system has funded dental health services differently to other health services. Along with other allied health services, they have been categorised as ancillary services, which means that they have not been covered under the MBS. While state and territory governments fund a range of public dentist services, the vast

majority of expenditure on dental services is borne by individuals. Chrisopoulos et al (2013) have estimated that over 60% of all dental costs in Australia are paid by individuals. This is confirmed by an AIHW estimate that in 2017–18, individuals directly funded 57% of total expenditure on dental services (AIHW, 2020)

Dentist services are considered expensive by many in Australia (NCOSS, 2016). Meanwhile, the media regularly report Australians at all income levels delaying services due to cost. One indicator of this is data from the PES which shows that 8.4% of Sydney residents with private insurance delay visits, while the figure is 29.0% of those without insurance. Outside Sydney, the figures are higher, with 11.5% of those with insurance delaying a visit and 38.1% of those without. However, these rates are still lower than the AIHW estimate of the proportion of people aged 15 years and over who avoided or delayed dental care due to cost in 2017–18 (39%). It is fair to assume that most Australians who are experiencing economic disadvantage are not able to afford private health insurance.

The importance of private health insurance in dental care is vital. AIHW (2020) analysis of the Health Expenditure Database shows that in 2017–18 the total expenditure on dental services increased at an average annual growth rate of 4.4%. Meanwhile, health insurance funds' expenditure on dental services increased at an average annual growth rate of 6.8%. One possibility is that those who have health insurance visit more regularly and incur more costs due to regular check-ups and preventative work, while those who do not have insurance are avoiding visits and reducing costs. This supposition would need to be tested against the levels of chronic dental treatment for those without insurance and in the public system.

In NSW, if you are younger or older, you will be receiving timely and affordable care. Subsidised school dental services are available to children up to the age of 15 years in most jurisdictions in Australia. From 2008, subsidised dental care has been extended to include teenagers in the form of

teen dental vouchers for families who receive Family Tax Benefit A. For those over 18 years, public funding for dental care is only provided to those with health care cards. Therefore, it is reasonable to expect that the proportion of those who delay dental visits due to the cost is higher amongst adult people in NSW. In fact, the AIHW (2020) report found that adults aged 35–54 years were the most likely to not receive recommended dental treatment due to cost.

That said, if you are on a low income, you will still be delaying a visit to the dentist due to cost. You are twice as likely to experience delays and you will be less satisfied with the time spent with you by a dentist. The same is the case if you are unemployed or not currently looking for work.

A contributor to the above results may be the poor dental health and chronic conditions that are associated with the social determinants of dental health (Watt, 2007; Marmot and Bell, 2011). It is not surprising then that a recent survey of attitudes of people on low incomes to health in NSW found that 67% of respondents believed affordable health care would make a big difference to their lives and the lives of their families (NCOSS, 2016).

What is the influence of private health insurance on patient experience in NSW?

In Australia, private health insurance covers some of the costs of treatment in private hospitals as well as a range of 'extras', which can include dentistry and medical specialists. Levels of private health insurance have been falling in recent years, with the Australian Government introducing lifetime healthcare incentives and penalties to address this trend. Currently, approximately 45% of Australians have private health cover at different levels.

In terms of dental services, private health insurance is an important factor. In the PES data, the numbers of people in Sydney with private health insurance who are delaying dentist visits due to cost is 8.4%, while it

is 29% for those without insurance. Outside Sydney, 11.5% of those who have private insurance are delaying due to cost, while it is 38.1% among those without insurance. Chrisopoulos and colleagues (2013) have estimated that only 14% of individuals pay for dentistry through private health insurance.

In terms of visits to the GP and bulk billing, greater wealth and capacity to pay health insurance does not translate into greater willingness to pay co-payments. De Abreu and colleagues (2015) found being bulk billed was positively associated with having private health insurance. This finding was made after adjusting for income level and presence of a chronic disease. In essence, this study found that Australian holders of private health insurance were more likely to be healthy, less urgently need services and more willing to discriminate between GPs on the basis of bulk-billing practices. In terms of medical specialists, there are significant variations in costs of services, which made private health insurance an important factor in access. Trends in medical specialist services are examined further below.

What is behind the varied results on experience of medical specialist services?

Overall, trends in experience and satisfaction with medical specialist services are similar to that of general practitioners. The percentage of people who think that medical specialists (6.5% and 9.9% regionally) were not spending enough time with them is similar to that of GPs (7.6% and 8.8% respectively), but much higher than dentists (both 2.6%). However, there are also varied results in the data in relation to cost, location and type of need.

In Sydney, there is a higher proportion of low income people and lone parents experiencing a perceived delay in seeing a medical specialist due to cost. In regional NSW, these rates are lower. This may be due to factors beyond solely cost. For instance, the prevalence of mental health conditions is consistent across Australia, while influences such as stigma and

travel can be powerful disincentives for even seeking access to services in local communities in regional Australia (DOH, 2018). This may also be the case for other types of medical services outside the city.

There are other contradictory trends in the data. Couples in Sydney are more likely to delay medical specialist services due to cost. One possibility is that couples in Sydney are seeking (and delaying) IVF services, which are relatively expensive in relation to other specialist services. Interestingly, the satisfaction of time spent with them was below the average in Sydney but well above the regional average. Another contradiction is that delays due to cost are very low for those 65 years and above in Sydney. This may be due to them requiring medical specialists that are not included in the survey, geriatric medicine being the lowest cost specialist service; or more serious ailments meaning lower wait times due to triaging in the health system. Notably, older persons satisfaction with time spent by a medical specialist was much higher than the averages across NSW.

This suggests that a possible explanation behind such contradictions is the different types of services needed by different demographic groups. For some groups, it may relate to the greater prevalence of chronic conditions or severe episodes which sees the health system direct them to certain medical specialists faster. They are unlikely to report delays. For demographic groups, the size of population demand or nature of the service may influence times and satisfaction.

In addition, different medical specialist services come with different pricing structures. MBS data shows that about 40% of medical specialist or consultant attendances were bulk billed during the September quarter of 2016, while over 56% of consultations were charged at rates higher than the schedule fee. Recently, Fred and Allen (2017) found that there were wide variations in bulk-billing rates and fees within specialties, between specialties, and between jurisdictions. They also found that the out-of-pocket payments by patients could vary up to five-fold in some specialties.

Clearly, this differential pricing has an impact on cost delays and patient expectations. However, these are subjective assessments, and perceptions of the invasive nature of different procedures, expectations about appropriate levels of individual payment (and time in return) by profession and specialty, and different cultural attitudes to medical and dental professions, may all be at play.

The subjective assessments may also be different by age group. If a lone parent with limited time, struggling with school, work, and other pressures on their time is waiting for a GP or specialist appointment, they might consider two weeks a long time; whereas for a pensioner with time on their hands, two weeks might not be a problem. This doesn't negate the problem that some groups perceive a long wait for these services.

Health service provision is challenging in regional and remote NSW

For this analysis, we used an ABS classification of remoteness which covers major cities; inner regional; outer regional; remote; and very remote. This classification is based on distance to large towns and cities. A map of this classification is shown in Figure 2.

In terms of delays visiting a GP or dentist due to cost, we see an increasing proportion experiencing delays (across all groups) as we move away from cities. The highest proportion experiencing delays due to cost is in outer regional. This can be seen in Figure 3.

Figure 2: Remoteness area in NSW

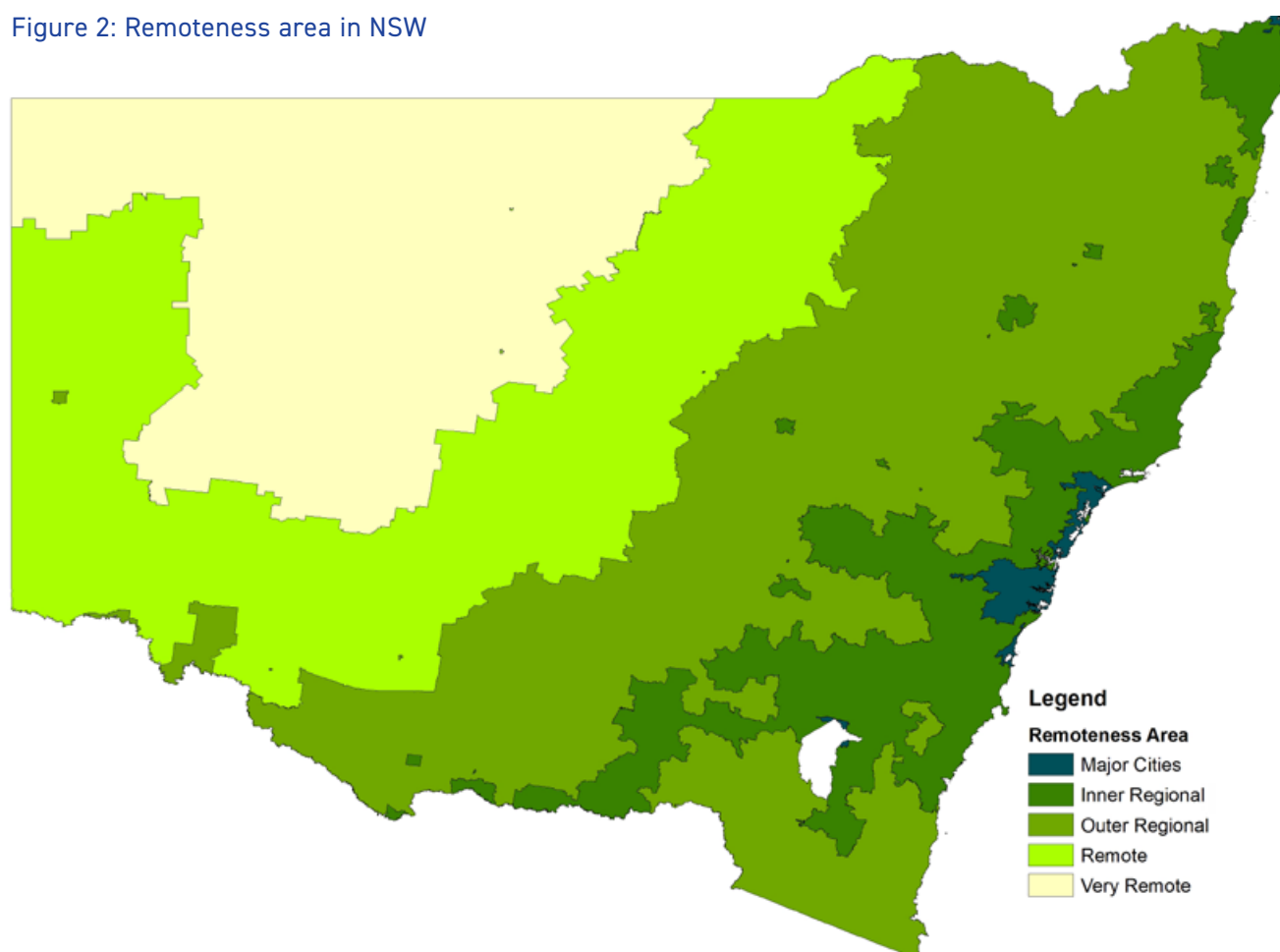
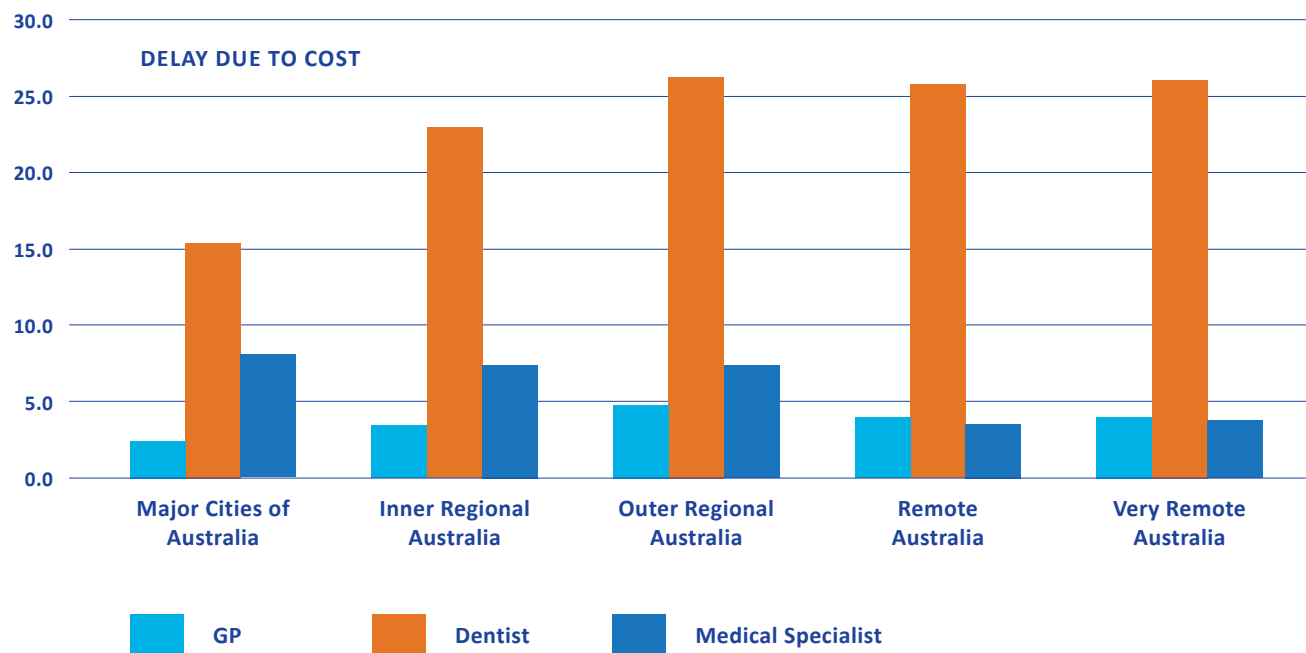


Figure 3: Delay visiting a GP, dentist or medical specialist due to cost in NSW by remoteness area

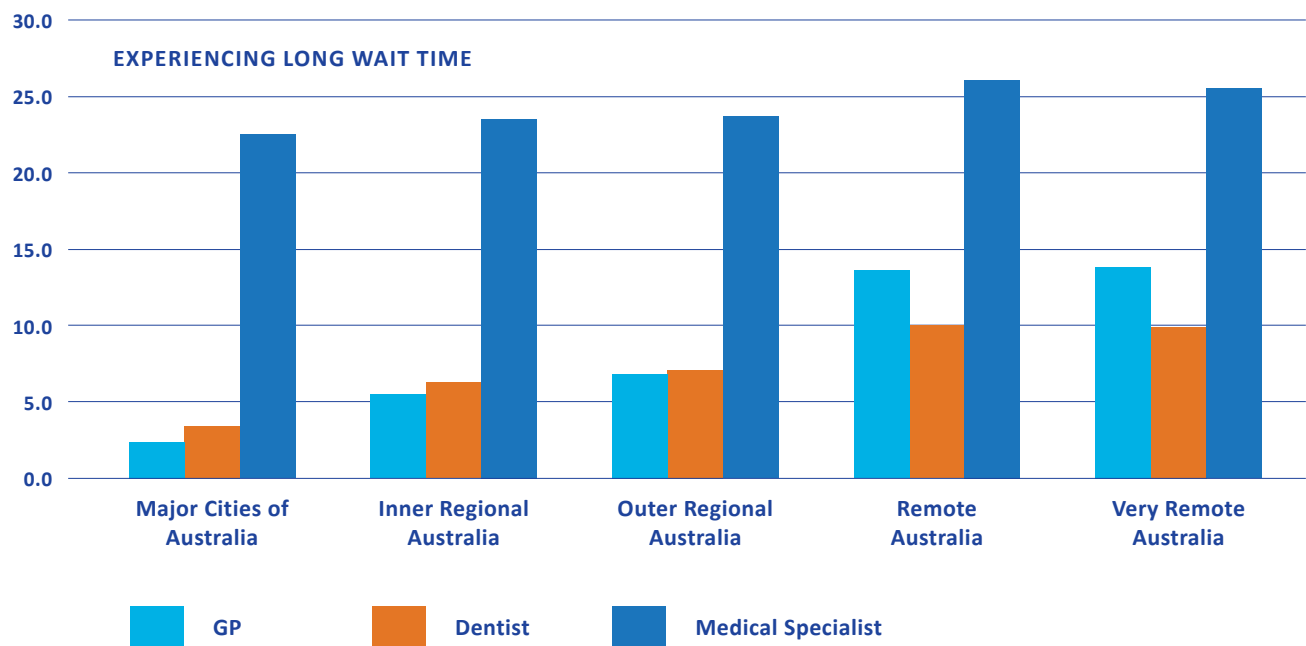


However, these results need to be countered against factors of travel and accessibility. That is, dental or specialist services may not be accessible and the additional cost of travel is significant. This information on travel was not collected in the PES

data. The full results for service access in these areas are depicted in the technical appendix.

Figure 4 shows the proportion of people who think they wait too long to see a GP, dentist and medical specialist by remoteness area.

Figure 4: Long wait time to see GP, dentist or specialist in NSW by remoteness area

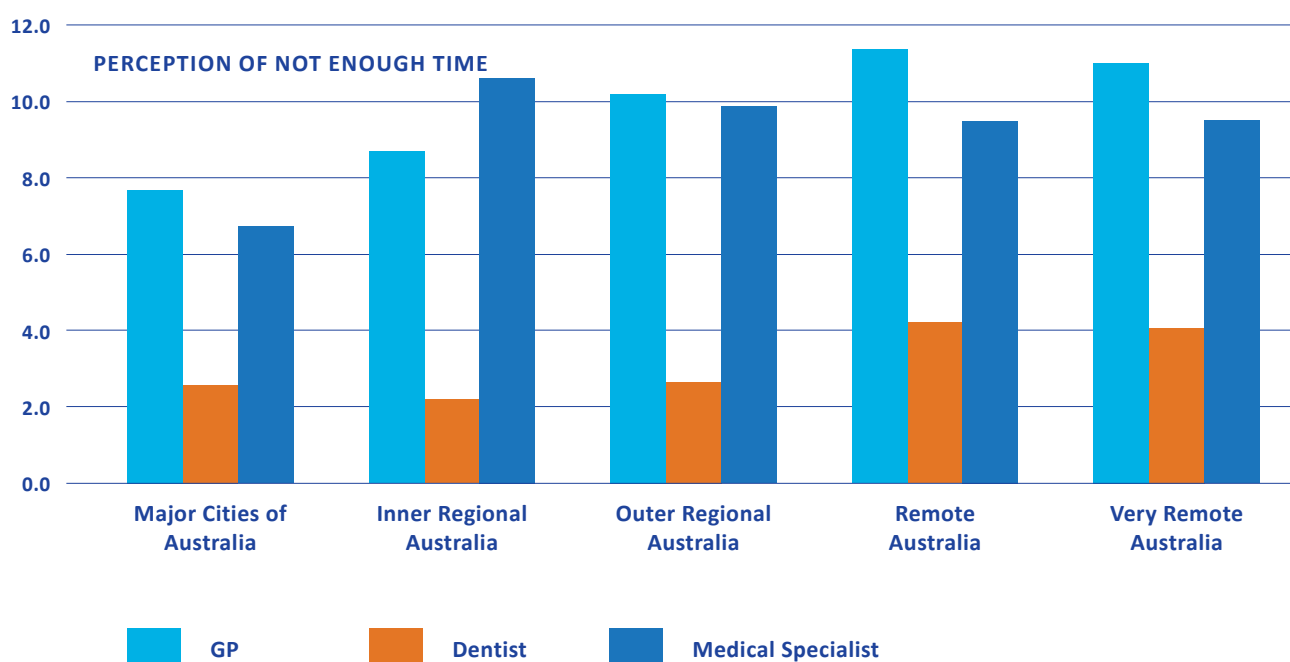


From this figure, it can be seen that wait times increase the further the patient is from a city, although people in remote and very remote areas perceive a similar level of delay for all services. It also needs to be remembered that this data relies on a perception of delay, rather than actual delay. People in very remote areas might think that three months to see a dentist is perfectly normal and practical. That said, a high proportion of people living outside cities still perceive they have too long a wait time to see a GP, dentist or specialist.

In terms of the perception of not enough time with the GP, dentist or specialist, Figure 5 shows the proportion of people feeling they did not have enough time. It is lowest in the cities and increases outside cities. However, there isn't great difference between the remote and very remote areas.

Overall, what we find in this section is increasing delays and dissatisfaction with services outside cities, but the scale of increase is not consistent. In some cases, the level of dissatisfaction plateaus, or even decreases when looking at those experiencing delays due to cost. One possible reason for this is that for two of the questions looked at, the respondents are asked about perceptions; and expectations of health services may be lower in remote areas. While this section has only shown the top-level results for all groups, the technical appendix has the results by remoteness area for every group in this study.

Figure 5: Perception of not enough time with GP, dentist and specialist



CONCLUSION

This report contributes to a body of evidence showing that social determinants can present a major barrier to health access, experience and outcomes.

It finds that NSW citizens who are unemployed have the poorest patient access and worst experience of health services. Those who live in regional areas, live alone or are parenting alone, are also more likely to have poor patient experience, while cost continues to be a major barrier to access for many people, particularly for dental services.

But it also reveals the highly diverse and complex nature of patient experience. The link between low income status and poor patient experiences is not as strong as we might expect – certainly not as strong as the link with employment status. It raises interesting questions about how patient experience might be influenced by the type of economic disadvantage someone experiences and other factors (such as the availability of bulkbilling and government support).

Such findings have important implications for future health policy.

Policy that seeks to address health issues through low-income measures alone risks not capturing the dynamics of the NSW patient experience. Policy in the post-COVID19 environment will also need to consider the significance of unemployment identified in this report, as well as the implications of a larger number of people who are unemployed in NSW.

And for new policy to effectively improve patient experience, it will need to target populations and tailor to regional variation (in particular the city/regional divide). That is where the multiple variable analysis in this report will help inform the response of partners across multiple sectors in line with the principles of the social determinants of health.

It is also what makes research into patient experience of health services across NSW so important, both now and into the future.



ABOUT NCOSS

NSW Council of Social Service is the peak body for health and community services in NSW.

NCOSS works to progress social justice and shape positive change toward a NSW free from inequality and disadvantage. We are an independent voice advocating for the wellbeing of NSW communities. At NCOSS, we believe that a diverse, well-resourced and knowledgeable social service sector is fundamental to reducing economic and social inequality.

ABOUT NATSEM

For over 25 years NATSEM has been one of Australia's leading economic and social policy research centres. It is regarded as one of the world's foremost centres of excellence for microsimulation, economic modelling and policy evaluation.

NATSEM was initially established at the University of Canberra (UC) in 1993 with the support of the Federal Government. NATSEM is a member of the Institute for Governance and Policy Analysis which was established in January 2014. IGPA was formed to harness the research strengths of the Centre for Deliberative Democracy and Global Governance; the Centre for Change Governance; and NATSEM.

Now based within the Faculty of Business, Government and Law at UC, NATSEM remains an independent and impartial source of specialist research.

Director: Professor Brenton Prosser

Email: Brenton.Prosser@canberra.edu.au

GLOSSARY

ABS DataLab

The tool owned by the Australian Bureau of Statistics for high-end users who want to undertake real time complex analysis of microdata. It enables the users to view and analyse unit record information using analytical software, including R, SAS, SPSS, Stata and Python by allowing virtual access to files that remain in the secure ABS environment.

Bulk billing

Doctor's acceptance of the Medicare benefit (that's 85 or 100% of the Schedule fee) as full payment for the services rendered so the patients don't have to pay the gap.

Low income

Households with an equivalized gross household income of less than \$400 per week (\$20,800 per year) in individual suburbs and localities (SA2s) of NSW. The measurement of people living in low income households broadly follows the calculation of economic disadvantage rates but is based on available household income in the census, which is the equivalised gross household income. Given the available income ranges in the census, the half median income is set to be \$400 a week.

Medicare

Medicare is Australia's universal health insurance scheme. It guarantees all Australians (and some overseas visitors) access to a wide range of health and hospital services at low or no cost.

Poverty

Poverty is estimated based on the ACOSS household income adequacy measure, which is people who fall below one half of the median household disposable income after taking account of housing costs.

Probit

A type of regression where the dependent variable can take only two values, where the purpose of the model is to estimate the probability that an observation with particular characteristics will fall into a specific category.

Small area/suburb

This report uses Statistical Areas Level 2 (SA2s) as a basis of area. These areas are designed to reflect functional areas that represent a community that interacts together socially and economically. In major urban areas, SA2s often reflect one or more related suburbs, which in Australia are purely geographical, not political, divisions. The SA2s generally have a population range of 3,000 to 25,000 persons, and have an average population of about 10,000 persons.

Spatial Microsimulation

A technique for estimating the characteristics of a population. It allows us to combine traditional census-style aggregate statistics about an area with smaller scale and more specific surveys to generate a population that contains estimated characteristics from both.

Unemployment

People aged 15 and above who are looking for employment. Since February 2004, Unemployment includes all people who are waiting to start work and are available to start in the reference week.

REFERENCES

- ACSQHC Australian Commission on Safety and Quality in Health Care. (2015). *National Statement on Health literacy: Taking action to improve safety and quality*. <https://www.safetyandquality.gov.au/sites/default/files/migrated/Health-Literacy-National-Statement.pdf>
- AIHW Australian Institute of Health and Welfare. (2018). *Australia's health 2018: in brief*. Canberra: <https://www.aihw.gov.au/reports/australias-health/australias-health-2018-in-brief/contents/all-is-not-equal>
- AIHW Australian Institute of Health and Welfare. (2020). *Oral health and dental care in Australia*. Retrieved from <https://www.aihw.gov.au/reports/dental-oral-health/oral-health-and-dental-care-in-australia>
- Barnett, T., Giallo, R., Kelaher, M., Goldfeld, S., & Quach, J. (2018). Predictors of learning outcomes for children with and without chronic illness: An Australian longitudinal study. *Child: care, health and development*, 44(6), 832-840. <https://onlinelibrary.wiley.com/doi/10.1111/cch.12597>
- Campbell, M., Thomson, H., Fenton, C., & Gibson, M. (2016). Lone parents, health, wellbeing and welfare to work: a systematic review of qualitative studies. *BMC Public Health*, 16(1), 188. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4766630/>
- Catalano, R. A., Satariano, W. A., & Ciemins, E. L. (2003). Unemployment and the detection of early stage breast tumors among African Americans and non-Hispanic whites. *Annals of Epidemiology*, 13(1), 8-15.
- Chrisopoulos, S., Luzzi, L., & Brennan, D. S. (2013). Trends in dental visiting avoidance due to cost in Australia, 1994 to 2010: an age-period-cohort analysis. *BMC Health Services Research*, 13(1), 381. <https://link.springer.com/article/10.1186/1472-6963-13-381>
- De Abreu Lourenco, R., Kenny, P., Haas, M. R., & Hall, J. P. (2015). Factors affecting general practitioner charges and Medicare bulk-billing: results of a survey of Australians. *Medical Journal of Australia*, 202(2), 87-90. <https://doi.org/10.5694/mja14.00697>
- DOH, 2018 Submission to Senate Community Affairs References Committee Inquiry and Report into The Accessibility and Quality of Mental Health Services In Rural And Remote Australia <https://www.aph.gov.au/DocumentStore.ashx?id=230109c5-7bea-4a08-8113-813540654cd4&subId=566443>
- DSS 2018 Australian Priority Investment Approach to Welfare <https://www.dss.gov.au/review-of-australias-welfare-system/australian-priority-investment-approach-to-welfare>
- Gibson, M., Thomson, H., Banas, K., Lutje, V., McKee, M. J., Martin, S. P., Fenton C., Bambra C., & Bond, L. (2017). Welfare-to-work interventions and their effects on the mental and physical health of lone parents and their children. *Cochrane Database of Systematic Reviews*, 2018(2). <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD009820.pub3/full>
- Khan, A., Hussain, R., Plummer, D., & Minichiello, V. (2004). Method: Factors associated with bulk billing: experience from a general practitioners' survey in New South Wales. *Australian and New Zealand Journal of Public Health*, 28(2), 135-139. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-842X.2004.tb00926.x>
- Marmot, M., & Bell, R. (2011). Social determinants and dental health. *Advances in dental research*, 23(2), 201-206.
- Martinez, A., & Perales, F. (2017). The dynamics of multidimensional poverty in contemporary Australia. *Social Indicators Research*, 130(2), 479-496. <https://link.springer.com/content/pdf/10.1007/s11205-015-1185-1.pdf>
- Moynihan, M., & Birrell, B. (2016). Why the public cost of GP services is rising fast. Melbourne: The Australian Population Research Institute, Monash University.
- NCOSS 2016 Poor Health: The Cost of Living in NSW <https://www.ncoss.org.au/policy/poor-health-the-cost-of-living-in-nsw>
- NCOSS 2019 Mapping Economic Disadvantage in NSW <https://maps.ncoss.org.au/>
- McLachlan, R., Gilfillan, G., & Gordon, J. (2013). *Deep and persistent disadvantage in Australia*. Productivity Commission Staff Working Paper. <https://www.pc.gov.au/research/supporting/deep-persistent-disadvantage/deep-persistent-disadvantage.pdf>
- Australian Government-Productivity Commission. (2018). *Rising inequality? A stocktake of the evidence*. Productivity Commission Research Paper. <https://www.pc.gov.au/research/completed/rising-inequality/rising-inequality.pdf>
- Prosser, B. and Hellenen-Simpson, G. (2020). Mapping the Potential: Understanding persistent disadvantage to inform community change, preliminary research report, Catholic Social Services Australia (CSSA): Canberra. <https://mappingthepotential.cssa.org.au/>
- Tanton, R., Vidyattama, Y., Nepal, B., & McNamara, J. (2011). Small area estimation using a reweighting algorithm. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 174(4), 931-951. <https://doi.org/10.1111/j.1467-985X.2011.00690.x>

- Tefft, N., & Kageleiry, A. (2014). State-level unemployment and the utilization of preventive medical services. *Health services research*, 49(1), 186-205
- Turrell, G., Oldenburg, B., McGuffog, I., & Dent, R. (1999). *Socioeconomic Determinants of Health: Towards a National Research Program and a Policy and Intervention Agenda*. Commonwealth Department of Health & Aged Care, Canberra, ACT. <https://eprints.qut.edu.au/585/>
- Vidyattama, Y., Tanton, R., & Biddle, N. (2015). Estimating small-area Indigenous cultural participation from synthetic survey data. *Environment and Planning A*, 47(5), 1211-1228. <https://doi.org/10.1177/0308518X15592314>
- Vidyattama, Y., Tanton, R., and NSW Council of Social Service (NCOSS)., (2019)., Mapping Significant Economic Disadvantage in New South Wales, NATSEM, Institute for Governance and Policy Analysis (IGPA), University of Canberra. Report commissioned by NCOSS. <https://www.ncoss.org.au/sites/default/files/Web%20Version%20Mapping%20%20Economic%20Disadvantage%20%20in%20New%20South%20Wales%20report1.pdf>
- Tanton, R., Peel, D. and Vidyattama, Y., (2018). 'Poverty in Victoria', NATSEM, Institute for Governance and Policy Analysis (IGPA), University of Canberra. Report commissioned by VCOSS. <https://www.vcooss.org.au/policy/every-suburb-every-town/>
- Vinson, T., Jesuit Social Services, Rawsthorne, M., Beavis, A., & Ericson, M. (2015). *Dropping off the edge 2015: Persistent communal disadvantage in Australia*. Jesuit Social Services/Catholic Social Services Australia. http://k46cs13u1432b9asz49wnhcx-wpengine.netdna-ssl.com/wp-content/uploads/0001_dote_2015.pdf
- Watt, R. G. (2007). From victim blaming to upstream action: tackling the social determinants of oral health inequalities. *Community dentistry and oral epidemiology*, 35(1), 1-11.
- CSDH (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization. WHO 2008 https://www.who.int/social_determinants/thecommission/finalreport/en/

ADDITIONAL INFORMATION

A link to the Technical Appendix is provided [here](#)

