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**Title:**

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**Date:**

2016-12-01

**Citation:**

Reilly, S., Harper, M. & Goldfeld, S. (2016). The demand for speech pathology services for children: Do we need more or just different?. *Journal of Paediatrics and Child Health*, 52 (12), pp.1057-1061. <https://doi.org/10.1111/jpc.13318>.

**Persistent Link:**

<https://hdl.handle.net/11343/291761>

**The demand for speech pathology services for children: do we need more or just different?**

Manuscript type: Annotation

Conflict of interest: none to declare

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This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/jpc.13318](https://doi.org/10.1111/jpc.13318)

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**ABSTRACT**

An inability or difficulty communicating can have a profound impact on a child's future ability to participate in society as a productive adult. Over the past few years the number of interventions for children with speech and language problems has almost doubled; the majority are targeted interventions delivered by speech pathologists. In this paper we examine the distribution of speech pathology services in metropolitan Melbourne and how these are aligned with need as defined by vulnerability in language and social disadvantage. We identified three times as many private sector services compared to public services for the 0-5 year age group. Overall there was poorer availability of services in some of the most vulnerable areas. The profound and long-term impact of impoverished childhood language, coupled with the considerable limitations on public spending, provide a strong impetus to deliver more equitably distributed speech pathology services.

**Key words:** speech, language, service location, social disadvantage

**Key Points:**

- Childhood communication disorders are prevalent, affecting 1 in 5 preschool children
- There is an inequitable distribution of speech pathology services in Victoria, with far more private services in areas with lower prevalence of children with language difficulties
- Incentives for redistribution of services may be a pragmatic approach rather than advocacy for more services.

**Multiple choice questions:**

1. What proportion of preschool children have language problems
  - A. 10%
  - B. 50%
  - C. 5%
  - D. 20%
  - E. 2%

The correct answer is D. Many clinicians underestimate the high prevalence of language problems in the community.

2. Expressive language disorders are defined as the following:

- A. Difficulties in understanding spoken language
- B. Difficulties using or producing spoken language
- C. Difficulties with pronouncing words
- D. Difficulties in understanding and using spoken language
- E. Common childhood problems caused by genetic factors

The correct answer is B. Receptive language disorders are difficulties in understanding spoken language, while phonological disorders are difficulties in pronouncing words. Difficulties in both using and understanding spoken language are referred to as mixed expressive-receptive language disorders. While expressive language disorders are a common childhood problem, the causes are still not known, but are likely to be a complicated interplay between genetics and environmental factors, as well as the process of development itself.

3. Stuttering is a common childhood speech problem. Which of the following is most correct?

- A. Stuttering in a pre-schooler is a risk factor for developing anxiety.
- B. Stuttering affects more girls than boys
- C. Most children whose stuttering resolves naturally will do so within 12 months of starting
- D. Preschool children who stutter fare just as well as their nonstuttering peers on language, social, behavioural and emotional measures
- E. Stuttering affects approximately 5 per cent of children by 4 years of age

The correct answer is D. Stuttering alone in a pre-schooler is not a risk factor for developing anxiety, but the clinical anxiety experienced by some adolescents and adults who stutter may develop after the preschool years. Stuttering is more likely where a child is male. While C was previously thought to be the case, it is now evident that very few children actually recover within 12 months. Stuttering is twice as common as previously thought, affecting more than 11 per cent of children by 4 years of age.

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## INTRODUCTION

Spoken language and communication are fundamental to everyday life and an inability, or difficulty, communicating can have a profound impact on a child's future ability to participate in society as a productive adult. We use the umbrella term 'communication impairment' to encompass a range of problems that can arise in childhood. These include difficulty with (i) the accurate pronunciation of sounds to form words and phrases (speech impairment), (ii) understanding (receptive language impairment) and producing spoken language (expressive language impairment), and (iii) disorders of fluency (stuttering). Estimates suggest more than 1 million or 1 in 20 Australians have communication impairments.<sup>1</sup>

Among preschoolers, one in five children have early communication problems<sup>2</sup> and face potential lifelong deficits not only in language and communication, but also in social, emotional/behavioural, academic and economic well-being.<sup>3</sup> For Aboriginal or Torres Strait Islander children, and those from socio-economically disadvantaged backgrounds, the rates of communication problems are even higher. The distribution of communication impairment follows a clear social gradient, with children growing up in areas of greatest social disadvantage twice as likely to experience communication problems.<sup>4</sup> Low academic achievement and restricted lifetime employment opportunities associated with communication problems may lead to increased unemployment and welfare dependence, further perpetuating intergenerational disadvantage.<sup>1</sup>

Over the last decade, the number of intervention trials for children with speech and language intervention has almost doubled.<sup>5</sup> The majority are targeted interventions delivered by speech pathologists and show positive outcomes, particularly for expressive vocabulary and phonological development (how speech sounds are learned). Initial identification of early communication problems may currently occur in a number of ways. For instance, families may access the universal Maternal/Family and Child Health well-child visits or parents may seek help from a range of health care professionals; potentially self-referring for public or private specialist speech and language assessment.

Anecdotal evidence suggests that there has been considerable growth in private sector services for preschool children with communication problems; 83% of private practice Speech Pathology Australia (SPA) members are reported to provide services for the 0-5 year age group.<sup>1</sup> Because private health insurance rebates vary and are often capped, there is usually a high financial burden for families seeking regular help, ruling out many of the most vulnerable families. Parents report concerns about lack of availability of services, eligibility confusion and an inability to afford private services.<sup>6</sup> Children with chronic problems may also receive a maximum of five sessions from the Enhanced Primary Care program, but this does not provide the actual long-term help needed.<sup>7</sup>

Recent research suggests that there is also a strong social gradient associated with language problems starting in the preschool years<sup>8</sup> and progressing through to the early years of schooling<sup>9</sup> (with numbers distributed across SES quintiles). Given this distribution it would make sense that services are distributed equitably to meet need, noting the importance of proportionate distribution, i.e. the added intensity and quality required to address the needs of disadvantaged children. In an equitable system there is potential amelioration of inequalities that are “systematic and potentially remediable differences among population groups defined socially, economically, or geographically”<sup>10</sup> Equity of access to services is also supported by economic arguments noting that in the UK, economic modelling shows that every dollar invested in speech and language therapy yields a 6-fold increase in life-time earnings.<sup>11</sup> In advanced economies there has been a recognition that rather than equitable service delivery, the “inverse care law”<sup>12</sup> is a more likely scenario, where those with the greatest need get the least quality and quantity of service leading to increased inequalities.

Given the importance of early identification and intervention for these children, we set out to understand whether speech and language services in metropolitan Melbourne are aligned with need or if, in fact, the inverse care law is at play. Our primary aim was to map the location of both public and private speech pathology services in the state of Victoria to determine distribution, taking into account both vulnerability in language development and social disadvantage.

## **MATERIALS AND METHODS**

We describe the processes undertaken to (i) identify primary service providers, (ii) measure child language vulnerability and social disadvantage and (iii) map this information.

### **1. Identification of speech pathology service providers**

We identified public and private speech pathology services for children in Victoria by searching all known websites and resources outlined in Table 1 and determined if speech pathology services were offered to children.

In addition, we conducted a Google search to identify speech pathology public and private services in Victoria and searched all private hospitals, private practices and private schools to identify child speech pathology services. The resulting long-list was cross-checked and multiple entries were deleted. Whilst it is likely that some private practices were missed, in particular where the practice was identified by the speech pathologist's name rather than clinic name, there is no way of checking. In addition we were unable to ascertain the number of practitioners available for service at each practice.

### **(2) Identifying language vulnerability and social disadvantage**

The Australian Early Development Index (AEDI) (now Census-AEDC) is a population measure of children's development in their first year of full time school.

(<http://www.aedc.gov.au/about-the-aedc/history/the-australian-early-development-index-2012>) It is a checklist made up of about 100 items completed by teachers as a census every three years. Ninety-six per cent of all Australian children registered to commence school were included in the 2012 census. Five domains of child development, closely related to later adult health, education and social outcomes are measured of which, *language and cognitive skills* provides information specifically about communication development at school entry. The proportion of children *developmentally vulnerable*, that is scoring below the 10th percentile as per the 2009 census, are reported for each domain.

### **(3) Mapping procedures**

The locations of speech/language services were uploaded into mapping software (MapInfo) and geocoded to produce point locations for the map. Each speech/language service category

was allocated a colour to distinguish them on each of the maps and a key is provided for Early Childhood Intervention Services, Integrated Community Health Care, private speech pathology services, and public speech pathologist services.

The Language and Cognitive skills domain results for the 2012 AEDC were imported into MapInfo and colour shaded to show the prevalence of developmental vulnerability of 5-year-old children across Victoria. Red and orange areas are below the state average in developmental vulnerability (shown in grey). The blue shades indicate areas where there is the lowest prevalence of developmental vulnerability. To ensure that the maps reflected actual need, data are presented as number of children rather than proportion where small sample sizes can be misleading.

## RESULTS

Overall 1,416 speech pathology services providing care to children in Victoria were identified. In Figure 1 provider is colour coded colour to show 116 Early Childhood Intervention Services, (blue) 150 Integrated Community Health Care providers, (pink) 887 private speech pathology services, (orange) and 273 public speech pathologist services (green). Figure 2 zooms in on the Melbourne Metropolitan area and shows the more highly populated areas and the proliferation of private services in the South-East corridor.

Overall children aged 0-8 years make up approximately 11% of Victoria's population (n=634,000). In the 2012 AEDI census data were available on 67,960 (92.9%) of Victorian 5 year olds; 19.5 per cent were developmentally vulnerable on one or more domains and 9.5 per cent were vulnerable across two or more domains. There were 5.9% vulnerable on the *Language and Cognitive skills*. Aboriginal children were more likely to be vulnerable (20.3%) as were children from Language Backgrounds Other than English (LBOTE) who were not proficient in English (36.7%). In figure 2 the AEDC results were mapped for 5-year-old children in the Melbourne metropolitan area and speech pathology services were super-imposed onto the map.

## DISCUSSION

Allied health service planning across public and private sectors remains a relatively ad hoc process in Victoria. While there is some Community Health based allied health services within more disadvantaged areas, it has been difficult to keep up with Melbourne's rapidly

growing outer metropolitan areas. Like many services, the private sector is not incentivised to work in poorer income areas; with business models that require significant out of pocket expenses for the consumer even with the advent of newer Medicare item numbers for some conditions.

This goes some way to explaining our findings. Previously only publicly available speech pathology services have been mapped for children.<sup>13</sup> In this study we identified three times as many private sector services compared to public services and Speech Pathology Australia reported that 83% of private practice members provide services for the 0-5 year age group.<sup>1</sup>

When population need, determined by the number of children with developmental vulnerability on the AEDC Language and Cognitive Skills domain, was mapped by children's speech pathology services there was a substantive mismatch. Overall there was poorer availability of services in some of the most vulnerable areas (Figures 1 and 2) and a proliferation of services in the least-vulnerable areas, namely the South-East corridor of Melbourne.

The fact that services were not located in the most vulnerable areas where they are most needed is not in itself a new finding. However, this is the first time that both private and public services have been mapped for a population of 5-year-old children with language vulnerability. The debilitating long-term social, educational, and health consequences associated with childhood language vulnerability profoundly impacts on an individual's ability to participate in society as a productive adult.<sup>1</sup> Children with poor language face an additional burden as they enter the education system as they are ill-equipped to learn and manage the demands of school environment.<sup>1</sup> Effective child language interventions do exist but may not be available where they are most needed or not be directed to those who need them most. As a result inequalities may be exacerbated because of inequity of access.<sup>5</sup>

While not necessarily the sole answer to addressing disadvantage, we argue that given the profound impact of impoverished childhood language, the steep social gradient,<sup>8,9</sup> and the evidence to support the benefit of speech pathology, some thought needs to be given to the distribution and location of existing speech pathology services. A number of incentives and initiatives have been developed to improve the geographic distribution of general practitioners (see summary in box below). We suggest that this same purposeful approach to

redistribution could be adopted to provide improved and more equitable language services for children.

<p>In Australia the geographic distribution and proximity of General Practitioners (GPs) has been shown to be one of the most important factors affecting access to primary care. There is ongoing concern about the high numbers of GPs and the fact that their geographic spread is not balanced.</p>	<p><a href="http://www.abs.gov.au/AUSSTATS/abs@.nsf/2f762f95845417aeca25706c00834efa/0a85acee2642f92ca2570ec00785dc4!OpenDocument">http://www.abs.gov.au/AUSSTATS/abs@.nsf/2f762f95845417aeca25706c00834efa/0a85acee2642f92ca2570ec00785dc4!OpenDocument</a>. Accessed 8<sup>th</sup> June 2015.</p>
<p>A number of solutions have been suggested to alleviate the shortage and inequitable distribution of GPs. For example, maximisation of the existing workforce, participation of the existing GP and new models of care. In addition relocation incentives are also provided.</p>	<p><a href="http://www.ahwo.gov.au/documents/Publications/2005/The%20general%20practice%20workforce%20in%20Australia%20-%20Summary.pdf">http://www.ahwo.gov.au/documents/Publications/2005/The%20general%20practice%20workforce%20in%20Australia%20-%20Summary.pdf</a>. Accessed June 8<sup>th</sup> 2015.</p>
<p>‘MedicarePlus for other medical practitioners’ provides access to higher A1 Medicare rebate for GPs if they work in areas of workforce shortage, including outer metropolitan areas.</p>	<p><a href="http://www.ahwo.gov.au/documents/Publications/2005/The%20general%20practice%20workforce%20in%20Australia%20-%20Summary.pdf">http://www.ahwo.gov.au/documents/Publications/2005/The%20general%20practice%20workforce%20in%20Australia%20-%20Summary.pdf</a>. Accessed June 8<sup>th</sup> 2015.</p>

## ACKNOWLEDGMENTS

This work was supported by the NHMRC funded Centre for Research Excellence in Child Language (1023493) and we acknowledge the support and input provided by the team of investigators including, Melissa Wake, Fiona Mensah, Lisa Gold, James Law, Jan Nicholson and Angela Morgan with special assistance from Penny Levickis. Audrey Price and Nicole Wardrop collated essential information on speech pathology services throughout Victoria. Sheena Reilly is supported by NHMRC Practitioner Fellowship (1041892) and Sharon Goldfeld is supported by an NHMRC Career Development Fellowship (1082922). The contents of the published material herein are the sole responsibility of the authors and do not

reflect the views of the NHMRC. Research at the Murdoch Childrens Research Institute is supported by the Victorian Government's Operational Infrastructure Support Program.

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Table 1: Resources used to map public and private speech pathology services in Victoria, Australia.

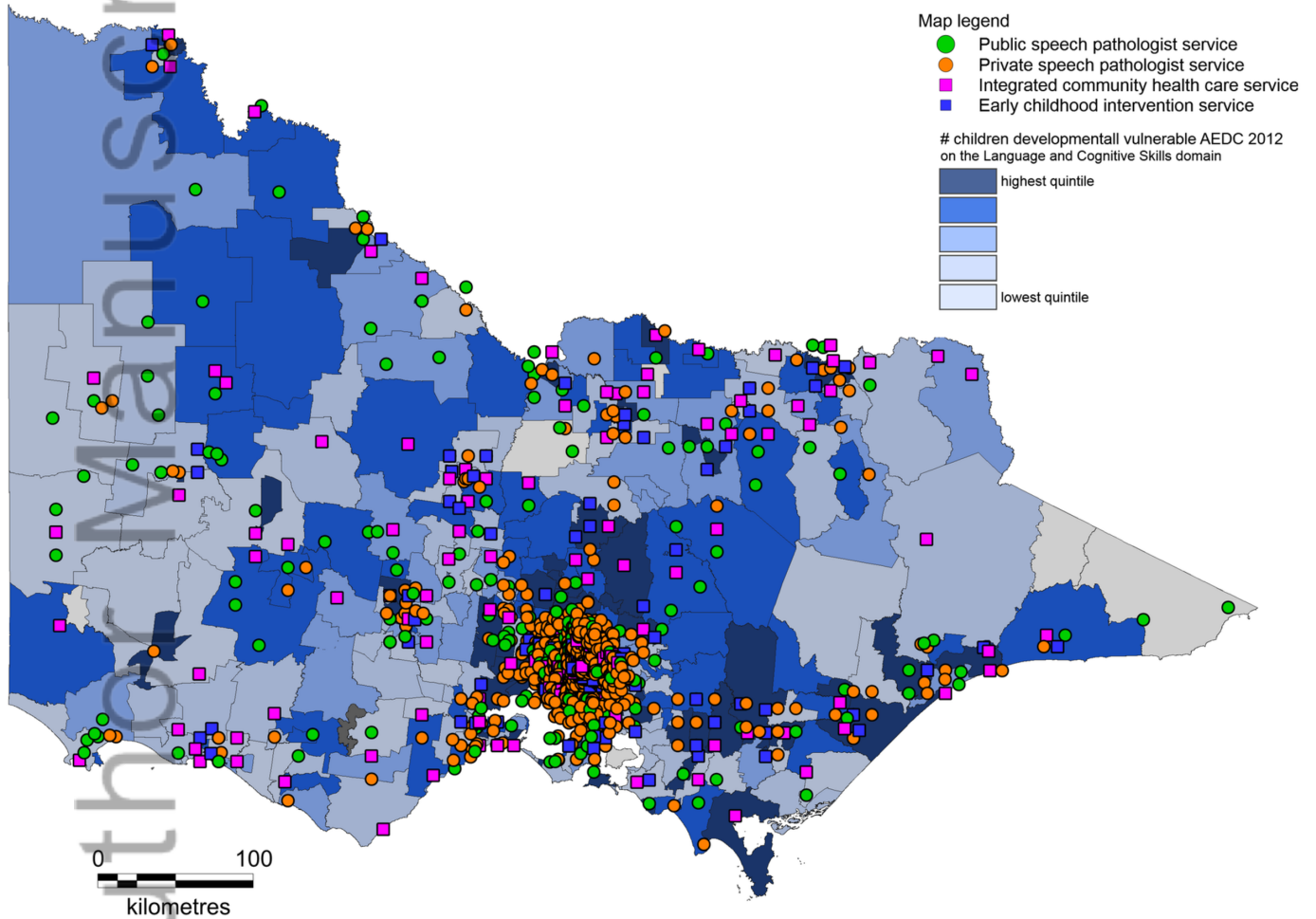
Resource	Web page
Victorian Department of Health public and private hospitals list. Victorian Department of Education and Training community health services, public/specialist schools.	<a href="http://www.health.vic.gov.au">www.health.vic.gov.au</a> <a href="http://www.health.vic.gov.au/hospitals/pubwebs.htm">www.health.vic.gov.au/hospitals/pubwebs.htm</a> <a href="http://www.education.vic.gov.au/Pages/default.aspx">www.education.vic.gov.au/Pages/default.aspx</a>
The Speech Pathology Australia “Find a speech pathologist” function which can be searched by area, practice, clinical population, or area of special interest.	<a href="http://www.speechpathologyaustralia.org.au/information-for-the-community/find-a-speech-pathologist">www.speechpathologyaustralia.org.au/information-for-the-community/find-a-speech-pathologist</a>
The Victorian list of special schools, particularly those that catered for children with speech and language disorders.	<a href="http://www.australianschoolsdirectory.com.au/search-specialneeds.php">www.australianschoolsdirectory.com.au/search-specialneeds.php</a>
The Royal Children’s Hospital public speech pathology services list.	<a href="http://www.rch.org.au/speech/resources/Speech_Pathology_Public_Services_Victoria/">www.rch.org.au/speech/resources/Speech_Pathology_Public_Services_Victoria/</a>

Figure 1: Speech pathology service providers by region across the state of Victoria.

Figure 2: Speech pathology service providers in the Metropolitan Melbourne region showing service type and the Language and Cognitive Skills domain on the Australia Early Development Census.

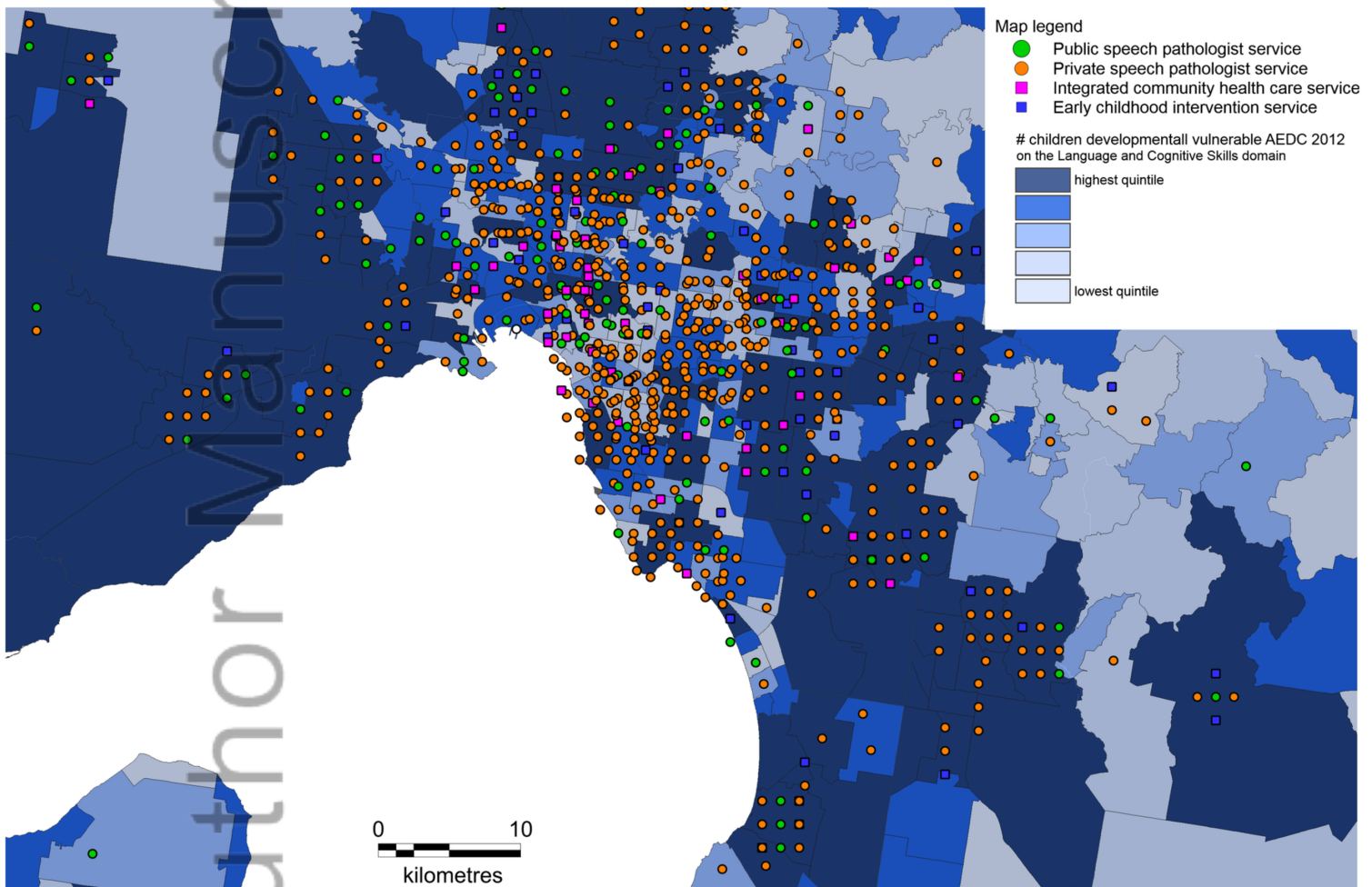
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Victorian Speech Pathologist services,  
mapped against numbers of children developmentally vulnerable on the Language and Cognitive Skills domain, AEDC 2012



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Victorian Speech Pathologist services,  
mapped against numbers of children developmentally vulnerable on the Language and Cognitive Skills domain, AEDC 2012



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