NSW Ministry of Health

Speech Pathology – Horizons Scanning and Scenario Generation Report

December 2018

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1   Executive Summary

The purpose of this document is to outline the methodology, approach and themes raised by the literature and speech pathology stakeholders to inform the Workforce Modelling phase (Stage C in Figure 1 below) of the NSW Ministry of Health's Workforce Planning Methodology. It should be noted that the views expressed in the report are not necessarily those of the NSW Ministry of Health.

The Speech Pathology Horizons Scanning and Scenario Generation Project is driven by the NSW Health *Health Professionals Workforce Plan 2012-22* (the Plan), which sets out the framework for addressing the workforce implications of increasing demand for health services in NSW. The Plan establishes that simply increasing staffing without considering changing workforce practices and introducing more efficient and effective models of care is unsustainable.

The Plan outlines that the Workforce Planning and Development Branch (WPD) is responsible for developing and modelling projections for Allied Health workforces in line with forecasted health service delivery requirements.

Speech pathologists' study, diagnose and treat communication and swallowing disorders for individuals that have difficulties with speaking, listening, understanding language, swallowing, reading, writing, social skills, stuttering and using voice. The Speech Pathology Workforce Horizons Scanning and Scenario Generation Project (the Project) supported stakeholders to participate in the development of a driver model that articulates key demand and supply drivers for the speech pathology workforce in NSW.

This Project identified several demand drivers for the speech pathology workforce including: advancement in medical practice and survival rates, population demographic changes and increasing complexities, government funding, research and policy, awareness of the profession, scope of practice and interdisciplinary approach, and service coverage and accessibility.

Several supply drivers were identified for the speech pathology workforce including: profile of the profession, graduate numbers and availability of placements, career pathways and continuing professional development, funding of speech pathology roles, workforce retention in rural and remote areas, strategic workforce planning, and skill mix.

In addition to the driver model, throughout the Project several key challenges and opportunities were identified. Key challenges indicated by attendees included: limited career pathways for speech pathologists, rural and remote service considerations, the impact of NDIS, attending to the needs of culturally and linguistically diverse consumers, aligning graduates to placements and positions, and the number of funded speech pathology roles in NSW Health. Opportunities identified by stakeholders included: the use of technology to support delivery of services, increasing clinical research and use of best practice, development of closer relationships with other professional groups, increased involvement in service planning and leadership, development of clearer career pathways, increasing workforce diversity, and the use of allied health assistants.

The purpose of this document is to outline the methodology, approach and findings of the Project to inform workforce modelling activities as part of the NSW Ministry of Health's Workforce Planning Methodology.

2 Introduction

The Speech Pathology Horizons Scanning and Scenario Generation Project is driven by the NSW Health *Health Professionals Workforce Plan 2012-22* (the Plan), which sets out the framework for addressing implications on Allied Health workforces considering increasing demand for health services in NSW. The Plan establishes that workforce planning requires consideration of changing workforce practices and the emergence of more efficient and effective, but increasingly more complex, models of care. The Plan outlines that the Workforce Planning and Development Branch (WPD) is responsible for developing and modelling projections for the Allied Health workforce in line with forecast health service delivery requirements.
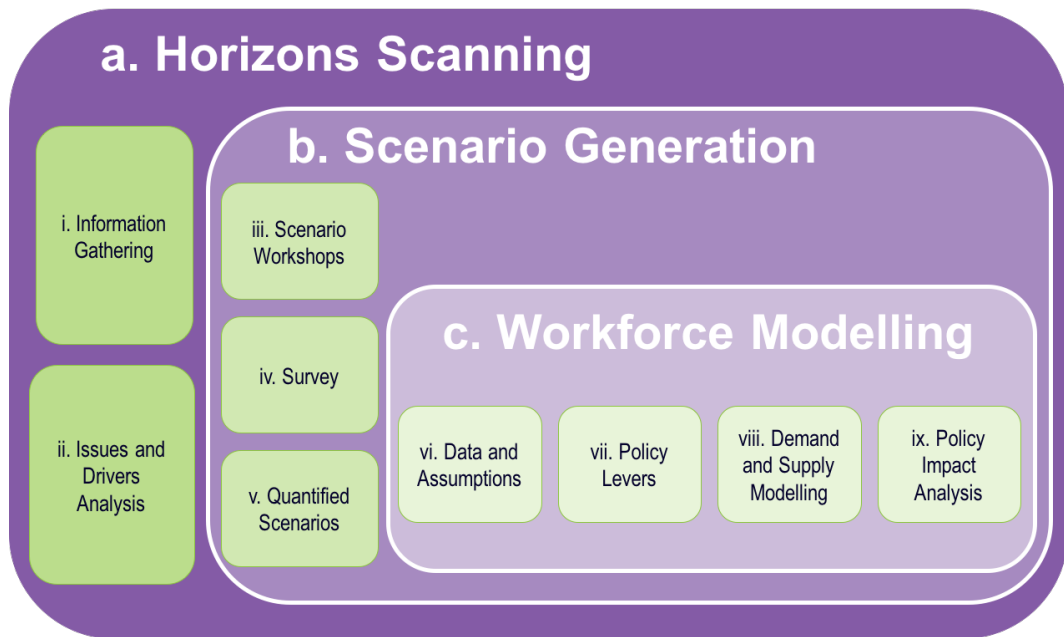
The Horizons Scanning and Scenario Generation Project offered an opportunity for speech pathology stakeholders to participate in taking a short, medium and long-term view of workforce implications for their field. In this, several system-wide influencing factors require consideration, including (but not limited to):

- The need to shift the provision of service from an institutional focus, towards a patient-centric model

- Impacts of Information and Communication Technology (ICT) on speech pathology roles, how technology supports the workforce, it's capabilities and challenges with access, and the overarching state-wide eHealth NSW ICT strategies

- An emphasis on collaborative, multidisciplinary teams across care settings and balancing health profession specialisation with generalisation to address the increased demand for care, particularly amongst patients with chronic and complex conditions and the ageing population

- A need to consider the geographic distribution of workforce to align with changing population demographics and health needs

- An increasing focus on Activity Based Management, encouraging services to consider more efficient models of care, such as delivery of service in community-based settings

- Broader NSW wide and national programs and priorities, such as the National Disability Insurance Scheme (NDIS).

The purpose of this document is to outline the methodology, approach and themes raised in the literature and by speech pathology stakeholders to inform the Workforce Modelling phase (Stage C in **Figure 1**) of the methodology. It should be noted that the views expressed in the report are not necessarily those of the NSW Ministry of Health.

Figure 1: Ministry of Health Workforce Planning Methodology

2.1   Methodology

This Project focuses on the Horizons Scanning and Scenario Generation phases of the NSW Ministry of Health's Workforce Planning Methodology.

The process used throughout the Project comprises four components: an information gathering phase, an issue and driver analysis phase, scenario workshops, and a workforce survey.   Different approaches were used during each component to draw out relevant information as described below.

2.1.1   Literature search and review

An initial literature search was conducted using Google Scholar and this formed the foundation of the literature review. Key words relevant to the speech pathology workforce were identified and utilised.   Major databases, including Wiley Online, JSTOR and MEDLINE, were accessed to supplement the search results.   Recent publications were prioritised, and available published data were considered. To augment the initial findings, a comprehensive search of organisational and grey literature was undertaken.

Literature published outside of Australia was also utilised, including studies conducted in the United Kingdom, United States of America and other parts of Europe. Whilst the health systems in the United States and Europe are different to the Australian system, some of the social studies remain relevant.

2.1.2   One-to-one stakeholder interviews

A series of one-to-one interviews were conducted in the initial stages of the Project. The interviewees were chosen as they represented a cross section of stakeholders and included universities, speech pathologists working for LHDs, and Speech Pathology Australia (SPA). These interviews provided an opportunity for a deeper exploration into what stakeholders perceived to be the key workforce drivers, challenges and opportunities. The interviews provided a focused framework for development of the horizons scanning and scenario

generation workshops. Individuals who took part in the interviews also attended the horizons scanning and scenario generation workshops.

2.1.3 Stakeholder online survey

An online survey was designed to gather 'high-level' views from the workforce to support validation of the driver model. Distribution was targeted to all speech pathologists employed by NSW Health and 405 responses were collected which was considered a relatively high level of engagement.

The survey contained a series of questions relating to potential workforce demand and supply drivers, as well as potential challenges and opportunities faced by the workforce. The questions were informed by the initial findings from the literature review. Respondents were asked to identify the level of significance of the drivers, potential challenges and opportunities in addition to prioritising them based on the perceived level of impact.

2.1.4 Horizons scanning workshop

The horizons scanning workshop was conducted on the 5th September 2018. Key speech pathology stakeholders representing LHDs and SHNs, NSW based universities and representatives from professional bodies – including SPA and Indigenous Allied Health Australia (IAHA) – participated in the workshop and as a group identified overarching workforce demand and supply drivers. A list of the stakeholders engaged throughout the Project and those who attended both workshops is available in the *Appendices.*

Issues raised by stakeholders in the workshop, augmented with themes from the literature review, informed the initial development of the speech pathology driver model. The model was then validated at the following scenario generation workshop.

2.1.5 Scenario generation workshop

The scenario generation workshop was held on the 25th September 2018 and built upon themes that were explored in the horizons scanning workshop. The same participants from the horizons scanning workshop were invited to maintain consistency.

The speech pathology driver model, based upon emerging themes, was validated with the participants. In addition, stakeholders explored a series of future scenarios to determine their plausibility, potential impacts on the workforce and hypothesised methods by which the workforce could address them.

3 Overview of the Workforce

Speech pathologists study, diagnose and treat communication disorders. This may include treating children and adults that have difficulties with speaking, listening, understanding language, reading, writing, social skills, stuttering and using their voice. People who experience difficulties swallowing food and drinking safely can also be supported by a speech pathologist.

Speech pathologists also work with people who have difficulty communicating because of developmental delays, stroke, brain injuries, learning disability, intellectual disability, cerebral palsy, dementia and hearing loss, as well as other problems that can affect speech and language. (Speech Pathology Australia, 2018).

Due to the breadth of their scope of practice, speech pathologists can work in a variety of settings and sectors. This includes acute hospital or outpatient settings, private health clinics, community services, justice and correctional centres, within schools and in the disability sector.

3.1 Scope of Practice

Speech pathologists provide may clinical services such as:

- Assessment and diagnosis of communication and swallowing disorders
- Goal setting
- Treatment
- Counselling on aspects of communication, swallowing disorders and therapy
- Discharge and resolution planning
- Client/family education and support
- Documentation
- Screening and identification
- Prevention
- Coordination of care
- Onward referral to relevant services
- Consultation to other health or educational professionals (Speech Pathology Australia, 2015a).

Communication and swallowing difficulties can arise from a range of conditions which can be present from birth (e.g. Down Syndrome or Autism Spectrum Disorder), emerge during early childhood (e.g. stuttering, severe speech sound disorder) or during adult years (e.g. traumatic brain injury, stroke, head/neck cancers, neurodegenerative disorders such as motor neurone disease) or be present in the elderly (e.g. dementia, Alzheimer's disease, Parkinson's disease) (Speech Pathology Australia, 2018).

The role of the speech pathologist can also include providing specialist advice, prescription of intervention programs, training in the optimal use of communication techniques and strategies, voice prostheses, assistive devices, and/or modification of diet and fluids (Speech Pathology Australia, 2015a).

Speech pathologists are responsible for ensuring they work within the limits of their competence and update their professional knowledge and skills as needed. Speech Pathology Australia (SPA) note there may also be opportunities for the workforce to be credentialled in 'extended skills' which is undertaken by the speech pathologist's employing bodies (Speech Pathology Australia, 2015a).

3.2 Professional Boards and Bodies

Speech Pathology Australia (SPA) is the main professional body that represents the speech pathology workforce.

In Australia, practitioners working as speech pathologists do not need to be registered with a professional body; instead, speech pathology is a self-regulated workforce with optional membership to SPA. SPA is recognised by the Federal Government as the professional body representing speech pathologists in Australia.

SPA is responsible for:

- Developing, guiding and governing clinical and ethical standards of members in their practice
- Facilitating and promoting opportunities to pursue knowledge and develop professionally
- Granting accreditation to speech pathology tertiary education programs
- Providing advice to stakeholder groups including: government, consumers, referrers and the public
- Advocacy for and responding to the needs of clients with communication and swallowing difficulties
- Representing the interests and views of members (Speech Pathology Australia, 2015a).

Membership of SPA is available to applicants who have an approved primary qualification in speech pathology from an Australian accredited university course. Overseas trained speech pathologists may be granted membership through a competency assessment process (Speech Pathology Australia, 2016).

3.3 Entry to the Profession

Speech pathologists must complete a four-year undergraduate degree, or a two-year Masters' degree with an undergraduate degree as prerequisite. To graduate, graduands must have developed the minimum skillset, appropriate knowledge base, and abide by professional standards described in the SPA Competency Based Occupational Standards (CBOS) Entry Level (Speech Pathology Australia, 2016).

To be employed by NSW Health, speech pathologists must have completed a degree in speech pathology, and be eligible for membership of SPA, although membership is not a requirement. A list of currently accredited speech pathology university programs can be found in the *Appendices*.

Speech pathology is a self-regulated health profession with voluntary membership of SPA through the Certified Practising Speech Pathologist (CPSP) process. To be eligible for CPSP membership of SPA, a speech pathologist is required to demonstrate that they have completed an approved university course, have recency of practice, and have undertaken a minimum level of professional development in the previous 12 months. New graduate

speech pathologists who meet the specified requirements are afforded provisional CPSP status (Speech Pathology Australia, 2016).

Graduate speech pathologists enter the workforce with foundational skills that enable them to work with a range of client groups. However, it is recognised within the profession, that there are a significant number of speech pathology services that require further skills and competencies, above what is gained in undergraduate level degrees. Speech pathologists are not required to be registered through the National Registration and Accreditation Scheme (NRAS).

Figure 2 below shows the pathway to enter the speech pathology profession.

Figure 2: Pathways for entry to the speech pathology profession

(Speech Pathology Australia)
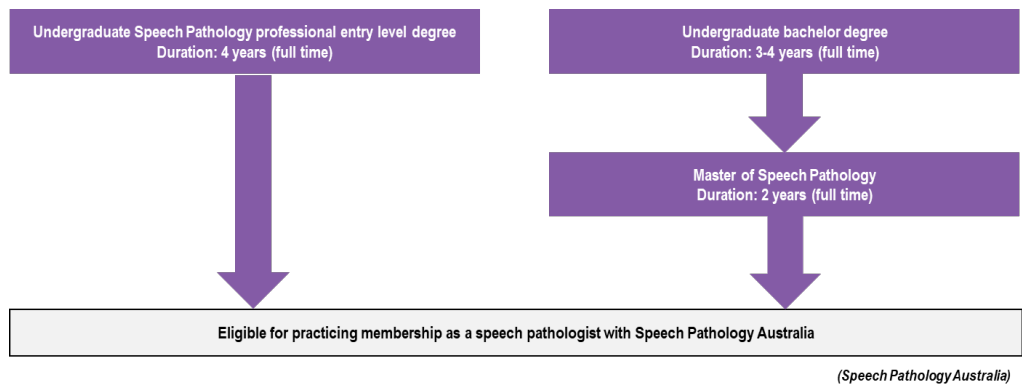
3.4 Workforce Characteristics

The following section details the key workforce characteristics for the Speech Pathology profession.

3.4.1 National speech pathology workforce characteristics

As speech pathology is a self-regulated profession, it is challenging to get accurate information on the demographics of the workforce. In 2014, Health Workforce Australia produced a publication *(Health Workforce Australia, 2014)* that bought together various sources of data and established key characteristics of the workforce:

- 5,295 practicing speech pathologists in Australia: 36.6% worked in public practice, 52.6% in private practice, and 10.8% worked across public and private
- 81% held a Bachelor degree, 3.2% held a graduate diploma or certificate, and 15.8% held a postgraduate degree
- The average age was 37 years old
- A gender distribution of 97.5% female and 2.5% male
- 76.6% of speech pathologists worked in major cities, 15.9% in inner regional areas, 6.5% in outer regional areas, and 1% worked in remote areas.

Table 1 below shows the distribution of speech pathologists across Australia. In 2014, NSW (22.6) had a ratio of speech pathologists per 100,000 population very close to the national average (23.7) (Health Workforce Australia, 2014).

Table 1: Number of speech pathologists per state

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
No. of speech pathologists	68	1,630	30	1,043	411	130	1,445	538	**5,295**
Proportion of speech pathologists	1.3%	30.8%	0.6%	19.7%	7.8%	2.5%	27.3%	10.2%	**100%**
No. per 100,000 population	18.5	22.6	13.0	23.3	25.1	25.4	26.1	22.9	**23.7**

SPA, the professional body representing speech pathologists, holds demographic information on their members and provided the most recent figures for speech pathologists practicing across Australia in public, private, and academic roles. As membership of SPA is optional, these figures do not necessarily represent the entirety of speech pathologists working in NSW or Australia.

As at 1 November 2018, there were:

- 7,644 certified practising members of SPA

- 31% indicated their main role is in public practice, 46% in private practice, and 23% in non-government or academia

- 80% hold a Bachelors degree only and the remaining 20% hold a both a Bachelor and Masters degree and/or PhD

- The average age of registered members is 36 years of age and the gender distribution is 97% female and 3% male

- 69% indicated they practice in metropolitan areas, 20% in regional areas and 11% in rural and remote areas.

Table 2 below shows the geographical distribution of speech pathologists who are certified practising members of SPA.

Table 2: Number of certified practising members of Speech Pathology Australia per state

|	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Overseas	Total
No. of Certified Practising members of SPA	82	2244	53	1596	591	117	1960	861	140	**7644**
Proportion of Certified Practising members of SPA	1%	29%	1%	21%	8%	2%	26%	11%	2%	**100%**

3.4.2 NSW speech pathology workforce characteristics

As at June 2018, the workforce in NSW Health is comprised of:

- 577.5 full time equivalent (FTE) speech pathologists
- The gender distribution is 96.5% female and 3.5% male
- 47.4% were between the ages of 25-34, 27.4% were 35-44, 13.8% were 45-54, 5.8% were less than 25, 5.0% were 55-64 and 0.5% were 65 or older.

Figure 3 below depicts the distribution of speech pathologists employed by NSW Health across the levels stipulated in the NSW Health Award by age group.

Figure 3: NSW Health Speech Pathologists - Level and Age Group
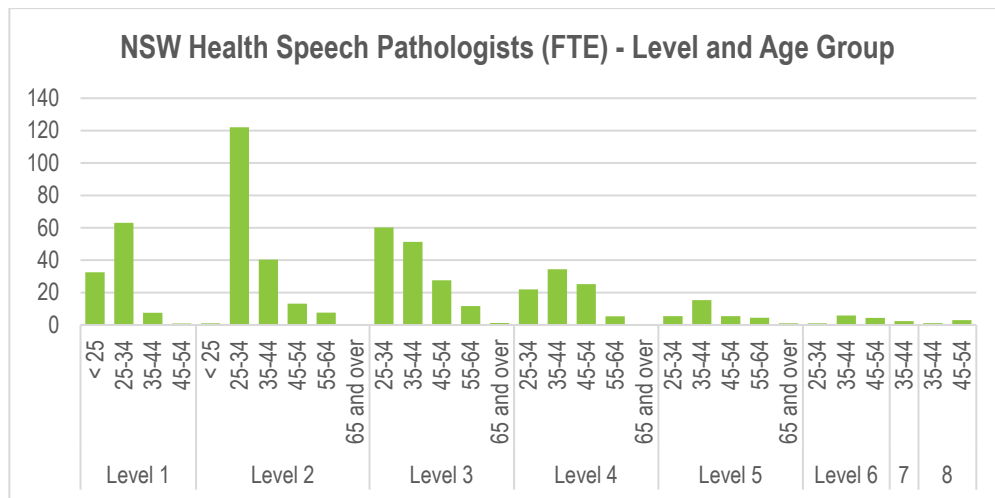
3.4.3 Geographical distribution of the NSW workforce

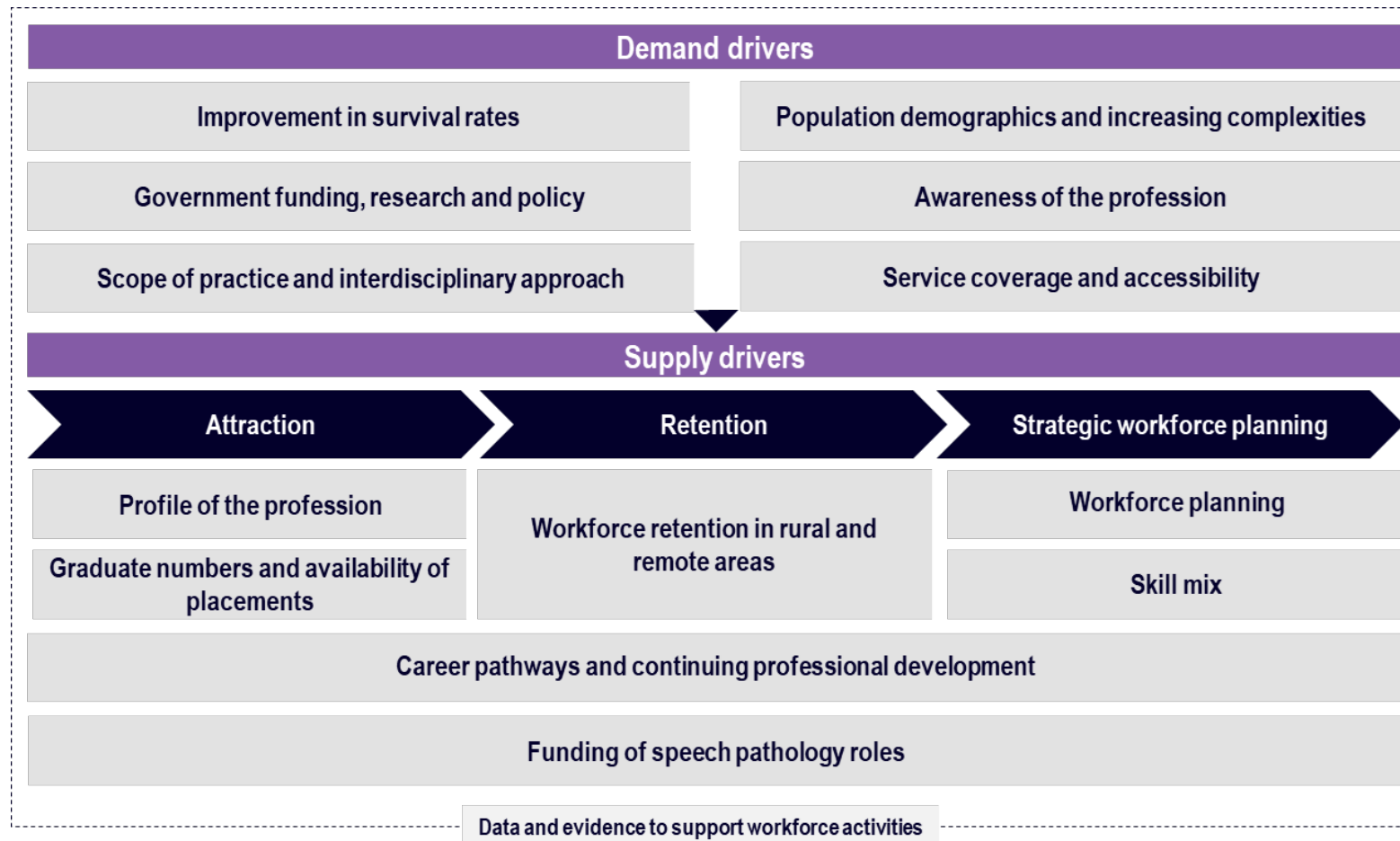Stakeholders suggested that the speech pathology workforce may be heavily concentrated in metropolitan and coastal areas within NSW and that this misalignment affects the ability to deliver services in rural and remote areas. In addition, stakeholders suggested that there may be significant challenges in attracting and retaining speech pathologists to work in areas in rural and remote areas, for example in western NSW.

4   Summary of the Key Demand and Supply Drivers

The section below provides a summary of the key drivers as identified during the Project which impact demand and supply, on and for, the speech pathology workforce. The driver model (**Figure 4** below) brings together these drivers that were identified, developed and validated through the workforce horizon scanning process with key speech pathology stakeholders.

Figure 4: Speech Pathology – Demand and Supply Driver Model

Demand drivers

Improvement in survival rates	Population demographics and increasing complexities
Government funding, research and policy	Awareness of the profession
Scope of practice and interdisciplinary approach	Service coverage and accessibility

Supply drivers

Attraction → Retention → Strategic workforce planning

| Profile of the profession | Workforce retention in rural and remote areas | Workforce planning |
| Graduate numbers and availability of placements | | Skill mix |

Career pathways and continuing professional development

Funding of speech pathology roles

Data and evidence to support workforce activities

4.1 Demand Drivers

Demand drivers are defined as the factors that shape and influence demand for the speech pathology workforce. Demand drivers discussed in this section are a synthesis of themes identified by stakeholders and those emanating from the literature review.

Table 3 below provides a high-level overview of the demand drivers. A more detailed explanation and analysis of each driver follows.

Table 3: Overview of the key demand drivers for the speech pathology workforce

Demand Driver	Description
Improvement in survival rates	Implications of advancements in medical practice (e.g. increasing birth, cancer, and stroke survival rates)
Population demographic changes and increasing complexities	Incidence of complex developmental disorders, chronic disease and cancer based on population growth, demographic characteristics, including age and geographic distribution
Government funding, research, and policy	Scope, focus, and access to services as determined by government funding and expenditure on speech pathology services (e.g. NDIS)
Awareness of the profession	Patient and professional awareness of speech pathology services based on consumer expectations, knowledge and perceptions
Scope of practice and interdisciplinary approach	Changing scope of practice for speech pathologists and the impact on service delivery: intensity, role in multidisciplinary care, and early intervention
Service coverage and accessibility	The coverage and accessibility of speech pathology services based on geographic (particularly rural) and economic distribution

4.1.2 Improvement in survival rates

Improvements in medical treatment and intervention has reduced mortality rates, with survivors now living with increasingly severe impairments requiring ongoing, long term support from various health professionals including speech pathologists (AIHW, 2012). Throughout the Project, stakeholders specifically mentioned that increasing survival rates from cancer, stroke, and early childhood disability, has increased demand for speech pathology services.

Cancer prevalence and survival rates
In Australia, cancer is a major contributor to illness, disability and death, and various studies have noted that diagnosis of cancer incidences are also increasing (Cancer Council Australia, 2018). Research suggests that Australians generally have a higher survival rate

for cancer relative to other countries (Allemani, et al., 2014) and whilst incidences of cancer continues to rise, overall mortality rates have fallen (AIHW, 2012) resulting in an increased demand for speech pathology services in recovery and rehabilitation. The increasing prevalence of cancer was noted as a key demand driver by stakeholders. Speech pathologists support assessment and treatment of cancer patients, particularly those recovering from head and neck cancers. Head and neck cancer are amongst the most commonly diagnosed cancers in Australia and will continue to drive demand for specialist speech pathology services in this area (Cancer Australia, 2018).

Survival rates of critically unwell babies
Between 2001 and 2016 the mortality rate of infants born in Australia reduced by 41% (Australian Institute of Health and Welfare, 2018). Factors that have influenced this include early paediatric intervention, additional resources for neonatal intensive care units, increased community awareness of pregnancy risk factors, and reductions in vaccine-preventable diseases (Australian Institute of Health and Welfare, 2018). The improved survival rate of babies born critically unwell and/or premature has resulted in an increased need for specialised paediatric speech pathology skills (Aylward, 2014). In particular; feeding, swallowing, and in the long-term language and communication issues during adolescence are key areas of where speech pathology skills are required (Rudolph & Thompson, 2002). Stakeholders felt that the increasing paediatric survival rates had a large impact on demand for services as these patients often required life long support.

Increasing survival rates from stroke
More people are surviving strokes than previously (Lackland & et. al., 2014). Research suggests this is due in part to the increased number of specialist stroke units across Australia (Australian Institute of Health and Welfare, 2018) which administer and coordinate leading stroke interventional procedures including thrombolysis and endovascular clot retrieval (Stroke Foundation Australia, 2017). Post-stroke treatment, including antiplatelet, anticoagulant, blood pressure-lowering, and cholesterol-lowering therapies are also reducing the incidence of subsequent strokes for stroke patients (Stroke Foundation Australia, 2017). Fifty-two percent of hospitalisations for stroke receive some form of speech pathology intervention and speech difficulties remain one of the most common types of disability to occur after a stroke, affecting approximately 25% of all stroke sufferers (AIHW, 2013). Additionally, up to 38% of stroke survivors have aphasia, a symptom of brain damage that affects a person's ability to communicate. Patients with aphasia generally have higher healthcare costs and longer lengths of stay in hospital compared with stroke survivors without aphasia (Power, et al., 2015). Therefore, speech pathology has a role to play in ensuring effective rehabilitation in the short-term but also in drastically improving a person's ongoing communication skills and quality of life in the long-term (Rohde, Worral, & Le Dorze, 2013).

4.1.3 Population demographic changes and increasing complexities

Changing population demographics, as well as increasingly complex and chronic diseases amongst the general populace, has changed the way in which healthcare is delivered. Speech pathology has a role to play in ensuring people receive the right care to address these changes.

Increasing population
As of 30 June 2017, the NSW population was estimated to be 7.9 million people, an increase of 1.6% compared to the previous year (ABS, 2017). Stakeholders noted the increasing

population is a key factor impacting demand for speech pathology services. In addition, speech pathologists from metropolitan LHDs noted increasing populations within their own geographic catchments due to changes in housing density.

Incidence of communication disorders

The 2015 Survey of Disability, Ageing and Carers (SDAC) found that of the 4.3 million Australians living with disability, over one-quarter had a communication disability. While for many, the level of communication disability was moderate or mild (64.8% of all people with communication disability), more than one-third (35.2%) reported as having profound or severe communication disability (Australian Bureau of Statistics, 2015).

Stakeholders engaged throughout the process identified the impact of increasingly complex and long-term support on the workforce. Prevalence rates of Autism Spectrum Disorder (ASD) in Australia are noted to have risen over the last decade and now are about 1 in 150 people (Australian Institute of Health and Welfare, 2017). Reasons for this rise were discussed and include changes in diagnosis criteria, growing awareness and knowledge among parents and the wider community, in professional networks, and because of the development of specialist services (Wing & Potter, 2004). Speech pathologists engaged throughout the Project also noted similar themes for Attention Deficit Disorder (ADD), Cerebral Palsy, and intellectual disabilities.

Understanding the prevalence rates of many, and sometimes overlapping, conditions and causes of speech, language and communication disorders is required to fully grasp the drivers of demand for the workforce. It has been noted that demand in hospital settings can be difficult to measure because speech pathology disorders are not typically the primary diagnosis. For example, a patient who suffered a stroke may have had significant support from a speech pathologist however the clinical coding for this episode may fall under a stroke Diagnostic Related Group (DRG). It is also important to understand the variety and wide scope of practice that speech pathologists work within, and that there can be many competing demand drivers when it comes to changing population demographics and increasing prevalence of specific conditions.

Ageing population

Australia's ageing population significantly impacts on the ability of speech pathology services to maintain and support the health needs of a population. In 2017, 15% of the population were aged 65 years and older, with projections stating this will rise to 22% of the population by 2057, amounting to 8.7 million older people nationally (AIHW, 2017).

An increasing number of older Australians are living with communication and/or swallowing difficulties, including:

- 50% of Australians living with dementia experience communication difficulty

- 85% of Australians living with Parkinson disease experience voice, speech and/or swallowing disorders

- 63% of Australians aged over 71 years' experience hearing impairment

- 6% of non-institutionalised older adults have dual sensory (vision and hearing) impairment that increases with age (Speech Pathology Australia, 2011).

Additionally, up to 96 per cent of older Australians living in residential aged care facilities have a communication disorder (Australian Hospital Healthcare Bulletin, 2014) and swallowing issues are a major concern for residents in aged care facilities (Aged Care Guide,

2018). Speech pathologists, as experts in the assessment and management of communication disorders, are ideally placed to support the independence and well-being of older Australians.

To be able to respond to the expected increase in demand from Australia's ageing population, one study highlighted the need for increased numbers of clinicians working outside of metropolitan areas with greater workforce diversity, along with strategies such as increased incentive, supervision and inter-professional support for new graduate and early career clinicians considering working outside of hospital settings (Bennett, Cartwright, & Young, 2017). The study also highlighted that to ensure evidence-based practice is adhered to, further research into the validity of current assessment and intervention methods used across aged care settings is required.

4.1.4 Government funding, research, and policy

Stakeholders identified that government funding and policy direction has a direct impact on the speech pathology workforce and the services they provide within the public health system.

National Disability Insurance Scheme
The National Disability Insurance Scheme (NDIS) is a way of providing support for all Australians under the age of 65 who have a permanent and significant disability. The NDIS allows individuals with disabilities to access mainstream and community services, providing people with individualised support and flexibility to manage their own support system.

Stakeholders noted that since the introduction of the NDIS four years ago, there has been a significant movement of speech pathologists, from government or large non-government disability organisations to small-scale or sole private practice. Whilst some speech pathologists continue to work within large disability organisations, over half work at least part of their time in private practice (Health Workforce Australia, 2014). Private speech pathologists usually also provide services to non-NDIS clients across health, education, aged care and fee-for-service arrangements. Thus, NDIS supports may be only one component of their business services (Speech Pathology Australia, 2017).

There are concerns from stakeholders about the model of care provision, waiting lists and a general under-supply of speech pathology services through NDIS (National Institute of Labour Studies, Flinders University, 2016). The symbiotic relationship between public speech pathology services and private services acquired through the NDIS has been suggested by stakeholders as a potential challenge for the workforce as more people transition to the NDIS.

Medicare Benefits Scheme
There are two pathways for patients to access speech pathology services through primary care: either a referral from a General Practitioners (GPs) or, if a child, as part of an autism package of care.

There are multiple Chronic Disease Management (CDM) Medicare items available for GPs to manage the health care of people with chronic or terminal medical conditions, including those requiring multidisciplinary, team-based care from a GP and at least two other health or care providers. It is via this pathway that patients can claim a Medicare rebate for speech pathology services. Eligibility for allied health services through this pathway is based on the presence of a chronic condition – one that has been present for six months or longer. A list of eligible conditions does not appear to exist, but potentially could include conditions such

as asthma, cancer, cardiovascular disease, diabetes, musculoskeletal conditions, ASD and stroke (Department of Health, 2016). A GP will make the assessment for CDM and then make a referral to a speech pathologist. The client may request to see a particular speech pathologist, or the GP may recommend one. Eligible patients can claim a rebate towards a maximum of five allied health services within the one calendar year. A person can also self-refer directly to a speech pathologist but will not then be eligible for the Medicare rebate (Senate Community Affairs Reference Committee, 2014).

The *Helping Children with Autism Package* assists families with the diagnosis and treatment of children with ASD or Pervasive Developmental Disorder (PDD). Up to four Medicare Benefit Schedule (MBS) services in total will be available for eligible allied health professionals, including speech pathologists, to collaborate with the referring practitioner in the diagnosis of a child (aged under 13 years) and/or the development of a child's PDD treatment and management plan. A further 20 Medicare rebate services in total is available for eligible allied health professionals, including speech pathologists, to provide treatment to a child (aged under 15 years and who was under 13 years at the time of receiving their diagnosis from the specialist and the PDD treatment and management plan) for their particular condition, consistent with the treatment and management plan prepared by the referring practitioner (Senate Community Affairs Reference Committee, 2014).

The *Helping Children with Autism package* may also provide additional funding to ensure that children aged 0 to 6 years diagnosed with ASD have greater access to a range of early intervention services, including funding packages for individual assistance, plus additional funding for families in rural and remote areas to assist their child in benefits from early intervention.

Analysis conducted on these two Medicare items highlighted that demand for speech pathology services had grown significantly by 38 times the amount between 2004 to 2014 for these Medicare items (Senate Community Affairs Reference Committee, 2014). Demand for services is also reflected in the waiting lists for public speech pathology services. The Senate Community Affairs Reference Committee (2014) noted the many issues associated with waiting lists, particularly for paediatric services, with reports of waiting lists of up to or over 12 months.

District, State, and Commonwealth level priorities

Stakeholders noted that health policy set at the District (such as waitlist times or early intervention prioritisation), state (for example acute bed management in winter), and the Commonwealth (e.g. NDIS) levels have a significant impact on demand for speech pathology services. In some instances, this can reduce demand through management of waiting lists and prioritisation of some services over others or increase demand through creating a policy environment encouraging increased consumer expectations.

4.1.5   Awareness of the profession

Due to the increasing accessibility of information via the internet, the public can now more easily access a wider range of health-related information. This comes an increased knowledge of various illnesses and treatment options. Stakeholders anecdotally reported that consumers appear to be placing increased value on the services speech pathologists provide, are more involved in delivery of interventions, and this can also result in heightened expectations of service delivery. Despite this, it has been noted that raised awareness may

predominantly be in metropolitan areas and could still be low in rural and remote locations (National Rural Health Alliance Inc, 2014).

Speech pathologist stakeholders noted that there was a general feeling that other professional groups such as amongst general practice, other allied health professions, and those in the education sector, are increasingly recognising the value and contribution that speech pathologists provide for those with swallowing and communication issues. However, it was noted by stakeholders that awareness could still be higher. It was acknowledged that this could also drive an increase in referrals, potentially adding to pressures such as prioritising waitlists.

4.1.6   Scope of practice and interdisciplinary approach

Multi-disciplinary team approach

Speech pathologists are involved in delivering care within multidisciplinary, interdisciplinary and transdisciplinary team approaches (Speech Pathology Australia, 2015a). Research suggests that multidisciplinary team approaches to delivering services result in better health outcomes. One study identified that adherence to rehabilitation therapy and patient satisfaction was higher when delivered by a team consisting of speech pathologists and Ear Nose and Throat (ENT) specialists (Litts & Mona, 2017). In another study, it was noted that a multidisciplinary clinic approach provided a convenient and more effective way to coordinate care for children with hearing loss than the traditional, siloed care across professional boundaries (Hawley, Goldberg, & Anne, 2017). Changes in working practice to a provide a more holistic health service increases the demand of speech pathology services.

Early intervention in children and young people

It is fundamental that speech, language and communication disorders are treated promptly and effectively. Early intervention is particularly crucial for children with complex needs, such as hearing impairment, ASD, cerebral palsy, or intellectual disability, as failure to diagnose and treat these disorders contributes to significant lifetime issues, including limited employment options, a dependence on welfare, psychological and emotional distress to the sufferer and their family and carer, and in many cases interactions with the justice system (Senate Community Affairs Reference Committee, 2014). Accordingly, diagnosing and addressing speech, language and communication problems in childhood are crucial to an individual's wellbeing and society in general. There is also more consumer awareness around the need for early intervention which continues to drive demand for speech pathology services.

Telepractice

Telehealth is a model for the provision of speech pathology services that could help assist in alleviating demand pressures, particularly in rural and remote areas.

In Queensland, a randomised controlled trial within a large public cancer service was conducted. The trial showed that a speech pathology telepractice service for patients with head and neck cancer benefitted both the patient and health provider by providing higher service efficiency and treatment satisfaction (Burns, et al., 2017).

Speech pathologists also expressed that telepractice could have a role to play in the provision of school-based services. In one trial of telepractice, whilst participants initially had mixed feelings towards a telepractice model of care, and uncertain about its effectiveness, they saw evidence of children's progression at similar achievement levels compared with

traditional face-to-face therapy (Hines, Lincoln, Ramsden, Martinovich, & Fairweather, 2015).

4.1.7 Service coverage and accessibility

Rural and remote service availability was noted by stakeholders as an issue for the speech pathology workforce throughout the Project.

In a survey of rural and remote health consumers in NSW, it was noted that accessing paediatric speech pathology services locally could be challenging. The associated barriers in seeking out available services also included travel and associated costs, lack of available health services locally, potential delays in treatment due to wait lists, and low levels of awareness of health services (O'Callaghan, McAllister, & Wilson, 2005).

The costs associated with accessing services also added to concerns with speech pathology accessibility in rural and remote areas. The same survey also found that consumers reported the current length of wait for rural and remote paediatric speech pathology services varies across the system (O'Callaghan, McAllister, & Wilson, 2005). Families and children are forced to seek out private speech pathology services if waiting lists are too long in the public or community health services.

4.2 Supply Drivers

This section provides a detailed analysis of the supply drivers impacting the speech pathology workforce as informed by the literature and stakeholder engagement. Supply drivers are defined as factors that contribute to the availability, sustainability and size of the workforce.

Table 4 below provides a high-level overview of the supply drivers, followed by a more detailed explanation and analysis of each supply driver.

Table 4: Overview of the key supply drivers for the speech pathology workforce

Supply Driver	Description
Profile of the profession	Professional voice, image and representation of the speech pathology profession
Graduate numbers and availability of placements	The number and location of placements; and the volume of graduates available to the profession
Career pathways and professional development	Availability of career progression and continual professional development and education for practitioners
Funding of speech pathology roles	Funding of public sector speech pathology positions and activities
Workforce retention in rural and remote areas	Workforce retention of speech pathology practitioners based on geographic location
Workforce planning	Aligning the needs and priorities of the system with those of its workforce, and appropriate planning (i.e. maternity / backfill)
Skill mix	Advanced practice and other combinations of skills/knowledge that contribute to the future of the workforce

4.2.1 Profile of the profession

It is important for understanding students' motivations for pursuing speech pathology as a career choice. This helps with marketing speech pathology as a viable career and assists with increasing the public profile of the profession.

Previous exposure to speech pathology through therapy intervention or through knowing a speech pathologist has been identified as highly influential factors for the decision-making process of choosing speech pathology as a career for students (Byrne, 2007). A US investigation also found that a desire to work in a helping profession most directly affected students' decision to become a speech pathologist or audiologist (Stone & Pellowski, 2016).

Stakeholders reported that the strength of the profession, led by SPA, was a factor that attracted individuals to the profession. Speech pathologists are acknowledged as progressive and perform strong advocacy work for the workforce and clients. Some speech pathologists highlighted the fact that an unregistered workforce was a weakness, as it reduced possible bargaining and political power.

4.2.2 Graduate numbers and availability of placements

Stakeholders from the LHDs, SHNs, and universities identified challenges with the availability of placements and noted that this had a bottleneck effect on the training process.

University stakeholders stated that they struggled to find the appropriate number of clinical placements for the volume of students now studying speech pathology degrees. Stakeholders stated that factors limiting placement opportunities predominantly related to demands on speech pathologist's time from their existing clinical workloads and that they struggle to find additional time to supervise students. Stakeholders reported that training and upskilling of students and graduates would be significantly improved if there were dedicated resource to support education and training onsite in placements.

Speech pathologists also noted that in some instances, there appeared to be a misalignment between the skills of graduating speech pathologists and the requirements of practice, for example that graduates lacked skills in more specialised areas such as mental health or working in acute hospital settings.

Some rural areas are responding to an undersupply of general speech pathology services by innovating the models for student clinical placements. In Broken Hill, a clinical education model is being structured around student-run clinics in the local primary schools. Students work together to run clinics at local primary schools and are monitored by academic staff from the University of Sydney (Jones, et al., 2011). This model means children receive an assessment and referral (if required), and students complete their required placement. Innovating clinical placement models, as shown in this example, can also help to support alleviating service demand pressures in rural and remote settings.

4.2.3 Career pathways and professional development

Stakeholders stressed the importance of clear career pathways as a driving factor for the supply of speech pathologists. Continuing Professional Development (CPD) provided by SPA is voluntary and there is no minimum requirement to maintain membership. However, stakeholders noted that ensuring access to CPD programs and time to undertake them was key.

Potential career pathways identified by stakeholders included:

- Research and academia
- Leadership and management
- Clinical education
- Supplementing public practice with private work
- Project positions for special interest work.

Through the engagement, some stakeholders felt some opportunities for professional development were limited. Specifically, they mentioned the ability to make time available for CPD to support advanced training was limited.

One potential opportunity highlighted that interest is high in speech pathologists' involvement in research (such as clinical trials), however the workforce needs to be nurtured so they are confident and experienced in undertaking research of this kind (Finch, Cornwell, Wood, & McPhail, 2013).

SPA provides opportunities for CPD that reflects the diversity of clinical areas or settings that speech pathologists work in (Speech Pathology Australia, 2018). As a self-regulated workforce, there needs to be better understanding of the training and professional development opportunities available, to create a sustainable future workforce.

4.2.4 Funding of speech pathology roles

Stakeholders identified that the funding of speech pathology positions is a significant supply driver impacting the workforce.

Funding of additional speech pathology positions must fit within LHD/SHN service budgets and often competes against other LHD/SHN priorities. Stakeholders noted that this may contribute to increasingly long waiting lists, or in the prioritisation of certain patients or disorders over others.

According to 2014 data, NSW Health had a ratio of speech pathologists per 10,000 population which was in line with the national average (Health Workforce Australia, 2014).

4.2.5 Workforce retention in rural and remote areas

It was noted that retention of speech pathologists with the appropriate skillset was a challenge in rural and remote areas. Less than 5% of Australian speech pathologists provide services to over 30% of the population living in rural and remote areas (O'Callaghan, McAllister, & Wilson, 2005).

Stakeholders perceived that low numbers of speech pathologists in rural and remote areas limits service access to clients. Practicing in a remote area has challenges associated with access to ongoing CPD, mentoring and professional supervision, and increased travel to reach conferences and industry events.

The distribution of speech pathologists in rural and remote areas impacts upon service delivery. Rural paediatric speech pathologists are typically specialist-generalists, treating impairments from birth to 18 years and utilising multiple service models simultaneously to address the needs of their caseloads (Little & Grasselli, 2013). It has been noted that even where effective speech pathology interventions are appropriate, they may not be available where they are most needed (due to geographic locality) or not be directed to those who need them most (due to mismatch of skills and geography). As a result, inequalities for those living in rural and remote areas may be exacerbated (Reilly, Harper, & Goldfield, 2016).

4.2.6 Workforce planning

Stakeholders recognised that strategic workforce planning was important for developing a sustainable workforce that has the capability and capacity required to deliver speech pathology services in the future. They noted increased focus on strategic planning is important to ensure that workforce decisions are aligned with service requirements.

As the workforce is 97.5% female, stakeholders reported the importance of understanding the impact of maternity leave on the workforce and how workforce modelling needs to ensure there is capacity and flexibility to backfill these roles (Health Workforce Australia, 2014).

Stakeholders noted challenges backfilling maternity leave, particularly as they tended to be for shorter periods of time, for example only three to 12 months.

Another factor affecting appropriate workforce planning is the ability to recruit to positions in a timely manner. Stakeholders reported that workforce processes within LHDs may limit their ability to recruit prior to positions becoming vacant. Ensuring that recruitment systems are streamlined will alleviate the pressures that this causes.

It was also noted by stakeholders that the workforce was not particularly culturally or linguistically diverse and tended to be a predominantly female, English-speaking profession. Health Workforce Australia noted that in 2014, 0.21% of speech pathologists in Australia identified as Aboriginal or Torres Strait Islander and stakeholders noted that increasing Aboriginal people in the workforce would be a positive move (Health Workforce Australia, 2014).

4.2.7 Skill mix

There has been an increasing focus on enhancing the overall 'skill-mix' of allied health workforces. Skill mix is defined as the combination of different skills held by the workforce at a macro level. Stakeholders suggested a number of opportunities for increasing skill mix within the speech pathology workforce, including introducing advanced scopes of practice and further formalising sub-specialisation.

Some work has been undertaken by Queensland Health as to whether prescribing rights could be given to speech pathologists. While the results of this study did vary, it did suggest that although not currently aligned with existing practice, prescribing rights may be a viable area of extended practice in the future (Nissen & Bettenay, 2016). Stakeholders noted that opportunities exist for speech pathologists to become involved in more invasive or interventional procedures; including the administering of local anaesthetics during treatment and therapy, or in endoscopy of the throat.

Sub-specialisation opportunities identified related to mental health, forensics, and in justice settings. In general, speech pathologists tended to be a 'local specialist' in an area of speech pathology practice within their LHD. While stakeholders identified several opportunities for sub-specialisation, they also noted there was a need to ensure that 'core business' was delivered in a way that was as effectively and efficiently as possible in its current state. Stakeholders noted that to deliver long-term sustainable services, there must be enough generalists within the workforce and that robust succession planning processes are in place for specialist services.

5 Challenges Encountered by the Speech Pathology Workforce

This section details some of the key current and anticipated challenges encountered by the speech pathology workforce.

5.1.1 Limited career pathways for speech pathologists

As discussed in the supply drivers, stakeholders perceived there to be limited opportunities or options for career progression within the profession. They also noted that while a speech pathologist could progress into leadership and management, clinical education, or research roles, these opportunities rarely arose.

Stakeholders noted that limitations on career advancement may dampen morale, contribute to burnout, and result in skilled individuals leaving the profession in search of other opportunities.

5.1.2 Rural and remote service considerations

Stakeholders reported that despite an adequate number of skilled professionals in metropolitan areas, there are still difficulties in recruiting and retaining speech pathologists in rural and remote settings.

Less than 5% of Australian speech pathologists provide services to over 30% of the population living in rural and remote areas (O'Callaghan, McAllister, & Wilson, 2005). Stakeholders noted that the demand from consumers across large, remote geographical areas are often not met. Furthermore, this encourages speech pathologists to be more 'generalist' in their practice in rural areas. While this allows for wider scope of delivery, it does encourage specialised speech pathology services to be concentrated in metropolitan areas. Stakeholders noted that this then further exacerbates inequities of access for rural consumers. University stakeholders engaged noted that whilst students often undertaken their clinical placements in rural settings as part of their rotation programs, it does not always encourage graduates to seek positions in rural and remote areas once they graduate.

5.1.3 Impact of NDIS changes

Since the introduction of NDIS there has been a significant movement of speech pathologists from government or large non-government organisations to small private practice providing services (Health Workforce Australia, 2014).

Throughout the Project, stakeholders voiced concerns about funding provision to support the model and the size of waiting lists. Speech pathologists suggested that access to speech pathology services through the NDIS was currently limited a different standard than what was previously available pre-NDIS implementation. Stakeholders felt that the inability to balance demand for speech pathology services through the NDIS meant that perhaps demand fell back to the public system.

5.1.4 Attending to the needs of increasingly culturally and linguistically diverse consumers

Stakeholders recognised that the current speech pathology workforce was not overly culturally or linguistically diverse. They also noted that this would continue to be an issue in the long term as students attracted to the university programs continue this trend.

This is also seen in the numbers of Aboriginal people in the speech pathology profession. Research states that a potential strategy, to reduce inequitable access to healthcare created by cultural barriers, is that care needs to be delivered by Aboriginal people in a culturally

appropriate way (Li, 2017). Challenges relating to the availability of speech pathology services in rural and remote areas are compounded when considering the proportion of Aboriginal people in these areas.

The workforce must strive to become more culturally aware and skilled in delivering services. Additionally, a focus on improving outcomes for Aboriginal and Torres Strait Islander people needs to be made a priority.

Stakeholders also identified challenges in delivering culturally appropriate speech pathology services to clients from non-English speaking backgrounds, such as migrants and refugees. Stakeholders reported that the majority of the workforce only speak English; therefore, there were challenges identified relating to communicating and delivering care to non-English speakers. Whilst use of a translation service is common, stakeholders noted that somtimes it is difficult to offer the best patient care.

5.1.5 Aligning the supply of graduates to the availability of placements and positions

Stakeholders from across the workforce reported challenges associated with aligning the number of student placements required with capacity and time to support and mentor students.

The provision of clinical placements relies on coordination and goodwill between the universities and industry, while best managing the requirements of their daily roles, including patient care. Stakeholders reported that training graduates would be significantly improved if there were dedicated resources to support education and training onsite in placements. The resulting additional resources would free up capacity, enabling the LHD to adequately deliver training and mentoring to students.

Stakeholders discussed some innovative models that could be used to augment traditional training models by increasing the use of simulation, making it easier to specialise in a particular domain earlier in training.

As noted in the supply driver section above, stakeholders perceive there to be limited speech pathology workforce growth in public positions which may have led to an increasing number of graduate speech pathologists moving straight in to the private sector upon graduation.

5.1.6 Number of funded speech pathology roles

During the Scenario Generation Workshop, stakeholders rated the number of speech pathology roles as the single most influential and likely challenge to face the workforce in the future.

Stakeholders acknowledged that funding of additional speech pathology positions within NSW Health must be considered in the context of budgetary considerations but should be in line with changing workforce practices, new innovative models of care, whilst still being considerate of changing demographics and increasing demand.

6   Opportunities Available to the Workforce

Throughout the course of the Project, several opportunities for the speech pathology workforce were identified to be explored and developed in the future.

6.1.1   Technology to support delivery of services in rural and remote areas

Stakeholders identified that technology could play a role in innovating how speech pathology services are delivered in the future. More specifically, they considered how technology could enable the reduction of healthcare inequalities that affect consumers in rural and remote areas of NSW.

Stakeholders noted that telehealth would increasingly play a role in the future to provide rural and remote consumers access to specialist speech pathology services. The American Speech Language Hearing Association's report on telehealth noted that, while telehealth is not an appropriate model for treating all disorders, the model has increasingly been used by speech pathologists to support delivery of services for patients with aphasia, articulation disorders, autism, dysarthria, dysphagia, voice disorders, neurodevelopmental and cognitive disorders (American Speech Language Hearing Association, 2018). Initial results of pilots in Queensland have shown that telepractice models have delivered higher efficiencies and increased satisfaction in the delivery of speech pathology services for a large public cancer service (Burns, et al., 2017).

Stakeholders noted that as technology advances and costs to acquire and develop technology falls, various other opportunities may arise including mobile videofluoroscopic swallow machines, advancements in data capture, and increased use of biotechnology and artificial intelligence in diagnosis.

6.1.2   Increasing clinical research and expanding best practice

Stakeholders noted the speech pathology profession was progressive in the development and implementation of clinical best practice. In 2002, senior speech pathologists in NSW established the *NSW Speech Pathology EBP Network* to support the development of Evidence Based Practice (EBP) in across public and private practice for this purpose (NSW Speech Pathology EBP Network, 2018).

Stakeholders considered several possibilities to further enhance EBP in the future, including:

- Encouraging increased membership of the *NSW Speech Pathology EBP Network*
- Establishing 'in house' dedicated clinical research positions, with the potential to be shared across clusters of LHDs
- Capitalising on opportunities to obtain funding for academic research and providing resources to support clinical speech pathologists to assist
- Establishing partnerships with health economists, media, and government to gather richer data and increase awareness for EBP
- Establish a comprehensive national database where speech pathologists can access current EBP.

Stakeholders noted learnings could be gleaned from international examples or from other allied health professions in how to further enhance EBP.

6.1.3 Closer relationships with other professional groups

Stakeholders identified opportunities to improve collaboration with other professional groups including in education, and other allied health and medical professions. They noted that this would help grow the professional standing of the speech pathology workforce, and increase knowledge, awareness, and exposure to the value of speech pathology in patient care.

Stakeholders believe the organisational and functional structure of hospitals often counteracts teaming across disciplines (i.e. teaming speech pathologists with oncologists or ENT specialists). The deliberate introduction of increased speech pathology presence in MDT meetings was suggested as a mitigation against this challenge.

6.1.4 Involvement in service planning and leadership

In the Scenario Generation Workshop, attendees identified speech pathology involvement in service planning and leadership activities at the district, state, and federal levels as the single most impactful opportunity for the workforce.

Stakeholders suggest that models which would facilitate greater involvement include:

- Stronger representation of speech pathology at district level clinical governance
- Support students and junior clinicians to critically evaluate service and policy
- Top-down approach to promoting the value of speech pathology.

6.1.5 Development of clearer career pathways within the workforce

Stakeholders identified development of clear career pathways and further opportunities for professional development as a key opportunity for the workforce in the future. At the workshop, stakeholders noted that clearly defined career pathways would lead to role enrichment as speech pathologists could specialise, diversify, and/or become more involved in research, learning, and teaching.

Stakeholders identified several examples for how career pathways could be further developed, including:

- Establishment of additional training positions and 'best practice' experts
- Increased training and supervision opportunities, for example in cross-district mentoring and secondments
- Introduction of a state-wide career portal for speech pathologists such as *Map My Health Career*
- Increased workforce flexibility that supported the releasing of speech pathologists to pursue skills and interests.

Additionally, stakeholders noted that clearer and increased career options would support staff retention and reduce migration to other professions.

6.1.6 Increasing diversity of the workforce: addressing the needs of Aboriginal communities

There are opportunities to develop a more culturally and linguistically diverse workforce to enable better access to speech pathology services for Aboriginal and Torres Strait Islander people. Stakeholders in the workshops noted that to progress initiatives in this space, it would require genuine involvement and engagement from Aboriginal people.

Stakeholders representing the Aboriginal and Torres Strait Islander allied health workforce identified an opportunity to provide culturally appropriate and value-centred care by

introducing more holistic models of care, such as opening community hubs in rural and remote areas. Opportunities to embed culturally sensitive training in university programs as well as provide clinical placements in or near Aboriginal communities were also identified.

In some areas new service models are trying new approaches and attempting to circumvent the cultural barriers as well as waiting times and costs for Aboriginal people. One example is a service which provides free speech pathology services, for metropolitan Aboriginal populations (Young, et al., 2017). This service ensures Aboriginal children and adults receive culturally appropriate services and feel comfortable seeking out specialist services such as speech pathology.

6.1.7 Utilisation of Allied Health Assistants

Stakeholders noted that there are opportunities to better utilise Allied Health Assistants (AHA) to support delivery of speech pathology services.

Stakeholders suggested AHAs could be used to support increased service intensity as there would be more resource delivering speech pathology interventions, help with setting up advanced equipment (e.g. videofluoroscopy clinics), attend consumer journey board meetings, and assist in delivering interventions in group therapies. It was noted that AHA support could also free up speech pathologist time to be used for other value-add activities such as training. However, the opinion held was that the role of AHAs should predominantly be in a support function and include tasks such as delivering low-risk interventions and administration support. Stakeholders felt that activities related to diagnosis, prescription of intervention, and direct one-to-one patient contact should stay in the domain of the trained speech pathologist.

There was anecdotal evidence on the use of AHAs in NSW, however, it is challenging to understand how prevalent it is as there is no data collected related to these roles after graduation (Speech Pathology Australia, 2016).

7   Appendices

7.1   Stakeholders engaged in the project

Name	Organisation
Speech Pathologists	
Alexis McMahon	St Vincents Health Network
Alison Battin	WSLHD
Amanda Walla	HNELHD
Andrea Cuadra	SNSWLHD
Armalie Muller	NNSWLHD
Ashleigh Brown	ISLHD
Claire Tamone	SWSLHD
David O'Connor	NBMLHD
Emma Johnston	HNELHD
Emma Stradling	SESLHD
Helen Ryan	SLHD
Jeanette Sprott	St Vincents Health Network
Kate Meredith	MNCLHD
Katie Beckett	CCLHD
Keona Wilson	ISLHD
Lara Treventhan	MLHD
Linda White	CCLHD
Lorelle Evans	NSLHD
Maggy Kinniburgh	NBMLHD
Mary-Ellen Tarrant	NSLHD
Melissa Parish	MNCLHD
Melissa Parkin	Sydney Children's Hospital Network
Miranda Van Gramberg	NNSWLHD
Nina Bell	SNSWLHD
Patricia Holtze	FWLHD
Rebecca Sutherland	Sydney Children's Hospital Network
Sandra Valencia	SLHD
Sarah Langford	WNSWSLHD
Shima Jafari	FWLHD
Tia Croft	SWSLHD
Tracy Kelly	SESLHD
Universities	
Amy Freeman	University of Technology Sydney
Bronwyn Hemsley	University of Technology Sydney

Dr Cathy Easton	Charles Sturt University
Scott Barnes	Macquarie University
Dr Sally Hewat	University of Newcastle
Professor Tricia McCabe	University of Sydney
Wendy Pearce	Australian Catholic University
Professional Bodies and Other	
Allan Groth	Chief Operating Officer, Indigenous Allied Health Association
Mary Woodward	National Advisor, Justice and Mental Health, Speech Pathology Australia
Nichola Harris	Senior Advisor Professional Practice, Speech Pathology Australia

7.2   Speech Pathology Approved Programs of Study in Australia

Education Provider	Program of Study
Australian Catholic University	Bachelor of Speech Pathology (Melbourne)
Australian Catholic University	Bachelor of Speech Pathology (Sydney)
Australian Catholic University	Bachelor of Speech Pathology (Brisbane)
Central Queensland University	Bachelor of Speech Pathology
Charles Sturt University	Bachelor of Speech Pathology
Charles Sturt University	Master of Speech Pathology
Curtin University	Bachelor of Science (Speech Pathology)
Curtin University	Master of Speech Pathology
Edith Cowan University	Bachelor of Speech Pathology
Flinders University	Bachelor of Speech Pathology
Flinders University	Master of Speech Pathology
Griffith University	Master of Speech Pathology
James Cook University	Bachelor of Speech Pathology
La Trobe University	Bachelor of Applied Science and Master of Speech Pathology
La Trobe University	Master of Speech Pathology
Macquarie University	Master of Speech Pathology
Melbourne University	Master of Speech Pathology
Newcastle University	Bachelor of Speech Pathology
Southern Cross University	Bachelor of Speech Pathology
University of Canberra	Master of Speech Pathology
University of Queensland	Bachelor of Speech Pathology (Honours)
University of Queensland	Master of Speech Pathology Studies
University of Sydney	Bachelor of Applied Science (Speech Pathology)
University of Sydney	Master of Speech Pathology
University of Technology Sydney	Master of Speech Pathology

8   References

ABS. (2017). *Australian Demographic Statistics, June 2017*. Retrieved 2017, from
http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0

Aged Care Guide. (2018). *Swallowing - it's a serious issue*. Retrieved August 2018, from
https://www.agedcareguide.com.au/talking-aged-care/swallowing-its-a-serious-
issue

AIHW. (2012). *Cancer survival and prevalence in Australia: Period estimates from 1982 to
2010.* Canberra: AIHW.

AIHW. (2013). *Stroke and its management in Australia: an update.* Retrieved August 2018,
from https://www.aihw.gov.au/getmedia/3d56c949-68a4-46f3-bc7c-
c40c89904d38/13994.pdf.aspx?inline=true

AIHW. (2017). *Older Australia at a glance*. Retrieved October 2017, from Australian
Institute of Health and Welfare: https://www.aihw.gov.au/reports-
statistics/population-groups/older-people/overview

Allemani, C., Weir, H. K., Carreira, H., Harewood, R., Spika, D., Wang, X.-S., . . . the
CONCORD Working Group. (2014, November 26). Global surveillance of cancer
survival 1995–2009: analysis of individual data for 25 676 887 patients from 279
population-based registries in 67 countries (CONCORD-2). *Lancet, 385*, 977-1010.

American Speech Language Hearing Association. (2018). *Professional Issues:
Telepractice.* American Speech Language Hearing Association.

Annear, M. J. (2018). Knowledge of dementia among the Australian Health Workforce: A
National Online Survey. *Journal of Applied Gerontology*, 1-25.

Australian Bureau of Statistics. (2015). *Disability, Ageing and Carers, Australia: Summary
of Findings.* Canberra: Australian Bureau of Statistics.

Australian Hospital Healthcare Bulletin. (2014). *Speech Pathology Australia:
Communication is a Basic Right for all Australians*. Retrieved August 2018, from
https://www.hospitalhealth.com.au/content/aged-allied-health/article/speech-
pathology-australia-communication-is-a-basic-right-for-all-australians-
1305660442#axzz5NdewlJyq

Australian Institute of Health and Welfare. (2013). *Allied health workforce 2012.* Canberra:
National health workforce series no. 5. Cat. no. HWL 51 .

Australian Institute of Health and Welfare. (2017). *Autism in Australia.* Australia: Australian
Institute of Health and Welfare.

Australian Institute of Health and Welfare. (2018). *Australia's health 2018.* Australian
Institute of Health and Welfare.

Australian Institute of Health and Welfare. (2018). *Children's Headline Indicators.*
Australian Institute of Health and Welfare.

Australian Institute of Health and Welfare. (2018). *Stroke and its management in Australia:
an update.*

Aylward, G. (2014). Neurodevelopmental Outcomes of Infants Born Prematurely. *Journal
of Developmental and Behavioral Paediatrics*, 394-407.

Bennett, M., Cartwright, J., & Young, J. (2017). Is the speech-language pathology profession prepared for an ageing population? An Australian survey. *International Journal of Speech-Language Pathology*(Published online: 18 Dec 2017).

Browne, J., Thorpe, S., Tunny, N., Adams, K., & Palermo, C. (2013). A qualitative evaluation of a mentoring program for Aboriginal health workers and allied health professionals. *ANZJPH, 37*(5), 457-462.

Burns, C. L., Ward, E. C., Hill, A. J., Kularatna, S., Byrnes, J., & Kenny, L. M. (2017). Randomized controlled trial of a multisite speech pathology telepractice service providing swallowing and communication intervention to patients with head and neck cancer: Evaluation of service outcomes. *Head Neck, 39*(5), 932-939.

Byrne, N. (2007). • Factors influencing the selection of speech pathology as a career: a qualitative analysis utilising the Systems Theory Framework. *Australian Journal of Career Development, 16*(3), 11-18.

Cancer Australia. (2016, June). *Optimal care pathway for people with head and neck cancers.* Retrieved August 2018, from https://www.cancer.org.au/content/ocp/health/optimal-care-pathway-for-people-with-head-and-neck-cancers-june-2016.pdf

Cancer Australia. (2018). *Head and neck cancer statistics*. Retrieved August 2018, from https://head-neck-cancer.canceraustralia.gov.au/statistics

Cancer Council Australia. (2018). *Facts and figures: Cancer in Australia.* Australia: Cancer Council Australia.

Department of Health. (2016). *Chronic Disease Management - Provider Information*. Retrieved August 2018, from http://www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-factsheet-chronicdisease.htm

Finch, E., Cornwell, P., Wood, E. C., & McPhail, S. M. (2013). Factors influencing research engagement: research interest, confidence and experience in an Australian speech-language pathology workforce. *BMC Health Services Research, 13*(144), 1-11.

Hawley, K., Goldberg, D., & Anne, S. (2017). Utility of a multidisciplinary approach to pediatric hearing loss. *American Journal of Otolaryngology*, 547-550.

Health Workforce Australia. (2014). *Australia's Health Workforce Series, Speech Pathologists in focus.* Australia: Health Workforce Australia.

Hines, M., Lincoln, M., Ramsden, R., Martinovich, J., & Fairweather, C. (2015). Speech pathologists' perspectives on transitioning to telepractice: What factors promote acceptance? *Journal of Telemedicine and Telecare, 21*(8), 469-473.

Jones, D., Grant-Thomson, D., Bourne, E., Clark, P., Beck, H., & Lyle, D. (2011). Model for rural and remote speech pathology student placements: Using non-traditional sites and partnerships. *The Australian Journal of Rural Health, 19*, 52-53.

Lackland, D., & et. al. (2014). Factors Influencing the Decline in Stroke Mortality. *Stroke*, 315-353.

Li, J.-I. (2017). Cultural barriers lead to inequitable healthcare access for Aboriginal Australians and Torres Strait Islanders. *Chinese Nursing Research*, 207-210.

Little, A., & Grasselli, M. (2013). *Shifting the wait: meeting the demands for paediatric speech pathology services.* Adelaide: 12th National Rural Health Conference.

Litts, J., & Mona, A. (2017). Does a multidisciplinary approach to voice and swallowing disorders improve therapy adherence and outcomes? *The Laryngoscope*, 2446-2446.

Lloyd, J. E., Wise, M. J., & Weeramanthri, T. (2008). Changing shape: workforce and the implementation of Aboriginal health policy. *Australian Health Review, 32*(I), 174-185.

National Institute of Labour Studies, Flinders University. (2016). *Evaluation of the NDIS: Intermediate Report, September 2016.* Adelaide: Flinders University.

National Rural Health Alliance Inc. (2014). *Submission to the Senate Community Affairs Committee Inquiry: Prevalence of different types of speech, language and communication disorders and speech pathology services in Australia.* Australia: National Rural Health Alliance Inc.

Nissen, L., & Bettenay, K. (2016). *A review of the prescribing capability of speech pathologists, dietitians and psychologists.* Brisbane: Queensland Health.

NSW Health. (2017). *2016-17 Annual Report.* NSW Health.

NSW Speech Pathology EBP Network. (2018, September 30). *Why was the NSW Speech Pathology EBP Network started?* Retrieved from NSW Speech Pathology EBP Network: https://nswspeechpathologyebp.com/

O'Callaghan, A. M., McAllister, L., & Wilson, L. (2005). Barriers to accessing rural paediatric speech pathology services: Health consumers' perspectives. *Aust. J. Rural Health, 13*, 162-171.

Owen , A., & Tracy, L. (2008). SARRAH: Provision of allied health services to regional and remote Aboriginal and Torres Strait Islander communities. *Aust. J. Rural Health , 16*, 323.

Pascoe, A., Breen, L. J., & Cocks, N. (2018). What is needed to prepare speech pathologists to work in adult palliative care? *International Journal of Language and Communication Disorders, 53*(3), 542-549.

Power, E., Thomas, E., Worral, L., Rose, M., Togher, L., Nickels, L., . . . Clarke, K. (2015). Development and validation of Australian aphasia rehabilitation best practice statements using the RAND/UCLA appropriateness method. *BMJ Open, 5*(e007641).

Reilly, S., Harper, M., & Goldfield, S. (2016). The demand for speech pathology services for children: Do we need more or just different? *Journal of Paediatrics and Child Health*, 1057-1061.

Rohde, A., Worral, L., & Le Dorze, G. (2013). Systematic review of the quality of clinical guidelines for aphasia in stroke management. *Journal of Evaluation in Clinical Practice, 19*(6), 994-1003. Retrieved from http://www.aphasiapathway.com.au/?name=About-aphasia

↑

Rudolph, C., & Thompson, D. (2002). Feeding disorders in infants and children. *Paediatric Gastroenterology and Nutrition*, 97-112.

Senate Community Affairs Reference Committee. (2014). *Prevalence of different types of speech, language and communication disorders and speech pathology services in Australia.* Canberra: Commonwealth of Australia.

Speech Pathology Australia. (n.d.).

Speech Pathology Australia. (2011, March). *Submission to Productivity Commission Inquiry into Caring for Older Australians.* Retrieved August 2018, from https://www.pc.gov.au/inquiries/completed/aged-care/submissions/subdr752.pdf

Speech Pathology Australia. (2015a). *Scope of Practice in Speech Pathology.* Retrieved August 2018, from http://www.speechpathologyaustralia.org.au/

Speech Pathology Australia. (2016). *Assessment of Competency to Practise as a Speech Pathologist in Australia*. Retrieved from Speech Pathology Australia: https://www.speechpathologyaustralia.org.au/SPAweb/Document_Management/Public/Overseas_Qualifications_Assessments.aspx?hkey=8a8411d5-9e32-4d73-8c57-82ad68905cab

Speech Pathology Australia. (2016). *Become a Speech Pathologist*. Retrieved from Speech Pathology Australia: https://www.speechpathologyaustralia.org.au/SPAweb/Resources_for_the_Public/Become_a_Speech_Pathologist/SPAweb/Resources_for_the_Public/Become_a_Speech_Pathologist/Become_a_Speech_Pathologist.aspx?hkey=7b3f512c-a1e1-4231-a051-453fbb094652

Speech Pathology Australia. (2016). *FAQs on Allied Health Assistants – Speech Pathology.* Retrieved August 2018, from https://speechpathologyaustralia.org.au/spaweb/Document_Management/Public/Become_an_Allied_Health_Assistant.aspx

Speech Pathology Australia. (2017, March 31). *Speech Pathology Australia's Submission to the Productivity Commission - National Disability Insurance Scheme Costs: Issues Paper.* Retrieved August 2018, from https://www.pc.gov.au/inquiries/completed/health-workforce/submissions/sub053/sub053.pdf

Speech Pathology Australia. (2018). *Professional Development*. Retrieved August 2018, from https://www.speechpathologyaustralia.org.au/SPAweb/Professional_Development/SPAweb/Professional_Development/Professional_Development.aspx?hkey=fe8fcee8-298c-4dda-aa72-b23944e03e09

Speech Pathology Australia. (2018). *What is a speech pathologist?* Retrieved August 2018, from https://www.speechpathologyaustralia.org.au/SPAweb/Resources_for_the_Public/What_is_a_Speech_Pathologist/SPAweb/Resources_for_the_Pubic/What_is_a_Speech_Pathologist/What_is_a_Speech_Pathologist.aspx?hkey=7e5fb9f8-c226-4db6-934c-0c3987214d7a

Stone, L., & Pellowski, M. (2016). Factors Affecting Career Choice Among Speech-Language Pathology and Audiology Students. *Communication Disorders Quarterly, 37*(2), 100-107.

Stroke Foundation Australia. (2017). *No Postcode Untouched - Stroke in Australia.* Stroke Foundation Australia.

Wing, L., & Potter, D. (2004). The epidemiology of autistic spectrum disorders: is the prevalence rising? *Mental Retardation and Developmental Disabilities Research Review*, 151-161.

Young, C., Tong, A., Gunasekera, H., Sherriff, S., Kalucy, D., Fernando, P., & Craig, J. C. (2017). Health professional and community perspectives on reducing barriers to accessing specialist health care in metropolitan Aboriginal communities: A semi-structured interview study. *Journal of Paediatrics and Child Health, 53*, 277-282.