Speech Pathology Australia

Giving people a say in life

PRODUCTIVITY COMMISSION HEALTH WORKFORCE STUDY:

SPEECH PATHOLOGY AUSTRALIA RESPONSE

Prepared by:

SPEECH PATHOLOGY AUSTRALIA

JULY 2005

The following document outlines the Speech Pathology Australia response to the key issues identified by the Productivity Commissioner in The Health Workforce Productivity Commission Issues Paper (May 2005).

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SUMMARY COMMENTS ON TERMS OF REFERENCE

In 2005, speech pathologists are represented across all health sectors, including Education, Disability, Hospitals and Community settings, providing specialist services to a broad range of clients with disorders of communication and swallowing. Speech Pathologists are highly trained professionals with unique skills and knowledge in the diagnosis of presenting conditions and in the selection and implementation of appropriate interventions.

There is little known about factors that influence supply, demand or retention of allied health professionals within the Australian workforce. As such, regardless of registration status, detailed and uniform workforce studies are required across all allied health professions. Apart from Queensland, speech pathologists are not required to be registered to practice in Australia, although all speech pathologists must meet Competency Based Occupational Standards (CBOS Entry Requirements, 2001) of their national association Speech Pathology Australia. Comprehensive workforce studies would inform the profession and policy makers regarding workforce supply and facilitate benchmarking in terms of current and projected demand for speech pathology services; prevalence studies would inform the service needs of clinical population types.

Examination of career pathways and choices is seen as valuable, as are factors impacting on retention and attrition rates within Speech Pathology. A number of factors may be particularly relevant to a female dominated profession such as Speech Pathology, for example, the impact of child rearing, the need for part time work, award structures and family friendly work arrangements. As with other Allied Health professions, current award structures for speech pathologists vary across sectors and States, and may influence career satisfaction and rate of attrition.

Changes to speech pathology scope of practice have been extensive, with the profession providing specialist evidence based services to a broader range of clients at an earlier age or at an earlier stage in their recovery than ever before (eg; neonates,

adults in Intensive Care/High Dependency Units). However, current award structures and industrial and fiscal constraints limit remuneration and other incentives for acquiring the necessary higher levels of skills and competencies.

Funding for speech pathology student education is grossly inadequate. Currently budgetary and fiscal demands determine numbers of students rather than the projected healthcare needs of consumers. Whilst the profession has developed a number of innovative measures to address the critical shortage of student placements in Australia, accurate workforce data will identify future needs and direct student initiatives, including appropriate government funding support.

As is the case with all allied health professions in Australia, speech pathology service provision to rural, remote and indigenous communities does not meet identified need. Targeted initiatives must address the provision of speech pathology services in conjunction with local communities and address the particular challenges of working in these environments.

WORKFORCE PLANNING

Currently there are no National Labour Force Surveys or universal standardised data collection regarding Speech Pathology practice within Australia. This lack of data makes it extremely difficult to evaluate adequacy of current service provision and/or to set projections regarding the future supply of and demand for speech pathologists. There have been attempts to establish benchmarks in staffing levels for speech pathology in some specific health areas, e.g. rehabilitation services, palliative care and mental health (Allied Health Rehabilitation Consultative Committee, AHRCC, 2004) but figures are based on therapist to bed or patient ratios rather than evaluation of adequacy of current service provision and projections beyond this.

Current arrangements for speech pathology workforce planning are driven by regulatory frameworks, industrial determinations, models of health and education training and funding issues, amongst others. They do not take into consideration:

a) Expectation of increased demand with an aging population

Given Australia's ageing population and the associated increasing prevalence of chronic disease, it is anticipated that there will be an increasing need for speech pathology services both in primary and tertiary care. For example, an increase in the number of survivors of stroke has already seen a growing need for speech pathology intervention for disorders of communication and swallowing. Stroke affects approximately 40,000 Australians every year and two thirds of these people are aged over 65 years (Ebrahim, 1990). Over three quarters of these persons require assistance with or have difficulties with self-care, mobility, swallowing or communication (Australian Institute of Health and Welfare - AIHW, 2003).

Dementia affects 1 person in 10 over the age of 65 (Shadden, 1988), with an estimated expected increase of 234% in the prevalence of dementia in Australia by 2031 (Jorm and Henderson, 1993). 95% of residents in nursing homes have at least one communication disorder, with the most prevalent being impaired language associated with dementia and difficulties with communication due to hearing loss

(Worrall, Hickson & Dodd, 1990). Other neurological diseases such as Motor Neurone Disease and Parkinson's disease are also increasing in prevalence. The impact on the caseload of speech pathologists who offer communication and swallowing therapy will be significant (AIHW, 2003).

Persons within the veteran community are more likely than non-veterans to experience illness and require the services of health professionals, including those of a speech pathologist (AIHW, 2003). Dementia, adult-onset hearing loss, stroke, visual disorders, Parkinson's Disease, chronic pulmonary disease rank amongst the top 10 causes of years lost due to disability amongst the over 65s, which also make up a majority of veterans (AIHW, 2003). Speech Pathology Australia has acknowledged this potential increase in workload though its briefing paper – 'Speech Pathology Australia Department of Veteran Affairs – Briefing Paper' (2004) and has made recommendations to improve and develop service delivery to veterans.

b) Changes in the nature and scope of speech pathology practice

Over the past 15 years, there have been substantial and wide ranging advances in the nature and scope of speech pathology practice. A comprehensive report outlining changes to the scope of speech pathology practice has recently been completed as part of the Speech pathology Australia Health Services Union Work Value Submission in Western Australia (2005). This report has been expanded to provide a national perspective (Attachment 1).

The major drivers to the advances in speech pathology scope of practice have been:

Increased complexity of patients and settings.

Speech pathologists provide services to sicker patients in more complex settings. For example, there has been a rapid increase in demand for speech pathology services in high dependency and intensive care units due to the specialised skills of speech pathologists in the management of tracheostomy and ventilator dependant patients.

Changes in health policy and community expectations.

There is increasing community expectation of services being provided closer to home, with a gradual move towards providing specialised services outside the tertiary setting. Community-based speech pathologists now require a strong theoretical and practical knowledge base across a broad range of service areas, including that of specialist practice. This is particularly relevant for clinicians in rural communities, where it is increasingly recognised that the same services should be available in rural and remote areas as in metropolitan areas.

Advances in research and theoretical models.

Significant changes to speech pathology practice have resulted from advances in the fields of medicine, neurology, neuroanatomy, psychiatry and psychology. The development of theoretical models and the explosion of research-based information have informed speech pathology practice and impacted across a broad range of clinical specialties within speech pathology. Examples include: paediatric early intervention, literacy development, aural rehabilitation, dysphagia and neuro-rehabilitation.

Emphasis upon evidence based practice to guide intervention.

The focus of evidence based practice (EBP) by the speech pathology profession has been to provide speech pathologists with sufficient information about clinical procedures and technologies to enable sound clinical judgments in guiding clinical practice and research. In fact, a major impetus to the development of new technologies within speech pathology has been the increasing use of EBP at a clinical level.

The incorporation of EBP into daily clinical practice relies on access to technology and in particular, to relevant internet sites, eg ComDisDome (2003), Joanna Briggs Institute (2003). These are currently not available to all speech pathologists, with variation in access across work sites within Australia (e.g. education versus health settings). This becomes particularly relevant in work environments where there may be limited access to mentors and clinical supervisors, e.g.; rural and remote areas and certain sectors such as Education.

Developments in assessment and treatment methodologies and technologies

The past 10-15 years has seen an increased use of instrumentation in the clinical setting. Videofluoroscopy (x-ray in motion) now forms part of standard speech pathology practice when assessing and treating disorders of swallowing, whilst the use of endoscopy (Fiberoptic Endoscopic Evaluation of Swallowing-FEES or Flexible Endoscopic Evaluation of Swallowing with Sensory Testing-FEESST) is a rapidly expanding clinical and research speciality. Surface EMG (sEMG), pulse oximetry and cervical auscultation are also being incorporated into speech pathology practice at the clinical and research levels.

Changes in non-profession specific skills

Legislative changes and work place reforms have contributed to a redesign in professional responsibilities, with the gradual devolution of traditional management-type responsibilities away from the manager vs. clinician paradigm. This has increased demands on clinical staff to develop competencies and skills in general management, including strategic and business planning, budget management, resource utilisation and human resource management. This has been at a time when demands on clinicians remain high, not only at a clinical level but also with regards to evaluation of outcomes and adequacy of service provision, and increasing emphasis upon accountability of practice.

c) Increased demand for ongoing training and professional development

The increase in the responsibility of and expectations from the profession has required a rapid increase in the knowledge, skills and expertise of clinicians. This has required speech pathologists to obtain post graduate qualifications, to undertake post graduate competency training and to maintain and develop further skills and competencies as indicated. Speech Pathology Australia has developed a number of key Position Papers that outline the required skills and competencies of clinicians intending to practice in specific clinical areas, including Dysphagia - General (2004), Dysphagia - Modified Barium Swallow (2005) and Tracheostomy (2005). Since 2000, Speech Pathology Australia offers voluntary participation in its 'Professional Self Regulation' program that aims to encourage and support continuing professional development. Under the Association's Code of Ethics (2000), it is the responsibility of the clinician

to obtain these skills as indicated and to always practice within the limitations of their expertise.

At this time there is only very limited Commonwealth support for post graduate education or financial incentive to undertake further education. For example, there is time available for speech pathologists undertaking post graduate study in the health sector equivalent to 4 hours per week for 13 weeks/semester. Within the private sector there is no remuneration for undertaking post graduate training or obtaining higher qualifications.

d) Current level and scope of Speech Pathology service provision

Due to the lack of standardised and comprehensive data, accurate reporting of current speech pathology service provision is not possible. For example, there is currently no substantive data available regarding hours worked with clients; caseload information regarding number of equivalent full time (EFT) positions per client age and/or diagnostic category, EFT per clinical setting, referring agents, etc.

Whilst individual speech pathology services may collect and review their own statistics and data regarding service provision, benchmarking is required in terms of the speech pathology workforce in general, particularly with regards to population demands and prevalence of clinical population types. It is only with this information that accurate projections regarding supply of and demand for speech pathology services can be made.

EDUCATION AND TRAINING

Clinical education is a mandatory and integral part of speech pathology student training program, yet the current DEST funding model does not recognise the diverse nature of clinical placements in speech pathology or allied health in general, nor does it provide direct funding for them (unlike funding for nursing, medicine and dentistry). The education requirements for speech pathology are not dissimilar to that of medicine and nursing, and as such funding should reflect this. Considerable time is devoted to the training and supervision of allied health students, and with increased

workload demands and patient complexities, clinicians are increasingly reluctant to accept students without some degree of financial support and clinical backfill.

In recent years, the number of speech pathology courses for graduate entry students has increased. This is in part fiscally driven, with inadequate funding placing pressure on institutions to offer speech pathology as a graduate entry course. Apart from issues with providing sufficient clinical placements, graduate entry Masters students will amass a substantial study debt. Wage expectations will be higher, and the potential to attract speech pathologists to areas with poorer wage structures and promotion opportunities, such as Education, Disability and Aged Care will be reduced.

Speech Pathology Australia supports entry level cross-discipline education for core subjects such as anatomy, physiology and other subjects that underpin undergraduate allied health programs. Such models not only promote awareness and understanding of the roles of allied health professionals but also provide the basis for multidisciplinary teamwork between professionals upon their entry into the health workforce.

There is currently a critical shortage of clinical placements for students undertaking study in the allied health professions including speech pathology, and while student numbers continue to be driven by budgetary concerns within universities rather than in response to the projected needs, difficulties in arranging clinical education will become more acute. For example, in Victoria, there is a critical shortage of adult clinical placements for speech pathology students. This shortage has resulted not only from a reduction in the number of clinical placements offered but also from a change in health service provision to the adult population. Patients are now more acutely unwell when referred to speech pathology and their length of inpatient stay is becoming shorter. As such, clinicians are required to respond rapidly, thereby not only increasing workload demands but also impacting upon student opportunities to participate in patient care.

There have been some useful innovations in speech pathology clinical education. The 'NSW Speech Pathology Consortium' comprising Charles Sturt, Macquarie, Newcastle and Sydney Universities coordinates the requesting and allocation of speech pathology clinical placements across all facilities in NSW, and collaboratively runs clinical education workshops across the state to support and generate additional placements. Some universities have also created speech pathology student units, which are funded entirely by the host facility (usually a hospital) or are co-funded between the host facility and the university. Also, there has been the development of increasing numbers of joint university and health facility appointments to oversee student supervision; however often these clinical education programs are overseen by a professional who is not a speech pathologist.

Speech Pathology student training takes place within the teaching facilities and the public health sector yet the private sector derives its workforce from the same pool of students, with a limited contribution to clinical training. The adequacy or otherwise of indemnity cover may be a factor influencing private practitioners' willingness to provide clinical education opportunities, but there may also be issues related to student provision of treatment that is paid for directly by the consumer. Resolution of such issues and in particular a shift in mind-set regarding payment for student services would enable private practitioners to contribute to student training, would ease the training load on the public health system and provide valuable exposure to an important health service provider.

Further difficulties arise with respect to student placements in rural/remote settings. There are significant shortages of suitable accommodation for students, and insufficient government subsides to offset the considerable expense associated with relocating for clinical placements. These costs are associated both with rural placements for urban students and metropolitan placements for students in rural and remote areas. Limited access to supervision and inadequate support for rural clinicians' further impact upon the placement of students in these areas.

REGULATION OF THE WORKFORCE

All speech pathologists must meet the Competency Based Occupational Standards Entry requirements (CBOS) 2001) of their National Association, Speech Pathology Australia. All practicing speech pathologists are bound by the Association's Code of Ethics (2000).

Current members of Speech Pathology Australia are eligible for participation in the Association's 'Professional Self Regulation Program' that provides the opportunity for participants to earn the status of 'Certified Practicing Speech Pathologist'. This non-mandatory program allows speech pathologists to demonstrate to key stake holders a commitment to updating and extending professional abilities through ongoing professional development. Consideration is being given to extending this program to non-members and to future mandatory participation.

Queensland is the only Australian state that requires Speech Pathologists to be registered to practice. Clinicians from states outside Queensland must register with the Queensland Speech Pathology Board prior to practicing in that state. The Association is currently considering the benefits of national registration or other forms of regulation for speech pathologists. It is essential that regulation for the speech pathology profession has national consistency across all settings and is under the governance of the profession.

WORKFORCE PARTICIPATION

- ***Speech Pathology Profile***

The common profile of the working speech pathologist in Australia is female (97.7% of speech pathologists) between the ages of 24-34 years, Australian born and English speaking (Lambier, 2002).

The feminisation of the profession brings with it a number of inherent issues, including:

- Attrition due to child rearing responsibilities and non-family friendly workplace policies
- Increase in demand for part time work, which may be accommodated by job-sharing combinations, the success or not of which depends on the individual involved.

The Australian Bureau of Statistics Census (2001) indicates there were 3,006 speech pathologists in Australia and this number has been steadily growing for the past 10 years. However, it is important from a workforce point of view that consideration is given to the differences between the number of **clinicians** and the number of speech pathology **positions**, specifically the number of equivalent full time (EFT) positions. For a predominantly female workforce where only 51.2% are employed fulltime (Lambier, 2002) the use of numbers of clinicians rather than actual full-time funded positions may suggest there are significantly more hours of "hands on therapy" than what there actually are.

- ***Factors Contributing to Attrition***

Current remuneration and career structuring may be failing to provide adequate flexibility or incentive to remain within the profession. There is potential for considerable loss of experience and expertise from the profession, particularly for those clinicians with several years' experience who commence families and/or whom make lifestyle choices to move to part time employment. Often these are clinicians who may have moved into middle and senior clinical or management positions. Data suggests that these are the positions where vacancies are most difficult to fill.

Speech Pathology Australia has commissioned a project commencing 2005 to examine attrition rates and factors within the profession. Anecdotal information collected to date suggests that limited career paths, non family friendly workplace arrangements and limited remuneration are major factors in attrition from speech pathology.

Award structures vary between states and sectors. Lack of appropriate award structures across all sectors (Disability, Aged Care, Education and Health,) may influence attrition through loss of discipline- specific professional supervision, lack of

skill recognition, limited career progression and enhancement. Specifically however, Disability, Aged Care and Education sectors are seen as less attractive than the Health sector due to poor award structuring and devolution of services, resulting in limited or no professional supervision and support by experienced speech pathology colleagues. Private Practice is a growth area for speech pathology, possibly reflecting both a demand not met by the public services and attractiveness with regard to remuneration and family friendly options.

Whilst emphasis is upon the ongoing development of skills and the completion of post graduate training and education, most employers and third party payers fail to recognise and remunerate higher levels of skills. The remuneration offered through relevant awards for higher education training is minimal, thereby reducing the attractiveness of completing post graduate studies.

Speech Pathology Australia provides a formalised re-entry program to encourage non practising clinicians back into the profession. At this time, feedback from the profession is that the program is meeting its intended needs, although a review is underway to strengthen the assessment of competencies required to meet current work practice standards (i.e. against CBOS Entry requirements).

MIGRATION ISSUES

Speech pathologists who train outside Australia must have their qualifications assessed against the CBOS Entry requirements (CBOS, 2001) by the Overseas Qualifications Committee of Speech Pathology Australia to determine eligibility for membership. Applicants whose first language is not English and/or whose training was not in English may be required to sit an Occupational English Test. There is a specific requirement for applicants to demonstrate their competence in the area of dysphagia (swallowing disorders), with CD-ROM based training programs available.

In 2005, an agreement of mutual recognition of credentials was reached between the four national associations of Australia, Canada, United Kingdom and United States of America. The agreement is not one of reciprocity or reciprocal recognition of

qualifications. The Agreement is of mutual recognition that, under some conditions, the four associations have substantially equivalent credentials. This agreement, whilst not ensuring employment in the country which the speech pathologist may visit, does provide the potential for professional recognition and aims to formalise the process by which overseas clinicians obtain employment as a speech pathologist. Data regarding the impact of this agreement on attracting overseas clinicians to Australia is not yet available.

PRODUCTIVITY

There is no current data regarding the relative productivity of the speech pathology profession within Australia. Individual facilities may measure their own productivity by the use of outcome measures that evaluate the impact of speech pathology interventions at a clinical level but this is not a nationally coordinated initiative. The profession demonstrates its commitment to evaluating productivity through outcome measures, this being reflected by the recent development of the Australian Treatment Outcome Measures (AusTOMS) scale (2004). Other ways to evaluate productivity include waiting lists and patient access to services, though this information needs to be interpreted in light of budgetary and other constraints impacting on speech pathology service delivery.

Improving retention within the profession has the potential to increase productivity by reducing the time necessary for orientation to new workplaces and practices. Factors influencing retention and attrition within speech pathology are discussed elsewhere.

WORK DISTRIBUTION – USE OF ALLIED HEALTH ASSISTANTS AND OTHER HEALTH WORKERS

Qualified Allied Health Assistants are currently employed to support the work of speech pathologists in their clinical practice in a number of clinical settings, including rehabilitation, community care and mental health. Speech pathologists are directly responsible for assistants' clinical activities, and must provide adequate supervision and be responsible for medico legal accountability, supervision and training, safety of

clients and family, compliance with government legislation and the efficacy of treatment which relies on an assistant. A therapy assistant must be clearly identified as such and must not at any time perform a role that would reasonably be expected to be filled by a speech pathologist and therefore requires specialist skills.

Speech Pathology Australia acknowledges the inherent value of adequately trained allied health assistants and views them as integral, in some clinical settings, to the provision of timely and appropriate speech pathology services. In response to the potential widening of assistants' and other health workers' roles, Speech Pathology Australia has commissioned a working party to develop and complete a "Parameters of Practice" paper. This paper will address recent developments in some states throughout Australia regarding training, employment and conditions of practice of allied health assistants and other health workers, eg nurses, care attendants and community workers who may play a limited role in assisting the speech pathologist in the management of swallowing and communication disorders.

At this time, Speech Pathology Australia does not support the untested concept of the university trained, degree qualified generic health professional. Specifically, Speech Pathology Australia is concerned that generic health professionals will not qualify with a degree that provides the level of knowledge, expertise and skill mix required to meet the specialised and expanding scope of practice within Speech Pathology. Additional regulatory and administrative frameworks would be required to ensure the roles undertaken by allied health assistants and other health workers address legal, safety, professional and quality of care issues. Health workers must only operate within the limits of their training and competency, and in relation to speech pathology support roles operate under the supervision and direction of a qualified speech pathologist.

Speech Pathology Australia is keen to ensure the use of assistants or health workers with non-discipline specific skills is an initiative to improve the quality and timeliness of care provided to consumers rather than a response to budgetary considerations or a shortage of speech pathologists and allied health professionals in general. This latter

point is particularly relevant in rural and remote areas where there is an acknowledged shortage of qualified allied health professionals in all disciplines. Health care workers

without recognised, specialised qualifications should not be a substitute for specialist allied health professionals, including speech pathologists. High quality care by qualified professionals should be a consumer expectation regardless of geographical location.

REGIONAL, REMOTE AND INDIGENOUS ISSUES

As is the case for all health workforces, speech pathologists are under-represented in the rural, remote and indigenous communities. Issues impacting on speech pathology services to rural, remote and indigenous communities include:

- Professional isolation due to inadequate professional support/lack of discipline-specific supervision and mentoring
- Non-systematised professional development and high cost associated with accessing professional development
- Reduced opportunities for post graduate training
- Poor career structures
- Shortage of locums and access to backfill, particularly for sole positions, with potential for burnout from caseload demands
- Lack of educational and employment opportunities for children and partners
- Limited income potential; award disincentives
- Limited training and support for management → sub-optimal use of allied health resources and expertise
- Perception of rural/remote clinical work as "unattractive"
- Excessive relocation costs/ reduced social supports
- Lack of incentives, eg scholarships for new clinicians

Whilst shortages in funding relate to recruitment and retention, indigenous communities also require a higher level of service and a different skill mix to other communities. It is well documented that the health of the indigenous population is

poorer than that of non-indigenous populations (Australian Bureau of Statistics, 2004). The increased incidence of cerebrovascular complications of diabetes, mental

health issues, cancer, acquired brain injury, child speech and language delay and hearing loss all require the expertise of a speech pathologist. Targeted initiatives must address the provision of speech pathology services in consultation with local communities – services for indigenous communities should not be guided solely by qualified allied health professionals but specifically, should aim to train community members. Likewise, services for indigenous communities should be directly funded to employ allied health professionals.

ACCESS

- ***Medicare Initiative***

The 'Strengthening Medicare Allied Health Funding' initiative is viewed by the speech pathology profession as a positive step towards acknowledging the complex needs of persons with a chronic condition and the value added contribution made by speech pathology. However, whilst acknowledging support for the general principles of the scheme, there are a number of issues that impact upon potential access to the scheme:

1. GP as gate keeper.
    - There is a real concern regarding the reliance upon GP awareness of role and scope of speech pathology practice. Speech Pathology Australia has initiated training packages to assist in the education of GP's regarding the profession's role, but this will only partly address current concerns.
    - Low awareness or lack of clarification on the types of conditions seen by Speech Pathologists that could appropriately fit the criteria and be referred for speech pathology services. For example, disorders such as autism spectrum disorder, developmental dyspraxia and Parkinson's Disease would come under the definition of a "chronic" disorder but GP awareness of communication disorders associated with these conditions may be poor.

- Inconsistency in GP's interpreting the criteria and requirements of the Team Care Arrangements (TCA) for those with communication disorders, leading to different responses to referrals to speech pathologists for similar conditions.

- The need to have at least 3 health care professionals involved in the TCA requiring the GP to coordinate this liaison.

2. Limited number of sessions (total of 5 for all allied health professionals) – this may be inadequate given the long term and protracted management plan common to those with severe communication or swallowing disorders.

3. Low rebate level for what would be commonly at least a 45 minute session for speech pathology, leaving the patient with a considerable 'gap' cost.

- **Legislative Access to Diagnostic Rights**

Alongside the increasing scope of specialist practice within speech pathology, there are limited but potentially developing areas where extending legislative access to specific diagnostic and management procedures would expedite and enhance patient care. One example of such an area is direct speech pathology referral of patients for videofluoroscopic swallowing studies (VFSS). VFSS is a radiological procedure used to identify and guide treatment of swallowing disorders. Speech pathologists routinely refer patients with swallowing disorders for VFSS but current legislation requires approval by a medical practitioner. Timeliness of assessment would be facilitated if speech pathologists were able to directly refer to radiologists for this procedure.

KEY RECOMMENDATIONS

1. Completion of comprehensive workforce studies through the Australian Institute of Health and Welfare (AIHW) or other national body aimed at informing speech pathology workforce supply and facilitating benchmarking in terms of current and projected demand for speech pathology services. Speech Pathology Australia supports the establishment of a National Allied Health Liaison Office (NAHLO) as a means to improving data collection and facilitating closer working relationships between allied health, government agencies and other sectors of the health workforce.

2. Examination of factors affecting career choice, attrition and retention within the profession of speech pathology. This may follow similar lines to the project undertaken by the Australian Workforce Advisory Committee that examined like factors in the medical profession. Speech Pathology Australia strongly recommends particular focus be paid to family friendly workplace policies and other initiatives that acknowledge the unique characteristics of the speech pathology workforce.

3. Review of student numbers and of funding for clinical education. The establishment of a single national statutory authority for health workers, such as the NAHLO would provide direction, in association with HPCA, regarding areas of workforce shortage and desirable intake levels. Consideration should be given to allied health professions being funded as clinical disciplines, as is the case with medicine and nursing.

4. Review of award structures for speech pathologists, with particular emphasis upon recognition of increased and increasing scope of practice, the need for discipline-specific supervision and support, and existing inequities across health sectors, eg Health and Education.

5. Consideration of strategies to address the critical shortage of speech pathologists and other allied health workers in rural, remote and Indigenous communities and multicultural groups. This may include targeted support to cover expenses associated with relocation, incentives to relocate, extension of scholarships such as the Medical

Rural Bonded Scholarships Scheme to allied health professions, and the establishment of adequate professional and mentoring links. Services for indigenous communities should be directly funded to employ allied health professionals.

6. Extension of access to Medicare for rebates for Speech Pathology for individuals with severe and complex communication and/or swallowing disorders.

7. Consideration of changes to legislation that currently restricts referral and limited prescribing rights of speech pathologists.

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Speech Pathology Australia

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Work Value Document for The Speech Pathology Profession

Speech Pathology Australia

JULY 2005

Acknowledgement is given to the founding document: 'Health Services Union (Western Australia) Work Value Submission' on behalf of Profession of Speech Pathology (April 2005)

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Contents

EXECUTIVE SUMMARY

The Speech Pathology profession has undergone significant changes since the last work value case conducted in Western Australia in 1989. The knowledge base and unique skill-sets of the discipline have changed dramatically due to both internal and external forces.

The changes are more than incremental advances over time and represent significant changes in the nature and scope of the work, the responsibilities of the profession and the conditions under which the work is performed.

The major drivers behind the increases in work value include:

- *Increased complexity of patients and settings*
- *Advances in research and theoretical models.*
- *Advancements in assessment and treatment methodologies and technologies*
- *Changes in health policy and community expectations.*
- *Changes in non-profession specific skills*
- *Changes in scope of practice resulting in increased demand for Speech Pathology services*

In 2005 Speech Pathologists are represented across all health sectors enhancing outcomes for clients with communication and swallowing disorders.

Speech Pathologists now provide services in the more acute medical settings to a broader range of patients with a greater range of presenting conditions. Speech Pathologists have greater responsibility in the diagnosis of presenting conditions and the selection and implementation of appropriate interventions.

Service delivery changes have seen a significant increase in the provision of home-based therapy services as part of early discharge and home-based rehabilitation services.

There is also a growing trend towards the provision of home and community-based paediatric services for children with developmental difficulties. Preventative and early intervention programs now target much younger children and their families. There has been an introduction of new paradigms with the focus on community development and enabling communities. The importance of empowering parents has been re-affirmed, with the focus of many early intervention programs being the strengthening of parent-child interactions and the development of skills in parents to be the agents of change.

Treatment efficacy has always been a focus however the focus on outputs of the health system as opposed to inputs to the system has had a significant impact on the type of services provided and the means by which they are delivered.

The National Association, Speech Pathology Australia ("The Association"), has responded to the challenge of the new workplace. Changes have been made to training programs for Speech Pathologists and The Association has developed a range of practice standards to ensure the provision of quality services by appropriately trained and experienced Speech Pathologists.

The increased specialisation and more complex levels of responsibility have resulted in a dramatic increase in the need for additional mandatory postgraduate education and training. The impact of these new skills and competencies is reflected in the use of evidence-based practice, with focus upon achieving quality outcomes for consumers across the spectrum of Speech Pathology interventions.

In addition to the profession-specific skills that Speech Pathologists bring to the health system, the discipline has developed a range of generic skills that facilitate cross-sectorial collaboration, case management and an ability to work in multidisciplinary teams.

Broader societal changes have required skills working with culturally and linguistically diverse populations, managing challenging behaviours and working within complex family and social systems.

Organisational changes and devolved management structures have seen Speech Pathologists develop skills in human resource management, risk management and clinical governance.

The work value changes within the discipline impact positively on the health system and the community. Speech Pathology interventions add value by reducing the financial, social and behavioural costs associated with communication and swallowing difficulties within the population.

1. DEFINITION

1.1 DEFINITION AND SCOPE OF PRACTICE

The practice of speech pathology[1] provides a holistic approach to the assessment, diagnosis and treatment of disorders of communication and swallowing. Speech Pathologists have unique skills and knowledge that encompass all aspects of communication and swallow function.

Good communication skills are essential for active and full participation in everyday life. This includes being able to:

- Ensure that basic needs are met
- Develop and maintain social networks
- Achieve educational and vocational goals
- Participate in the broader community and public life
- Maintain personal independence through active decision-making

A communication disability occurs when one or more areas of communication are ineffective. The five areas in which this breakdown may occur are:

- Speech
- Language
- Pragmatics
- Fluency
- Voice

Safe and efficient swallowing skills are also essential life skills. In addition to basic life-sustaining needs, eating and drinking forms the basis of many socio-cultural routines and rituals. People need to be able to swallow safely so as to minimise risk of inhalation or choking, maintain adequate nutrition and hydration, enjoy a variety of different foods and share in social occasions that involve eating and drinking.

Swallowing saliva, food and drink is a complex process and disruption at one or more of the following stages of this process can result in difficulties:

- Sucking, especially for new born babies and infants
- Managing saliva
- Chewing food
- Clearing food and drink from the mouth and throat
- Protecting the airway

Communication and swallowing[2] difficulties can be temporary or permanent. They can range in severity and they may be present at birth, manifest at different stages of development or be acquired due to illness or injury.

People who receive Speech Pathology services include those with communication and swallowing difficulties due to:

- Medical or genetic conditions eg: cleft palate, autism spectrum disorders, tumours, stroke and respiratory disorders.
- Surgical interventions eg: cancer surgery and epilepsy surgery.
- Mental health disorders.
- Degenerative disorders eg: Parkinson's Disease, Motor Neurone Disease, Multiple Sclerosis and Alzheimer's Disease.
- Traumatic Brain Injury (TBI)[3].
- Developmental delays and learning difficulties.
- Hearing impairment.
- Culturally and linguistically diverse backgrounds.
- Environmental disadvantage.
- Aging and multiple co-morbidities.

Other populations who receive Speech Pathology services include:

- Employers (of people with communication difficulties) regarding environmental modifications as well as education, training and support.
- Families and significant others to provide training to assist in therapy, rehabilitation, education and support.
- The general community to provide information and advice including provision of preventative programs.
- Other professionals including other health professionals, educators and support staff.
- Courts, legal staff and Guardian and Administration Board.
- Speech Pathology students and colleagues.

Within the Department Of Health, Speech Pathologists are employed in a variety of settings including:

- Hospitals - tertiary and secondary metropolitan hospitals, regional and rural hospitals.
- Community health centres
- Psychiatric care facilities - tertiary and secondary metropolitan hospitals, forensic and psycho-geriatric units.
- Community rehabilitation centres

- Complex diagnostic referral centres - eg; Neuroscience Units, Child Development Centres, Voice centres

Provision of Speech Pathology services from these settings extends into the home and community such as the workplace, community centres, childcare centres and schools.
External to the Department Of Health, Speech Pathologists work across a range of settings including disability service providers, and educational institutions that include universities, schools, and language development centres. Residential care facilities such as nursing homes, hostels and private hospitals and vocational rehabilitation providers also employ Speech Pathologists. An increasing number of Speech Pathologists are now in private practice.

1.2 MAJOR CHANGES IN NATURE AND SCOPE OF PRACTICE SINCE 1989[4]

There have been substantial and wide ranging advances in the nature and scope of Speech Pathology practice since the last work value case conducted in Western Australia in 1989. These advances have resulted in significant work value changes across the profession. The increase in the responsibility and expectations of the profession has required a rapid increase in the range of skills and knowledge required of both the new graduate and experienced Speech Pathologist.

Increases in theoretical knowledge and the development of substantial new skills have accompanied increased complexities in client presentations and changes in the environments that Speech Pathologists practise in. In addition, the range of non-profession specific skills has increased. These include risk management and clinical governance responsibilities that are now required of all health professionals, together with group management and facilitation skills that reflect the focus on team delivery of health services.

The major factors driving the changes in work value over the past 15 years include:

- Increased complexity of patients and settings.
- Advances in research and theoretical models.
- Advancements in assessment and treatment methodologies and technologies.
- Changes in health policy and community expectations.
- Changes in non-profession specific skills.
- Increased demand for Speech Pathology services.

1.2.1 Increased Complexity of Patients and Settings

Hospital settings

There has been a significant increase in the range of medical settings that Speech Pathologists work in. Speech Pathologists provide services to sicker patients in more complex medical settings. Speech Pathologists now provide clinical services to hospital Emergency Departments and are routinely rostered to work on weekends. There has been a marked increase in demand for Speech Pathologists in high dependency and intensive care units due largely to the specialised skills of Speech Pathologists in the management of disorders of swallowing and communication associated with tracheostomy and ventilator–dependency.

There has been an increase in the acuity and medical complexity of patients within both tertiary and secondary hospitals. This increase in acuity has co-occurred with a reduction in the average length of stay within the hospital setting.[5] This has resulted in Speech Pathologists intervening at an earlier stage of a patient's admission and providing services to people who are in the more acute phases of their recovery. The subsequent early discharge to either a secondary hospital or to a home or residential environment has placed a greater demand on Speech Pathologists working within these settings.

Improvement in the medical and surgical management of a range of diseases and injuries has reduced mortality but increased morbidity in survivors. For example, advances in the acute management of traumatic brain injury (TBI) have reduced mortality for this patient group but has increased the number of survivors presenting with disorders of communication and swallowing.

The improved survival rate of very premature (22-32 weeks gestation) and critically unwell babies have resulted in an increased need for specialised Speech Pathology skills in the management of paediatric feeding and swallowing. [6] [7] The incidence of mild feeding difficulties in very premature and medically unwell infants is 25-35%; severe difficulties occur at a rate of 40-70%.[8] The incidence of language disorders in early childhood is also significantly higher in this population. A longitudinal study of infants admitted to a neonatal intensive care unit following birth identified that 60% experienced problems with language development at a later stage.[9]

Speech Pathology services now extend into mental health settings, with services provided to people with acute and chronic disorders in both inpatient and outpatient settings. Speech Pathologists provide highly specialised diagnostic and intervention services in the areas of perinatal psychiatry, child and adolescent psychiatry, adult psychiatry and psycho geriatric medicine.

Community settings

As a means of reducing the length of stay in acute hospital settings and maximising an individual's functioning within the community, home-based rehabilitation programs are now common-place at a national level in both metropolitan and rural settings. One such program, the 'Rehabilitation in the Home' program run by Southern Health in Victoria, follows a "bed substitution" model of care, providing on average 24-25 days of intensive multidisciplinary allied health rehabilitation within a client's home setting. Commenced in 1996, the program has expanded from 12 to 34 staff, with a majority of clients presenting with a range of disorders associated with neurological and orthopaedic impairments. Speech pathologists working within this program have been required to develop skills that address the increasing medical complexity of patients at home and adapt "traditional" inpatient rehabilitation programs to promote rapid assimilation of clients back into the community.

Another community based program, HANDS (Hospital Allied Health and Nursing Discharge Service) began as a multidisciplinary early discharge service at Royal Perth Hospital, WA in 1993.[10] Referrals to the program have increased 400% since its inception and the scope of the program has broadened to include supported discharge, home-based needs assessment, and prevention of re-admission as well as ongoing support for early discharge. Medical populations serviced by the program have also expanded from the initial neurology and neurosurgery focus to include a range of medical and surgical specialties.

Broad societal changes have also impacted on the overall complexity of clinical cases across all Speech Pathology settings. An increase in the number of 'at-risk' families, social isolation and the fracturing of community supports, increased incidence of mental health problems and the prevalence of substance abuse have all contributed to the complexity of a clinical caseload. Likewise, the increasing number of people from culturally and linguistically diverse populations and broader demographic changes such as the ageing of the population and the increased incidence of life-style diseases associated with ageing have also impacted on complexity.

1.2.2 Advances in Research and Theoretical Models

In addition to advances within the profession of Speech Pathology, research and theoretical progress in the related fields of medicine, neurology and neuroanatomy, psychiatry and psychology have also informed Speech Pathology practice. These advances have impacted across a broad range of clinical specialty areas within Speech Pathology and have resulted in significant changes to evidence based practice. Some examples of this include:

Paediatric Early Intervention

Research into cerebral function, including research in neural pathway development has demonstrated that significant, life-long changes to neural development can be obtained through appropriate intervention within the first 3 years of a child's life. Related research in

the areas of very early language development and stuttering has also identified the optimum or critical periods for targeted intervention for these specific communication disabilities. This has had a significant impact on the nature of the work provided by Speech Pathologists as well as the conditions of work. Speech Pathologists now provide services to much younger children in the home environment and within the community that have an increasingly focus on prevention.

Working in partnership with families and empowering parents to be the primary force in the early development of their child has been a major strategic focus at a national level. This has been in response to a growing body of research that has identified the importance of early parent-child interactions and the need to empower families and support and strengthen early parent-child bonds. Parents have also been identified as the major agents of change in the development of communication skills in young children; speech pathologists have been intricately involved in promoting and educating both parents and other key stake holders in this area.

Early childhood development studies, in particular *attachment*[11] theories as well as related studies within the field of maternal mental health have cast new light on the understanding of early feeding, communication and social-emotional development. This has had a significant impact on Speech Pathology practice in early childhood intervention, especially with regard to the need to develop skills that promote successful working relationships with mothers and their children.

Language – Literacy Development

Research into educational 'failure' has identified poor speech-language skills as a major contributing factor to poor literacy attainment. This has resulted in an increased focus by Speech Pathologists on the development of foundation or pre-literacy skills in children prior to school entry and has driven the need for a greater cross-sectorial collaboration. The importance of early literacy intervention has been acknowledged by the Australian Commonwealth Government through their 'National Enquiry into the Teaching of Literacy' (2004). Speech Pathology Australia has contributed to this inquiry through a review of the research base supporting the teaching of reading and by guiding and informing teacher education and practice.

Further to this, the increased focus on the prevention of educational failure has driven developments in the field of psycholinguistic theory and has had significant impact on treatment approaches utilised in speech and phonological awareness (early literacy) interventions.

Aural Rehabilitation

The introduction of cochlear implant technology in 1988 revolutionised the treatment and management of hearing impairment in children and resulted in rapid advances in aural rehabilitation and related speech and language interventions. Speech Pathologists are

intricately involved at all stages of the implant process and play a pivotal role in the selection, fitting and ongoing management of this population.

Dysphagia (Difficulty Swallowing)

Dysphagia management has been the biggest growth area for speech pathology practice over the past ten years. There has been an increased recognition of the prevalence of dysphagia within the community and this has driven significant developments in dysphagia research, assessment, management and awareness of the importance of evidence based practice. For eg, previous dysphagia intervention strategies focused primarily on 'compensation' whereas major developments in recent years have focused on rehabilitation and/or restoration of function.

Neuro-Rehabilitation

Use of emerging technology such as functional MRI has assisted in theoretical developments such as more detailed mapping of cortical areas of control within the brain and outcomes of injury and therapeutic interventions.

Neural recovery studies have demonstrated the need for early response time and the benefits of early intervention post neurological injury.

Developments in the field of psycholinguistic theory have had significant impact on the treatment approaches utilised in aphasia[12] management. Greater understanding of the internal organisation of processes underpinning communication has resulted in Speech Pathologists incorporating increasingly specific, targeted assessment and treatment approaches into intervention.

1.2.3 Advancements in Assessment and Treatment Methodologies

Advances in research and theoretical models have driven the rapid increase in the number of complex assessment and treatment methodologies employed by Speech Pathologists. Changes to the Speech Pathology curriculum have taken these developments into account. Many of the new technologies and methodologies require additional post-graduate education and competency training for accreditation.

Paediatric Early Intervention and Childhood Communication Disorders

Speech Pathologists are required to undertake additional postgraduate training prior to implementing a number of assessment and treatment programs within the field of early childhood intervention. *The Ward Infant Language Screening Test Assessment Acceleration and Remediation program (WILSTAAR)* – now known as the 'Baby–Talk Program' is one such program. Introduced to Western Australia in 2001 as a Department Of Health initiative, this program aims to increase the focus on prevention and early intervention within Community Health. [13] Baby – Talk is a home-based, evidence-based program developed in the United Kingdom and has now been successfully replicated Australia -wide.

The 'Baby–Talk Program' requires Speech Pathologists to provide services to much younger children than previously. The program focuses on developing parent skills and facilitating parent-child interactions, and as such has required Speech Pathologists to develop a range of new skill sets in these areas.

Early Language Development. Research has demonstrated that the first 3-years of life is the most critical stage of development and that within this period, parents are the most effective agents of change with respect to the development of communication skills in their children.

Parent education and support are key areas of focus within early intervention practice, especially the area of childhood communication disability. One of the most recognised parent education programs is the Hanen program[14] that requires formal training and ongoing education to become a certified practitioner.

Stuttering. The Lidcombe Program has radically changed speech pathology management of children who stutter. In addition to key assessment and treatment methodology, the program has identified critical periods for intervention as well as indicators for 'high risk' children. The program was developed by an Australian research team and is recognised internationally as current best-practice in the management of early childhood stuttering.

Dysphagia

Videofluoroscopy evaluation of swallow function first became available in Australia in 1985. The nature and scope of this evaluation has changed significantly since its inception and it is now widely used across all health settings within Australia. Videofluoroscopy is the accepted "gold standard" in dysphagia assessment and management. Newer alternative dysphagia assessment tools include Fibreoptic Endoscopic Evaluation of Swallow (FEES), Flexible Endoscopic Evaluation of Swallow with Sensory Testing (FEESST), cervical auscultation and pulse oximetry. These newer tools require additional postgraduate competency training and postgraduate clinical experience.

The focus on rehabilitation or restoration of swallowing function has in part been due to application of technologies in new ways, for example the use of *surface EMG* (sEMG) to provide therapeutic biofeedback.

Neuro-rehabilitation

The Lee Silverman Voice Treatment (LSVT) is an intensive voice and speech treatment technique for individuals with Parkinson's Disease. Clinical efficacy has been demonstrated for voice therapy using LSVT, and Speech Pathologists must be trained and certified to practice in it's to use.[15]

1.2.4 Changes in Health Policy and Community Expectations

The past 15 years has seen considerable change in government policy and community expectations in relation to health service and provision.[16] These changes have impacted

significantly on the type of clinical practice provided by all Speech Pathologists regardless of their work setting. Some of these changes include:

- Community expectation of services being available closer to home. There has been a gradual move towards providing specialised services outside of the tertiary setting.
- Within community health settings there has been a significant focus on Speech Pathologists working within the principles of primary health care and adopting a more community development philosophy in the delivery of services.

While these changes have had an impact across all settings, they have impacted most significantly on professionals in rural and remote areas. Therapists working within rural health services provide services to diverse populations and often manage complex cases with limited specialist centre support (see: Section 3 Areas of Specialisation: *Rural and Remote*).

Even within the metropolitan area, there has been a growing trend to provide specialist services in secondary hospitals and community health settings. One example is service provision to infants and young children with feeding difficulties. Previously, services to this population were provided exclusively within tertiary hospital settings, however there are now specialist paediatric feeding services available across metropolitan health regions.

Another example of the expansion in services is the use of radiographic assessment procedures. In 1989, the use of videofluoroscopic evaluation[17] in the management of people with dysphagia was limited to tertiary hospitals. These assessments are now routinely performed in secondary and country hospitals.

Other populations previously managed exclusively within tertiary settings include those presenting with:

- Cleft palate
- Traumatic Brain Injury
- Cochlear Implant
- Autism spectrum disorders and other developmental disorders
- Dysphagia, including tracheostomy and ventilator dependency
- Total laryngectomy and head and neck surgery

Change to the policies and practices of other government agencies have also had a significant impact on the nature of the work performed by Department of Health (DOH) Speech Pathologists. Changes in access criteria within the Disability Services Commission (DSC) have meant that children previously seen by DSC are no longer eligible and now continue to access DOH services. This has resulted in increased complexity of presenting developmental delays (including Autism Spectrum Disorder) within the DOH.

Government policy and community expectations have also increased the level of accountability and transparency expected from Speech Pathology services. While the principles of evidence based practice have always underpinned service provision, the demand for constant evaluation has driven the need to develop additional skills in service evaluation and clinical research. The need to justify the use of the health dollar has meant that all settings in which speech pathologists work have implemented processes to measure service outcomes and evaluate practice on an ongoing basis.

1.2.5 Changes in Non-Profession Specific Skills

There has been a significant increase in the base level skills required of an entry-level health professional across all work settings. Some of these skills include:

Group management and facilitation skills. Changes to service delivery models, including a greater focus on group-based intervention (one eg being MACS at Maroondah Hospital in Victoria), parent and family education and community development has necessitated the development of group management and facilitation skills.

Working with culturally and linguistically diverse populations (CALD). Coinciding with the growth in the cultural diversity of the general population has been a requirement to provide services that are culturally sensitive. This has required adaptation of professional practice to meet the needs of a diverse population including people from non-English speaking backgrounds (through use of interpreters) and survivors of trauma.

Counselling and advocacy skills. Increased complexity across clinical settings and an increased focus on holistic case management has resulted in the development of a broader range of counselling and advocacy skills. Postgraduate qualifications are now required when using particular models of care with families within early intervention fields (eg; *Family Partnerships training based on the Hilton Davis model*)

Managing challenging behaviours. There has been an increase in the number and range of clients presenting with challenging behaviours such as aggression and violence. Reported episodes of aggression within the workplace have increased dramatically since 1989, resulting in the need for health professionals to develop appropriate management skills and provide a safe environment for staff, patients and members of the community.[18]

Teamwork skills. Most health services are delivered within a multi-disciplinary team context.[19]. The focus on team management has necessitated health professionals develop effective teamwork skills both within organisations as well as external to organisations, including other government and community agencies. Whilst multidisciplinary initiatives were in place prior to 1989, there is now a focus on trans-disciplinary functioning. This shift in focus has been driven by the need to provide more holistic patient / family centred practice and has required health professionals develop a greater understanding of professional roles, boundaries and areas of collaboration.

Cross-sectorial collaboration. There is a greater expectation of and need for cross-sectorial collaboration between the DOH and other government and non-government agencies (eg: Department of Education, Department of Community Development etc). In addition to the increased skill knowledge required for working within teams, is the need to work within different paradigms and different service delivery models. Knowledge is also required of relevant services and referral systems, for example the ScOTT Tool (Service Coordination Tool Template).

Management and administrative skills. The devolution of management responsibilities from the strict managerial vs. clinician paradigm has increased the demands on clinical staff to develop competencies in general management skills, including strategic and business planning, budget management, resource utilisation, quality improvement and performance management.

Skills in using new information technologies. The advent of new technologies such as Telehealth has meant that professionals need to be familiar with their use and application. This is especially relevant for healthcare workers in regional areas of Australia as well as specialist service providers within the metropolitan area who may handover patient care and liaise with clinicians in rural and remote areas.

1.2.6 Increased Demand for Speech Pathology Services

The constantly expanding evidence base supporting the effectiveness of Speech Pathology interventions has seen the demand for services increase significantly since 1989. This increase can be seen in the populations who receive services, the settings in which services are provided and the range of services provided. Examples of the increased demand for Speech Pathology services include:

Dysphagia Management. As noted previously, there has been a significant growth in the demand for the specialised skills of the Speech Pathologist in the management of people with swallowing difficulties (dysphagia). It is estimated that up to 55% of people with acute stroke have dysphagia.[20] As a consequence of a better understanding of neuro-rehabilitation mechanisms, there has been a shift in the focus of Speech Pathology intervention in dysphagia from purely compensation towards direct rehabilitation and restoration of function. There is a growing body of evidence supporting objective assessment procedures and therapeutic interventions and this has resulted in a significant increase in demands for Speech Pathology intervention. [21] [22]

Tracheostomy/Artificial Ventilation. Speech Pathologists now provide services to persons of all ages requiring tracheostomy and/or artificial ventilation. Services have been expanded to a broad range of settings, including acute care, rehabilitation, extended care and within the community. The specialist skills and knowledge of the speech pathologist regarding the interrelationship between respiration, swallowing and phonation (voice) are acknowledged as critical to the holistic and successful management of this population.

Mental Health. Better understanding of the relationship between mental health disorders and communication difficulties has resulted in increased demand for Speech Pathology services in this specialist area. Strong links have been established between mental health disorders and impaired communication skills, with 45%-90% of children with mental health problems having concurrent communication difficulties.[23] The prevalence of mental health disorders amongst the young is increasing, with one study identifying significant mental health disorders.[24] in 18% of a cohort of children aged 4 to16 years.[25]

Education. Increasing awareness of the long-term impact of early childhood speech and language disorders on educational outcomes and child self-esteem has resulted in increased expectation of cross-agency support between DOH and the Department of Education. The specialised skills and knowledge of Speech Pathologists is increasingly required to support students at-risk as well as assist in identifying appropriate educational placement.

Autism Spectrum Disorder. Increased numbers and earlier diagnosis of children with Autism Spectrum Disorder (ASD) has resulted in burgeoning demands across community paediatric settings. Children presenting with ASD present significant diagnostic, logistic and therapeutic challenges for clinical practice.

The literature identifies that there has been a significant increase in the reported prevalence of ASD:

- 1986 to 1991 4.4 cases per 10 000
- 1992 to 2001 12.7 cases per 10 000

At the Western Australian State Child Development Centre, referrals for diagnosis of possible ASD have increased dramatically with 6 referrals in 1990 and 90 to100 referrals in 2003.

2. TRAINING, QUALIFICATIONS, STANDARDS AND REGISTRATION

2.1 QUALIFICATIONS

In 1989, qualification to practice as a speech pathologist within Australia was obtained though successful completion of an accredited four year university based undergraduate Bachelor of Applied Science - Speech Pathology program or equivalent. Since 2000, a number of Australian universities, including La Trobe University in Victoria, Flinders University in South Australia and Curtin University in WA have offered a two year graduate entry Master of Speech Pathology program. Both undergraduate and graduate entry programs are in high demand, with the latter program attracting a range of professionals from other disciplines wishing to pursue speech pathology as a profession.

2.2 TRAINING AND PROFESSIONAL COMPETENCY STANDARDS

Since 1989, expectations of the undergraduate and post graduate student programs have expanded to include:

- Increased scientific rigour and an understanding of evidence based practice and theoretical models.
- Increased research requirements.
- Increased understanding of medical interventions and technology

The National Association, Speech Pathology Australia, introduced the Competency Based Occupational Standards (CBOS) for Entry Level Speech Pathologists in 1994. The introduction of the CBOS was:

- in response to the need for mutual recognition of professional qualifications across states and from overseas[26] and,
- a mechanism for universities across Australia to determine undergraduate ability to meet outcome standards prior to entry into the profession.

As well as reflecting the increased requirements of the Speech Pathology qualification since 1989, the major outcomes of introducing the CBOS include:

- The addition of dysphagia as an essential competency for entry-level standards. Previously there was wide variation in the training for dysphagia undertaken by the various universities. Training was often undertaken once the practitioner was in the workforce.[27] Since 1994 competency in dysphagia management has become a standard practice expected from all graduating Speech Pathologists.
- A need for outcomes to be demonstrated prior to graduation using standard clinical education assessments, rather than solely a measure of the learning process. The CBOS establishes indicators of an undergraduate student's capacity to practise and to apply

learning to achieve outcomes for a range of clinical areas and with the expected mix of client groups.

A review of the Entry-Level requirements of the profession undertaken in 2001 identified a significant development in the profession over the preceding 7-year period. As a consequence, the CBOS was revised (CBOS 2001). Key changes included:

- Expanding qualification requirements for Entry-Level Speech Pathologists, to include broader population and client group based approaches. Exposure to a greater range of practice contexts and settings.
- Expansion of the business activity requirements of the Entry Level Speech Pathologist, to address the need for increased understanding of and capacity to deal with limited resources and reduced levels of clinical supervision.
- Increased focus on counselling and client support skills
- Increased technological proficiency.
- An enhanced focus on clinical reasoning and understanding of evidence based practice.
- Increased competencies for networking and trans-disciplinary team based practice.
- Increased skills in the management of resources and prioritisation of service provision.
- Exposure to mechanisms to increase public awareness of speech pathology as a profession
- Increased awareness of and adherence to SPA Code of Ethics, ethical compliance and accountability.
- Increased awareness of the need for skills to support practice within cultural and linguistically diverse populations

The Professional Self-Regulation (PSR) program is an initiative of Speech Pathology Australia and is offered to eligible members of .the Association. Introduced in 2000, this program provides an objective means of structuring, measuring and acknowledging a Speech Pathologist's commitment to continuing professional development. A Speech Pathologist meeting the Professional Self Regulation requirements is acknowledged as a Certified Practising Speech Pathologist.

Certified Practising Speech Pathologists demonstrate to clients, their families, employers, colleagues and the public that they are committed to updating and expanding their professional abilities. The PSR program is a point-based program with regular audits of members to ensure compliance with program requirements.

The Speech Pathology Australia Re-Entry program is available to speech pathologists who have previously been eligible for membership of the Association but who have not worked 1000 hours during the previous 5-year period or who has not been a practising

Speech Pathologist for a period of 5-15 years. People who have not practised for a period of more than 15 years are not eligible for the re-entry program

The Re-entry program aims to "update an applicant's knowledge base, re-establish professional networks and act as a mechanism of support to the applicant when returning to the profession."[28]

Components of the re-entry program are based on supervised clinical practice and a structured continuing education program. The length of clinical practice and the required education program are dependent upon the length of time the applicant has not been practicing as a speech pathologist.

2.3 POST GRADUATE COURSES

Post graduate education/training opportunities for Speech Pathologists have been constantly expanding over the past 15 years. Prior to 1989 limited postgraduate opportunities specific to the field of Speech Pathology (other than Audiology). were available. Universities throughout Australia now offer a full range of post graduate courses, including diploma, masters and doctoral programs.

The number of clinical practice techniques that now require postgraduate certification prior to implementation by a Speech Pathologist is extensive. Examples include;

- Hanen program
- WILSTAAR / Baby - Talk
- Key Word Signing
- PROMPT
- Aided Language Stimulation
- Lee Silverman Voice Treatment (LSVT)
- FEES (Fibreoptic Endoscopic Evaluation of Swallowing)
- Voicecraft
- Lidcombe Program (Lidcombe Consortium)

There has also been an increase in non-mandatory training programs implemented within and across clinical settings to ensure maintenance of standards (in keeping with Speech Pathology Australia practice standards). The focus of these programs is around establishing and maintaining clinical competency. Examples include:

- Tracheostomy
- Videofluoroscopy
- Tracheo-oesphageal voice prostheses

- Literacy

2.4 REGISTRATION

Queensland is the only state in Australia requiring registration of the profession. In all other states Speech Pathologists must be eligible for membership with their professional association, Speech Pathology Australia. Speech Pathology Australia has a strict criterion for membership eligibility to practice, including a minimum of a 1000 clinical hours over any given five year period. All Speech Pathologists are bound by the Association's 'Code of Ethics'.

In 2005, an agreement of mutual recognition of speech pathology credentials came into force between the four national Speech Pathology professional associations of Australia, Canada, the United Kingdom, and the USA. The Agreement is not one of reciprocity or reciprocal recognition of qualifications but rather recognition that, under some conditions, the four associations have substantially equivalent credentials.

3. AREAS OF SPECIALISATION – EVIDENCE OF INCREASED WORK VALUE

Substantial and wide-ranging changes in the nature and scope of Speech Pathology practice since 1989 have resulted in significant work value changes across the profession. These changes are particularly evident in new areas of specialisation. The following examples of specialty areas are testament to the explosion of knowledge and new skills that have accompanied increased complexities in client presentations and changes in the environments in which Speech Pathologists practise.

3.1 DYSPHAGIA

Introduction and Scope of Practice

The Speech Pathologist is the specialist in the diagnosis, rehabilitation and case management of people with dysphagia. Speech Pathologists work with paediatric and adult populations across the spectrum of acute, sub-acute, rehabilitation and community settings within metropolitan and regional contexts.

Dysphagia is a medical condition that may result in increased mortality and morbidity due to aspiration, chest infections, dehydration and poor nutrition as well as compromising an individual's long-term nutritional, hydration and social needs.[29] Timely and appropriate management of dysphagia results in a reduction in the medical complications identified above, reduces dependence on alternative feeding options (eg: feeding tubes, IV hydration, subcutaneous fluids) and enables a more active participation in the rehabilitation process due to improved nutritional status.

The incidence of dysphagia within the community is wide-spread and well documented. Up to 55% of people with acute stroke suffer dysphagia and 79.4% of patients with weakness of the muscles of swallowing have severe dysphagia, with 20.6% requiring alternative feeding due to persisting difficulties. [30] [31] [32] The incidence of dysphagia in persons with acquired brain-injury within inpatient rehabilitation settings is between 25-42%.[33]

With advanced health care technology, an increasing number of children with congenital and chronic disabilities are surviving and this has increased the total number of children presenting with dysphagia. [34] The increased survival of very premature babies has also driven this increase in total number of presenting cases.

Feeding difficulties place infants and children at risk of weight loss, malnutrition, lethargy, impaired intellectual, emotional and academic development, growth retardation and potentially death. Intervention in this population is important to reduce potential nutritional and developmental implications.[35]

Changes in Work Value Since 1989

Prior to 1989, dysphagia was not a core component of undergraduate study and Entry Level clinicians did not have to demonstrate competency prior to graduation. The focus of intervention for dysphagia was on the detection of a disorder and the introduction of compensatory techniques.

The role of the Speech Pathologist included:

- Clinical bed-side assessment
- Instrumental evaluation of function
    - Videofluoroscopy was limited to tertiary settings
- Intervention strategies
    - Simple diet and fluid modifications
    - Education of patient, family and staff

Current Practice

Today, dysphagia is the largest recognised subspecialty in the field of Speech Pathology. Dysphagia management has developed into a science, considering anatomical, physiological and neurological contributions to dysphagia. [36]

Speech Pathologists now require knowledge of and an ability to use a range of clinical assessment and instrumental evaluation tools for the management of dysphagia, in addition to a more comprehensive understanding of anatomy and physiology. While some of these increased expectations have been addressed in the undergraduate training programs, most new diagnostic and instrumental assessment tools require formal postgraduate training to attain competency.

As Speech Pathologists are now the primary clinicians managing dysphagia, increased responsibility in determining appropriate treatment directions and timing of intervention has followed. This has necessitated speech pathologists acquire an in-depth understanding of patient care issues, including those related to intervention with critically unwell patients, within complex medical settings (eg: high dependency units etc) and of issues related to performing more complex diagnostic procedures in these contexts.

The focus of intervention is now on the detection and analysis of a disorder and the restoration of function. The role of the Speech Pathologist includes:

- Clinical Bedside Assessment
    - Aided by the use of pulse oximetry, cervical auscultation
- Instrumental Evaluation of Swallowing

- Videofluoroscopy – is now widely used across a range of settings to evaluate swallow function, to plan rehabilitation and to evaluate efficacy of intervention.[37]
- Fiberoptic Evaluation of Swallowing (FEES) and Flexible Endoscopic Evaluation of Swallowing (FEESST) [38]

- Intervention Strategies/Therapeutic Focus
  - Training in the use of swallowing strategies and techniques
  - Exercise techniques that target specific physiology of the muscles involved in swallowing and this includes rehabilitation of function using sEMG [39] [40]
  - Introduction of diet and fluid modifications
  - Education of patient, family and staff

Clinical Bedside Assessment Tools

Pulse Oximetry (PO) is now used to complement the bedside swallowing assessment. Speech Pathologists using PO have an understanding of:

- Respiratory function and oxygen saturation
- Mechanisms of oxygen desaturation
- The correlation between oxygen desaturation and aspiration

Cervical Auscultation (CA) is an adjunct to the bedside swallowing assessment and requires comprehensive training and experience. It is a recent innovation used to increase the statistical and clinical significance, and cost effectiveness of the overall dysphagia assessment process.[41] [42] [43].

CA objectively provides improved screening information when used in combination with other dysphagia assessment tools. For example, there is significantly improved detection (more than 60%) of silent aspiration.[44]

Instrumental Evaluation

Dysphagia and Videofluoroscopy/Modified Barium Swallow

As reported earlier, prior to 1989 videofluoroscopy (also known as a Modified Barium Swallow-MBS) was used in the assessment of swallow function; however it was only available on a limited basis within tertiary hospital settings.

Videofluoroscopy is now the current 'gold standard' in determining the mechanisms responsible for swallow dysfunction and in examining the effects of therapeutic and compensatory strategies on swallow function and safety.[45] [46] [47] [48] Via a radiological image, videofluoroscopy provides immediate feedback on the impact of therapeutic techniques, compensatory strategies and modified food and fluid consistencies upon swallow function and safety.[49]

Videofluoroscopy is used in a wide range of clinical settings and speech pathologists are highly trained and sophisticated in its use and interpretation. Speech Pathology Australia has recently updated its Position Paper on dysphagia management, in which videofluoroscopy is discussed at length (Dysphagia/MBS Position Paper, 2005). Australia-wide quality assurance programs have been established to ensure consistency in interpretation of swallow function via videofluoroscopy and protocols have been established to ensure inter-rater and intra-rater reliability. [50]

Dysphagia and Endoscopy

FEES and FEESST have recently been incorporated into clinical practice throughout Australia and have a number of advantages to traditional instrumental swallowing assessment tools such as videofluoroscopy. Advantages include their ability to be conducted at a patient's bedside, to incorporate normal food into the assessment, and avoid radiation exposure.[51] [52] They are particularly valuable for use in intensive care units with patients who are ventilator dependent, have spinal cord trauma or traumatic brain injury, and when videofluoroscopy examination of swallowing cannot be tolerated.[53] [54]

As part of the formal training and certification in the use of endoscopy to assess swallowing function, speech pathologists require:

- Competency in the handling, insertion, manipulation and cleaning of the endoscope
- Knowledge of endoscopy positions for accurate identification of the physiology of a patient's swallows.[55]
- Knowledge of normal and abnormal swallowing as viewed endoscopically
- Competency in management of adverse events associated with use of endoscopy
- An understanding of laryngeal biomechanics, in particular laryngopharyngeal structure and function, vocal fold mobility, glottic closure mechanisms and pharyngeal contraction.[56]
- Understanding of the potential impact of topical anaesthetic on swallowing function.[57] [58]
- The ability to identify the aryepiglottic folds in order to stimulate the superior laryngeal nerve.[59] [60]

Intervention Strategies/Therapeutic Focus

Dysphagia and Surface EMG (s EMG)

Prior to 1989, feedback regarding competency of swallowing function was provided by verbal direction from the speech pathologist, based on subjective opinion. Therapeutic biofeedback in dysphagia management is now available through sEMG. sEMG provides objective, immediate and meaningful biofeedback regarding the swallowing process, enabling patients

to relearn or facilitate recovery of swallow function. The evidence base for the use of sEMG for swallowing disorders is rapidly evolving [61] [62] [63]

Subspecialties within Dysphagia Practice

Dysphagia and Mental Health

The role of the Speech Pathologist within the field of mental health is a rapidly expanding area of expertise. Recent studies have illustrated the benefits associated with the introduction of a systematic, speech pathology driven dysphagia management program within the psychiatric settings.[64].[65]

The role of the Speech Pathologist in this setting has required the development of a range of additional specialist skills including knowledge of:

- Symptom profiles of major and minor psychiatric conditions and their interaction with swallowing function.
- Principles of psychiatric rehabilitation.
- Pharmacology and psychiatry.
- Occupational health and safety issues related to working within a psychiatric setting.

Dysphagia and Neurology

Recent studies evaluating swallowing function using functional MRI and transcranial magnetic stimulation have provided valuable insight into swallowing recovery. Speech pathologists now apply the principles of neural plasticity to develop dysphagia rehabilitation programs that assist recovery of the swallowing mechanism

To provide appropriate evidence-based intervention for dysphagia of neurological origin, a speech pathologist is expected to have a thorough understanding on neuro-anatomy and physiology including:

- Neural controls of swallowing
- The neurology of normal swallowing.
- Theories of neural plasticity and recovery.
- Neurological representations and pathways related to swallowing**.**
- Site of lesion and impact on swallowing function.
- Techniques to facilitate neural recovery and hence promote recovery of swallowing.

Dysphagia and Tracheostomy

Prior to 1989, the role of the Speech Pathologist in tracheostomy management was limited to non-ventilated patients. Speech Pathologists are now integral to the management of patients in complex medical environments including intensive care and high dependency units (eg:

respiratory, neurosurgical and neurological units, etc) including ventilator-dependent patients. This has resulted in significant expansion to the skill and knowledge base of Speech Pathologists who must be cognisant of issues surrounding artificial ventilation, respiratory function and medical management of the critically unwell patient. In-depth knowledge and understanding is required of:

- The mechanisms of respiration, including the evolution of respiratory failure in a variety of patient populations.
- Objective respiratory monitoring including spirometry, pulse oximetry and capnography monitoring.
- Methods and modes of artificial ventilation
- Effects of artificial ventilation on voicing, swallowing and upper airway function.
- Management options for communication, swallowing, and upper airway patency such as the adjustment of ventilator settings to facilitate communication and the use of speaking valves. [66 67 68 69 70 71 72 73 74 75 76 77 78 79 80]

Paediatric Dysphagia

Swallowing disorders in infants and children may be neurological (congenital or acquired), structural (eg: cleft palate), psychological or behavioural (aversions or food refusals).[81]

Paediatric dysphagia management has gradually shifted from tertiary teaching hospitals to secondary facilities and community health settings. Coinciding with this shift in service delivery has been the development of specialised trans-disciplinary feeding teams.

Speech Pathology intervention for paediatric dysphagia has expanded dramatically beyond management of oral sensitivity and musculature abnormalities to incorporate:

- The use of videofluoroscopy and FEES to assess and treat impairment to the oral and pharyngeal stages of swallowing
- Management of breastfeeding difficulties, including increased awareness of the relationship between feeding and the parent-child emotional attachment
- Management of psycho-social and emotional behaviours and routines involved in mealtimes
- Management of the learning environment, including parenting dynamics, communication, physical and sensory environments.[82]

Impact and Effectiveness of Speech Pathology Dysphagia Intervention

The impact and effectiveness of Speech Pathology intervention in the area of dysphagia management can be examined across the following areas:

- Rehabilitation Outcomes

- Quality of Life
- Outcome Measures
- Education
- Impact on catering services

Dysphagia and Rehabilitation Outcomes

Intervention strategies in dysphagia management improve swallow safety and efficiency.[83] [84] [85] [86] Rehabilitation of swallowing disorders limits medical costs by reducing length of hospital stay, decreasing the need for alternative feeding options, reducing nutritional problems, and decreasing expenses associated with pneumonia and other pulmonary complications.

Data collected from American Speech and Hearing Association's (ASHA) National Outcomes Measurement System (NOMS), identified that the majority of adults treated for dysphagia in home-based settings made significant gains. Approximately 60% of adults who initially required an alternative method of feeding were able to return to oral intake following swallow rehabilitation. [87] These findings have been supported by further studies demonstrating physiological improvement in swallowing in 90% of participants with chronic dysphagia, following 10 sessions or one week of speech pathology treatment. Functional change was demonstrated by an ability to cease non-oral tube feeding and recommence full oral feeding. These functional outcomes were long lasting, without related health complications.[88] [89]

With regard to paediatric dysphagia, a meta-analysis of randomised controlled trials in 19 studies reveals that the development of non-nutritive sucking, a skill frequently taught by the speech pathologist within a team setting, significantly decreases the length of hospital stay in preterm infants.[90]

Dysphagia and Quality Of Life (QOL)

Significant distress may result for patients (and families of patients) who are required to be tube fed or advised to eat a modified oral diet. Depression and lethargy, as well as reduced appetite and poor oral intake adversely are potential outcomes. Speech Pathology management now acknowledges this potential by extending its practice beyond assessment of the physiological breakdown function alone to functional changes that facilitate resumption of oral intake. A relatively short period of intervention by a Speech Pathologist has been demonstrated to result in significant improvements in QOL for patients with dysphagia. [91] [92] [93] [94]

Dysphagia and Outcome Measures

Nationally, a number of outcome measures are used by speech pathologists to benchmark services and evaluate treatment efficacy in specific clinical areas and with specific clinical populations with dysphagia.

The most frequently used outcomes tools in Australia are the:

- Royal Brisbane Hospital Outcome Measure for Swallowing (RBHOMS).[95]

- Therapy Outcome Measures Dysphagia Scale (TOMS).[96].
- Quality of life and care measures[97]
    - The SWAL-QOL, a 44-item tool that assesses ten quality-of-life concepts, and
    - The SWAL-CARE, a 15-item tool that assesses quality of care and patient satisfaction.
    - AusTOMS (Australian Therapy Outcome Measures)

Dysphagia and Education

The Joanna Briggs' Institute[98] an organisation that provides a collaborative approach to the evaluation of evidence in clinical practice has found that education programs by Speech Pathologists positively affect nursing knowledge and patient outcomes regarding dysphagia.

The National Association, Speech Pathology Australia has overseen the development of a number of position papers relevant to the area of dysphagia management. These papers outline competency standards, policies and protocols.[99] and include Dysphagia (2004) Tracheostomy,[100] [101] and the Code of Ethics.[102] Healthcare consumers have an expectation that they will receive services from trained practitioners. The development of and adherence to professional standards of practice as outlined in these documents acknowledges the importance of the provision of quality services by appropriately skilled Speech Pathologists.

Dysphagia and Catering Services

Speech Pathologists play a pivotal role in the planning and evaluation of diets that meet the texture specification and cultural needs of people with dysphagia. Liaison between Speech Pathologists and food catering services has progressed significantly over recent years. In 1989 this liaison was largely confined to teaching hospitals, with little team focus.

The development of specialist 'dysphagia teams' has become routine, expanding within and beyond the tertiary sector, to community and country hospitals and mental health services. The Speech Pathologist's role in the dysphagia team includes that of educator, advisor on procedure development, consultant and participant in quality improvement activities. Speech Pathologists now produce educational material and provide education to staff at all levels of food preparation and are key members on catering advisory committees.

3.2 NEURO-REHABILITATION: ADULT ACQUIRED COMMUNICATION DISORDERS

Introduction and Scope of Practice

The 2.7 million Australians who have communication disabilities come from every part of our society. A communication disorder affects the individual and those in their communication environment. It may be temporary or permanent. Even a mild communication disability can have a profound impact on a person's ability to meet social, family, occupational and

education responsibilities [103] through for example, loss of work/income, loss of a communication partner and social contacts. Just over half of the partners living with a stroke survivor present with psychosocial health problems. [104]

The major causes of acquired communication disorders are traumatic brain injury (TBI) and acquired brain injury (ABI). TBI refers to an insult to the brain caused by an external force, for example, a head injury sustained during a car accident. ABI refers to any non-traumatic injury to the brain, for example cerebral haemorrhage, tumour, stroke, infection and hypoxic injury such as drowning and drug overdose

Twenty-five thousand people sustain a severe brain injury in Australia every year. The majority of people who sustain even a mild brain injury will experience some degree of ongoing cognitive-related communication difficulty. Forty-eight thousand Australians per year suffer a stroke[105] and approximately 33% have impaired language (aphasia) as part of the sequelae.

Improvements in acute medical management of brain injury have resulted in decreased mortality and increased survival of individuals with more severe impairments. The relative youth of many survivors means that individuals may now present with life long deficits that require appropriate ongoing, long term management.

The demand for Speech Pathology services has increased markedly in the past 15 years in response to recognition of the extent and longevity of the social and communication deficits associated with ABI and TBI.

The individual, family and community feel the impact of communication problems. Speech Pathologists have the necessary scientific and clinical skills and knowledge to manage the very broad range of acquired communication disorders. There is an increasing expectation that Speech Pathologists will be involved at all levels.

Changes in Work Value since 1989

Theoretical Models

The specialty of communication and language is a complex field. Many theories of normal language development exist and as new technologies emerge this field will continue to grow. Theories vary from purely linguistic theoretical frameworks to neuropsychological approaches in which language and cognitive functions are mapped onto the human brain. Technology such as functional MRI has allowed a greater level of detail in mapping the human brain, leading to further theoretical developments. Speech Pathologists have in-depth knowledge of these theoretical models to inform accurate diagnosis and treatment of clients.

Assessment

Speech Pathology management of language and cognitive-based communication deficits is now routinely guided by application of theoretical models of intervention such as cognitive neuropsychological models, linguistic models and mapping theories. [106]Specialist Speech Pathology knowledge of models of recovery of communication and rehabilitation include early neurophysiologic intervention[107] [108] and neuroanatomical reorganisation.[109]

The range of assessment tools is greater today than previously. Previously, assessments such as the Boston Diagnostic Aphasia Examination[110] and the Western Aphasia Battery[111] dominated. The focus of these assessments was on classifying a specific type of aphasia, through the completion of non-functional language-based tasks.

Current assessment tools now provide information on specific and integrated/ dynamic models of the language system. Psychosocial factors such as actual and perceived changes by the individual and family are also included. New measures are continually being reported in research literature. The Informal Functional Communication Interview (IFCI)[112] is one such test designed to apply to patients in the acute stage of their illness so that their communication abilities are seen within the framework of a functional setting.

Tests such as the Boston Diagnostic Aphasia Examination incorporated a score and aphasia classification that indicated standard types of treatment. Today's assessments require the speech pathologist to accurately ***interpret*** the test results, while considering theoretical rationales that allow management to be tailored to an individual. This requires considerable knowledge and expertise.

Treatment

Language and communication therapy is an increasingly dynamic field, centred on an individual's skills and changing needs. An acquired communication disorder results in a lifetime change and as such effective therapy must include the individual, family and communicative environment.

Treatment models for communication impairment following TBI and stroke have developed from purely impairment-based medical models to functional communication and social models. There is acknowledgment of the need for "functional" assessment and management providing "ecological validity".[113] [114] [115] The social model approach to treatment emphasises reducing barriers to communication. Barriers to effective communication may include individual skills but also social, physical and environmental factors, all of which can be altered to allow the individual with impaired communication to interact effectively. This is in keeping with the World Health Organisation International Classification of Functioning, Disability and Health (2002)

Treatment change of practice also addresses the role of cognition in communication and considers pragmatic and social communication theories.[116]

For those individuals with communication disorders, life may be isolated, with reduced social opportunities. A 1997 study[117] found that 66% of TBI individuals suffered long-term deficits requiring assistance with activities of daily living and 75% were not working. A huge 90% reported dissatisfaction or limitations in their ability to integrate socially. The deterioration of social relationships is not an unusual consequence of ABI or TBI. Individuals will be more likely to divorce, lose pre-morbid friendships and become more socially isolated.[118]

Current and ongoing research studies are investigating the efficacy of intensive language treatment and early intervention post stroke. Speech Pathology treatment early in the recovery process has been shown to improve outcomes. [119] There is also evidence to support the effectiveness of cognitive linguistic therapies beyond the period of spontaneous recovery for people with left hemisphere stroke[120] into the post acute and chronic stages.[121]

Speech Pathologists now use outcome measures such as the Australian Therapy Outcome Measures- AusTOMS (2004), to guide team decisions regarding ongoing service provision and to establish best practice management.

Prognostic indicators for intervention have been evaluated to guide decision-making in discharge planning to appropriate internal or external agencies and services.

Speech Pathology has driven the development and routine use of clinical pathways for best practice in management of diverse cultural groups, in particular, the Australian Indigenous population. Consideration of cultural issues occurs through liaison with the National Stroke Foundation, and through consultation with relevant agencies to ensure appropriate services are accessed in keeping with individual's specific cultural needs. Training is provided by Speech Pathologists to interpreters involved in assessment and treatment sessions.

Technological advances over the last 10 years have also impacted upon speech pathology management of the client with an acquired communication disorder. The increased sophistication and complexity of augmentative and assistive communication (AAC) devices has provided the Speech Pathologist with an expanded battery of options for clients, but also has required clinicians to undertake extensive training and consultation with experts in the field.

Impact and Effectiveness of Speech Pathology in Adult Acquired Communication Disorders

Evidence-based practice has directed the development of new assessment and therapy approaches in the management of acquired communication disorders. The changes in work practice listed in the previous section have impacted on Speech Pathology management of communication disorders in the following ways.

- Development of team relationships with researchers involved in functional imaging of language recovery, and PET scans.[122]
- Early intervention based on neuroanatomical and physiological models of neural recovery post brain injury. Speech Pathology treatment early in the recovery process provides maximum positive effect twice that of spontaneous recovery. [123]
- The development of Stroke Units staffed by dedicated specialists, including speech pathologists, providing specialist management and improved outcomes for survivors of stroke.

There has been a significant change in focus of treatment of TBI away from the medical and rehabilitation model that was an almost exclusively inpatient experience, to a "Whatever It Takes" model[124]. This latter model promotes environment-specific training that encompasses restoration of function, compensation and adaptation. Both metropolitan and rural community rehabilitation providers have emerged on a national level, including, Homelink and Brightwaters' residential programs in Western Australia, and Bethesda Hospital and Ivanhoe Manor in Victoria. These programs provide highly specialised community reintegration services and experienced Speech Pathologists form an integral part of these specialist teams.

Speech Pathology services provided in the community make use of a client's normal, functional environment. Readmissions to hospital and hostels, or nursing home placement are potentially avoided by these services. For example, providing communication strategies within the home setting can assist a carer to better deal with behavioural problems that might otherwise cause friction and result in failure to cope.

Speech Pathologists have the expertise and skills to provide individual therapy techniques, group work, counselling and behaviour management. Speech Pathology intervention may include therapy and training of family and friends in specific techniques such as conversational coaching and communication partner training.[125] [126] These specialised skills also permit a consultative and educative service to be provided to colleagues and the community.

Individual therapy may follow a psycholinguistic approach, including Semantic Feature Analysis, [127] lexical-semantic therapy, [128] mapping therapy,[129] and narrative based therapy. [130] Approaches to rehabilitation such as *Supported Conversation* [131] and *Communication Partners Training* [132] include both the individual and significant communication partners. Beyond individual therapy, addressing the restriction in an individual's daily activity and participation is best provided in a group therapy situation – reflecting the social model approach.[133]

Management of the challenging behaviours often associated with brain injury requires expertise and experience. The interplay between pre- and post-morbid psychiatric conditions, drug abuse and ABI/TBI can result in complex management issues. The Speech Pathologist's knowledge of pragmatic theory and social communication contributes to the overall management of challenging behaviours.

There have been huge advances in the field of Alternate and Augmentative Communication (AAC) since 1989. This has included increased clinician knowledge of software programs to enhance computer-based communication, the acquisition of advanced computer-based skills by speech pathologists and the development of a broad range of AAC options and language specific programs and tools. Specialised speech pathology positions devoted to AAC have been developed nationally and include the Independent Living Centre and Royal Perth Hospital Medical Technology Department in Western Australia and SCOPE in Victoria.

Speech Pathologists play an advocacy role in liaison with community facilities, services and agencies that provide support for people with communication problems and their significant others. Such groups include community stroke and conversation groups, State Head injury units and Stroke Foundations within each state. Speech pathologists also provide assistance with return to studies or employment, advocacy, including for legal representation, counselling and education for carers, teachers and employers.

Speech Pathology aphasia working groups have been established in each State and Territory to support people who have aphasia and increase the public awareness of aphasia. Aphasia-friendly resources and practices to improve access to information are pursued, in keeping with current research on positive impact for people with aphasia.[134]

3.3 VOICE AND HEAD AND NECK

Introduction and Scope of Practice

Voice disorders (dysphonia) occur when the voice no longer meets the requirements previously available to the speaker, resulting in an inability to fulfil social, occupational, home, and educational requirements.[135] Dysphonia can result from impairment to the vocal cords, vocal tract, resonating cavities and respiratory support. It may include:

- Hyperfunctional use of voice resulting in nodules, granulomas and contact ulcers.
- Vocal cord paralysis secondary to trauma or stroke.
- Dysarthrophonia resulting from Progressive Neurological disorders such as Parkinson's disease, Motor Neurone Disease and Multiple Sclerosis.
- Structural damage to the larynx from cancer or trauma.

Dysphonia may compromise the quality of life, educational progress and employment opportunities for a wide range of adults and children.

"Individuals with voice problems may experience frustration, anxiety, depression, social isolation, reduced speech status, loss of self-esteem and general personality changes…At a societal level, the cost of voice disorders can be high…may result in societal losses in the billions of dollars in the US alone."[136]

The most common employment sectors that access Speech Pathology services for management of voice disorders are those who work as professional voice users, eg teachers, actors and singers. New professional groups that now require services include Call Centre Operators and Fitness Instructors.

Prevalence of Voice Disorders

- The prevalence of voice disorders at any given moment in the Australian population is 4 %.
- There is a prevalence of voice disorders of 6% in children at any given moment.
- 75% to 89%[137] [138] of individuals with Parkinson's Disease have speech and voice symptoms.
- Prevalence of self reported voice problems in teachers is 16% reporting voice problems on the day of the survey, 20% reporting problems during the current teaching year, and 19% reporting problems at some time during their career. Females were twice as likely as males to report voice problems.[139]
- Incidence of head, neck and laryngeal cancer in Australia was 17.3 for 100,000 of population for men and 5.9 for 100,000 for women.[140] [141]

Work Value Changes since 1989

Prior to 1989, clients with voice problems were predominantly referred to Speech Pathology from the specialty of Otolaryngology. Now however, Speech Pathologists work with a range of voice disorders beyond the speciality of otolaryngology. Diagnoses such as Paradoxical Vocal Fold Movement, chronic cough and gastroesophageal reflux-related disorders are referred from specialties incorporating neurology, physiology, gastroenterology, clinical psychology and psychiatry. This has substantially increased the referral base to speech pathology and required the profession to develop an understanding of a diverse range of medical and physiological disorders that may impact on vocal quality.

There is also a greater demand for the use of instrumental evaluation of vocal function. For example, through use of videostroboscopy, direct visualisation of the structure and function of the larynx and vocal cords is available. This provides increased accuracy of diagnosis and guides treatment options.

Additional postgraduate training is required by Speech Pathologists working with people with dysphonia. Competency training in the use of instrumental tools such as videostroboscopy is mandatory, as is the use of specific vocal retraining programs such as Voicecraft™ and Compulsory Figures for Voice™ [142]

Some of the more recent voice disorder groups that Speech Pathology provides services to include:

Spasmodic dysphonia

Spasmodic Dysphonia is a form of laryngeal dystonia that results in extremely hoarse and strangled voice. Prior to the mid 1990's spasmodic dysphonia was considered to have a psychological basis for which there was no effective treatment. Since this time however, a greater understanding of this condition has resulted in patients being treated with Botulinum Toxin injections. Speech Pathologists play an extremely important role in differential diagnosis of spasmodic dysphonia versus functional dysphonia, and provide counselling, voice therapy and regular review to maximise treatment.

Paradoxical Vocal Fold Movement (PVFM)

PVFM respiratory obstruction is characterised by involuntary restriction and closure of the airway, resulting in airflow obstruction, wheezing, stridor, breathlessness and cough. Previously thought to be a psychological condition, it is now considered to have a physiological basis. Speech Pathology treatment for this condition aims to improve voluntary control of airway opening, with a corresponding reduction in airway obstruction. Speech Pathology intervention has been shown to reduce both the need for hospitalisation and the level of anxiety associated with this condition.

Chronic Cough

Chronic cough is a relatively new area for the Speech Pathology profession. Chronic cough can be associated with PVCM, vocal fold dysfunction (VFD) or laryngospasm.[143] Speech pathology intervention aims to provide the patient with voluntary control over their coughing, thereby reducing the potential for complications such as laryngospasm.

Subspecialties in Voice

Lee Silverman Voice Treatment

The Lee Silverman Voice Treatment (LSVT) is an evidence based intensive voice and speech treatment technique for individuals with Parkinson's Disease. A major presenting feature of Parkinson's Disease is impaired speech and/or voice production, specifically reduced voice loudness and unclear, difficult to understand speech. This has a significant impact on the ability of a person to participate in everyday life activities and has been demonstrated to be a source of significant social isolation and carer or spouse anxiety

The LSVT is the gold standard in the management of voice disorders in Parkinson Disease and an extensive body of empirical evidence exists demonstrating its efficacy.[144] [145] [146] Speech Pathologists must be trained and certified by the LSVT Foundation to use the Lee Silverman Voice Treatment. LSVT® certification renewal requires ability to demonstrate

ongoing competency in use of the technique, and documentation of clinical hours, number of patients treated and treatment outcomes.

Studies evaluating the LSVT have documented maintained increases in voice loudness above pre-treatment levels for the LSVT group up to 2 years post treatment.[147] Studies to assess long term effects of LSVT have found that as a group, patients with idiopathic Parkinson Disease who are treated with LSVT are likely to maintain treatment related improvement in vocal function up to 2 years after treatment.[148]

These outcomes have been replicated in specialist clinics treating clients with Parkinson's Disease, including Osborne Park Hospital, Western Australia. [149] and the Kingston Centre, Victoria. Following Speech Pathology intervention using the LSVT technique, maintenance of functional gains in voice loudness has been demonstrated over a 2-year period. There is emerging evidence to suggest this treatment also impacts positively on the swallowing ability of persons with movement disorders such at Parkinson's Disease and Progressive Supra Nuclear palsy.

Total Laryngectomy

Total laryngectomy involves the surgical removal of the voice box (larynx). A total laryngectomy may be necessary when the larynx and/or associated structures are affected by cancer or severe injury. The Speech Pathologist plays a major role in the pre-operative and post-operative management of a person who has undergone a total or partial laryngectomy.

Prior to 1989, communication options following total laryngectomy included oesophageal speech and artificial larynges, both of which did not always provide satisfactory communication outcomes. Since 1989, surgical voice restoration has become available. In this procedure, a surgical opening between the oesophagus and trachea (tracheoesophageal puncture or TEP) is created by the otolaryngologist. The Speech Pathologist is responsible for the sizing and fitting of a one-way value (suitability determined by a range of patient and environmental factors) to maintain puncture patency and enable airflow from the trachea into the oesophagus for voice. ,

The Speech Pathologist advises regarding candidacy for voice prostheses, identifies physical limitations that may impact on obtaining functional voice and suggests alternatives. In conjunction with radiology staff, the speech pathologist may conduct videofluoroscopy and air insufflation procedures to evaluate the need of further interventions, eg botulinum injections to facilitate voicing. Speech Pathologists are also skilled to trouble shoot problems with the use and maintenance of voice prostheses**.**

Together with the assessment of suitability, selection of appropriate device and fitting of the valve, Speech Pathologists also provide specific education to carers, ward staff and external

agencies such as within secondary hospitals and country centres to facilitate competent management of these patients once they are discharged home.

3.4 COMMUNICATION DISORDERS IN CHILDREN AND ADOLESCENTS

Introduction and Scope of Practice

The development of appropriate communication skills in childhood is essential. Communication skills are positively correlated with long-term educational, social and vocational outcomes. [150] [151] [152] [153]

Communication delays/disorders are the most common developmental difficulty in childhood. Sub-groups within this population experience even higher incidence of delays and disorders. For children who had been admitted to neonatal intensive care following delivery, approximately 60% will demonstrate problems in language development at four years of age.[154] Studies have consistently found higher concentrations of children with language disorders in the lower socioeconomic groups.[155] Culturally and linguistically diverse populations are also increasingly represented in populations that present to general community centres with language delay.[156]

Recent advances in the understanding of early childhood development such as *The Early Years Study*[157] have highlighted the need for intervention to occur as early as possible. *The Early Years Study* highlighted critical periods for the development of skills including language and literacy, when appropriate intervention facilitated optimum neural pathways for development. Adequate support and intervention from conception to six years of age and in particular in the first three years of life is a determinant of future learning, behaviour and health. This research has changed the nature of the Speech Pathologist's role in supporting early development and in providing services that aim to optimise this critical time frame.

Speech Pathologists are key members of multidisciplinary early intervention teams in paediatric settings. The Speech Pathologists' role involves the prevention, identification, assessment, intervention and evaluation of pre-communication and communication skills of children before school entry. [158] The primary focus of early intervention is partnering parents so as to facilitate the development of developmentally appropriate communication skills in their children.

Speech Pathologists also provide services to school-age children and adolescents. Specific Language Impairment (SLI) affects approximately 7% of kindergarten children. SLI is a developmental language impairment in which children demonstrate unexpected difficulties in acquisition of language. The development of these children is appropriate in all other areas.[159] *Children do not grow out of SLI* rather the disorder manifests itself differently as the child ages. SLI places the child at greater risk of educational failure and limited vocational outcomes as well as social and emotional sequelae in later stages of development. [160] [161]

Speech Pathologists are also now more involved in the identification and remediation of literacy-related difficulties. In the past ten years there has been increasing application of psycholinguistic models of information processing to children's speech and literacy difficulties.[162] [163] This model focuses on processing and enables speculation regarding underlying area of deficit, and therefore appropriate selection of assessment and intervention interventions.[164]

A strong relationship between oral and written language development has been acknowledged for some time and it is *essential* that children commence formal education programs with these skills.[165] [166] The 1990s saw growing evidence to support the relationship between children's underlying language knowledge such as metalinguistics and phonological awareness, and later literacy development. This knowledge and the expanding skill base of Speech Pathology have resulted in changes to the management of children at-risk of educational failure or who have suspected learning difficulties.

Changes in work value since 1989

Increased understanding of the need for services to be provided within the family context, together with practice and policy changes have altered the contexts in which Speech Pathology services are now delivered to children and adolescents with speech and language delay. Prior to 1989 and even into the early 1990's services were predominately centre-based with little to no emphasis on prevention, community development and targeting of critical periods of development.

Work value changes within paediatric early intervention practice are due to changes in the nature of the work as well as in the skills and knowledge required to be a competent practitioner. The conditions of work have also changed with an increased focus on the provision of community development programs as well as the provision of home-based services. The greater demand for cross-sectorial collaboration has also become a major focus within paediatric practice.

Broader changes within the wider community have also had a significant impact within the paediatric setting. These changes include an increasing numbers of people from culturally and linguistically diverse populations, an increase in the number of 'at-risk' families and children, the breakdown of community and family support systems as well as an increased incidence of mental health problems and the prevalence of substance abuse.

Another significant factor driving the increased expectations of Speech Pathologists in paediatric practice is the over-representation of children and families with significant needs within the system. Prior to 1989 children with mild communication difficulties were able to access community health services. Increased demand and high workloads has resulted in children with mild disorders having limited to no access to services. This has meant that workloads are heavily skewed to the complex – severe end of the spectrum and new graduates are expected to provide services to a high number of children with very complex

needs.

Increase in complexity of presenting disorders

Referral patterns identify a trend for more complex[167] cases to be referred to speech pathology clinics. Survival rates of premature infants and of those with other childhood medical conditions have contributed to this increase in presenting complexity. Children who are born pre-term and very pre-term are known to have a higher incidence of conditions requiring speech pathology intervention. They may also present with a range of co-morbidities that require additional skills and knowledge.

Multiple birth rates are also increasing (as well as survival rates of multiple birth infants) in line with advances in medical technology eg invitro-fertilisation procedures. This population also has a higher risk of speech and language delay requiring monitoring and early intervention services. Western Australia is leading an international study into language delay in multiple births[168], resulting in very early identification of risk factors.

Socio-cultural changes due to immigration patterns have also had a significant impact on, most notably, the number of people from culturally and linguistically diverse (CALD) backgrounds. In addition to increases in absolute numbers of people from CALD backgrounds, are the added complexities associated with the sudden influx of people from diverse backgrounds. [169] .

Complexities associated with The CALD population include cultural impacts on communication and communication development, eg cultural attitudes and beliefs about practices in child rearing, childhood development, disability and intervention. In addition there is a subset of the CALD population who have a need for intervention following a sequale of extreme deprivation or as a consequence of emotional and psychological disturbances, in particular refugee populations. At a more day to day level, there are simple issues such as the need to adapt testing material and provide education and services with the aid of interpreters.

Practice changes

Speech Pathology practice has changed from the highly individualised child-focused treatment provided prior to 1989, to a practice that reflects and encourages a family centred, community based focus.

The adoption of family-centred practice models of service delivery, especially within the early intervention field has been driven by studies that have identified parents as the major agents of change in the early years of a child's development.

Parent and community education approaches require different skill sets and Speech Pathologists have undertaken additional postgraduate training to effectively work within

complex family systems such as the Family Partnerships Training Program (FPTP).

Family Partnerships was introduced in Western Australia in 2001 and is based on similar models operating in the United Kingdom and Europe. The program aims to develop additional skills in healthcare workers in working with families with complex needs, enabling them to better adapt to the parenting role.

There has been an increased focus upon preventative intervention rather than intervention once a diagnosis has been made. 'Early intervention' has become even earlier, with Speech Pathologists providing services to much younger children. For eg, prior to 1989, early identification was aimed at children around two years of age, now children are being identified as young as eight months.

Examples of new preventative and community education programs include:

- The 'Baby – Talk Program'. This home-based program was introduced in 2001 and aims to facilitate parenting skills in families with children aged 8-15 months[170]. This program has been highly cost effective and successful in reducing the likelihood of long-term communication disorders. It also supports the development of strong parent-child interactions through developing the skills of parents, enabling them to facilitate the development of their children.

- 'Bookstart' (initiated in the United Kingdom in 1992) and related programs such as 'Hug-a-Book' run in collaboration with local libraries. These programs target new parents (usually first-time mothers) and are aimed at developing the skills of parents in fostering good communication skills and developing foundation skills for later literacy-learning.

- Increased involvement of speech pathologists in post-natal parenting groups and new mothers' groups. The aim of these programs is to foster the development of behaviours that have been demonstrated to improve the communication outcomes of children.

- Targeted education programs for day care service providers. Speech Pathology positions have been established to work with day care service providers and multi-cultural workers to facilitate the development of appropriate programs within these environments.
- Targeted education programs for local community playgroups.

While Speech Pathologists worked collaboratively with other professionals prior to 1989, there has been a significant increase in the need to work within multidisciplinary teams. This need has been driven by the increasing complexity of clinical presentations, with children

presenting with multiple areas of developmental difficulty as well as the need to view a child and their social system within a holistic framework.

This has also extended to an increased focus on cross-sectorial collaboration with increased expectation on working in partnership with other government and non-government agencies to improve the outcome for children and their families.

- **Speech Pathology in the Educational Setting**

Speech Pathologists are increasingly being called upon to work in collaboration with educators in the provision of services to children who are struggling with the social and educational demands of the classroom. In response to this increasing awareness of collaborative service provision, Speech Pathology Australia has developed standards for Speech Pathologists working within educational settings. [171]

Increased knowledge of educational curriculum, as well as a willingness to work within the educational system (with its different philosophies on intervention and being *system* rather than individually focused) are required to meet the needs of students, parents and the educational facility.

- **Speech Pathology in Mental Health**

Speech Pathologists are being increasingly employed within child and adolescent psychiatric services due to recognition of the high prevalence of communication disorders within this population.[172] Speech Pathologists working within these settings require specialist knowledge of the relationship between communication disorders and mental health issues. [173]

Within the later childhood– adolescent years, Speech Pathology intervention focuses on children with discourse (conversation and spoken text) and pragmatic (social skill impairments) disorders with associated language difficulties. These children present with difficulties in using language for a variety of functions in their everyday situations. These difficulties, in turn, impact on adaptive behaviour and socialisation as well as on academic and vocational outcomes.

Impact and Effectiveness in Childhood Communication Disorders

There have been significant increases in the complexity and conditions of work for Speech Pathologists in the field of childhood communication disorders.

In addition to the added complexity afforded by the need to work more cohesively within multidisciplinary teams and the trend towards cross-sectorial collaboration, there have been wide ranging changes in:

- The complexity of presenting disorders, with increasing numbers of children with more complex conditions being serviced within the community health setting
- The service delivery models used to deliver care, with increased focus on the provision of preventative and community development programs as well as the provision of high-quality parent education programs.
- Populations receiving services have expanded to include much younger children and their families. Speech Pathologists are also present in Child & Adolescent Mental Health Services and are playing an increased role in the provision of programs to the early education sector.
- Training requirements, with postgraduate education required to provide services in the new environment.

Improved communication outcomes in children decrease the likelihood of later educational failure. There is clear evidence that children with speech and language disorders benefit from Speech Pathology interventions. [174] [175] There is also strong evidence to demonstrate the advantage of intervening early in childhood. [176]

The effectiveness of parent education programs in promoting the development of children's communication skills has also been widely evaluated. A current leader in evidence-based practice is the Hanen Program®. This program requires additional postgraduate qualifications for certification and has been demonstrated to accelerate a child's communication development beyond what would be expected from general maturation. [177] [178] [179]

Developing parental skills so that they become the primary agents of change has ramifications beyond the development of communication skills. High-quality parent-child interactions play a pivotal role in the development of general social and emotional competence in children. [180] The development of social and emotional competence in young children is a protective factor as children enter adolescence and young adulthood.

Preliminary data from the introduction of the Baby Talk program has been very encouraging with regard to positive outcomes for infants and parents. [181] The program is still being evaluated to gauge the long-term impact on the communication skill development of children who participate in the program.

The value of Speech Pathology interventions within the classroom has also been demonstrated. Outcome data from the Language Program at Carlisle Primary School in Western Australia has identified a significant improvement in the school's performance on the National Literacy Attainment scores since the introduction of the program. The following table identifies the impact of the program on literacy attainment at the school. [182]

Figure 1: Percentage of Year 3 children at Carlisle Primary School, Western Australia above the National Literacy benchmark

	1998	**1999***	**2000****	**2001*****
Reading	58	80	100	95
Writing	22	70	75	95
Spelling	41	78	82	90

* Children had received Speech Pathology program in the previous year

** Children had received Speech Pathology program for the previous 2 years

*** Children had received Speech Pathology program for the previous 3 years

3.5 AUTISM SPECTRUM DISORDERS

Introduction and Scope of Practice

Autism is a developmental disability that usually manifests in the first three years of life. The symptoms and characteristics of autism can be wide ranging. Autism is considered a spectrum disorder and is often referred to as Autism Spectrum Disorder (ASD). Persons with ASD typically present with difficulties in communication and social interaction; they may also experience sensory impairments in one, some or all of the five senses of sight, hearing, touch, smell and taste.

Changes in work value since 1989

There has been a significant increase in the reported prevalence of ASD and other related diagnostic categories such as Asperger's Syndrome (AS) and Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS). [183] This escalation in numbers of children and families with very complex needs has placed considerable pressure on DOH Speech Pathologists along with other team members, to develop skills in assessment, diagnosis and intervention for this high need population.

Diagnosis of ASD is a complex process, requiring comprehensive team assessment. Prior to 1989, only a specialist referral centre made the diagnosis of ASD. While specialist agencies still complete many assessments, community health centres have also assumed this role and have had to develop specialised skills in the team assessments required for appropriate diagnosis.

Impact and Effectiveness

As a result of the increased numbers of children diagnosed with ASD, services have shifted out to the community clinics. Training programs for Speech Pathologists have been developed to enhance skills and knowledge in appropriate assessment and diagnosis. In addition to pre-requisite skills in early intervention and childhood communication disorders, Speech Pathologists must complete a structured program of supervised clinical practice prior to being responsible for ASD assessments. Some states in Australia require formal up-skilling and education for Speech Pathologists to be recognised service providers by the ASD Examination Board. [184]

Other external factors have also impacted on practice in this area. Up until the mid-late 1990's, agencies including the Disability Services Commission (DSC) were responsible for the provision of services to children with ASD and their families following official diagnosis. However changes to the acceptance criteria have resulted in less children being able to access DSC and therefore remaining within DOH facilities. This has placed additional demands on community Speech Pathologists to become skilled in the provision of intervention services to children with ASD and their families.

The increase in the number and severity of children with ASD within local clinics has been one of the major factors behind the rapid increase in reported case complexity across both metro and country clinics.

Studies evaluating speech and language interventions with children with ASD have documented the effectiveness of interventions to target specific language outcomes, replace challenging behaviour, and promote social interactions.[185] Data reported from American Speech and Hearing Association's National Outcomes Measurement System (NOMS), reveal two thirds of preschoolers with ASD showed gains of one or more levels on the Functional Communication Measure (FCM) following speech-language pathology intervention.[186]

The Hanen Program (discussed in Paediatric Early Intervention Section) has also been demonstrated to be effective in developing parents' skills in facilitating communication as well as promoting more successful parent-child interactions. [187]

3.6 STUTTERING

Introduction and Scope of Practice

Stuttering is diagnosed by Speech Pathologists who are also the primary providers for the remediation of this communication disorder. The incidence of stuttering is 4-5% of the

paediatric population and 1% of adults.[188] Speech Pathology management may begin for clients as young as 2 years of age.

Stuttering is a disorder of communication that affects people who otherwise have normal language and intellectual abilities. It is a physical condition, but is commonly incorrectly considered to be due to nerves or anxiety. Frequently stuttering is a target of humour for schoolyard jokes, in the workplace, television shows and movies.[189] Employers may have a bias against people who stutter.[190]

As exists for all people with disorders of communication, there is the potential, for stuttering to impact on vocational potential.[191] Negative effects from stigmatisation may begin as early as the school-age years when people who stutter may be the target of bullying.[192] [193] [194] Students may withdraw from speaking in class, thereby reducing their oral language scores.[195] Withdrawal from speaking limits the development of social skills as well as reduces academic outcomes. Consequences are that career options are significantly reduced, as is the potential for promotion (due to the requirement to undertake interviews.[196]

Changes in Work Value since 1989

The management of stuttering is now supported by an extensive evidence base. Australian Speech Pathologists are world leaders in stuttering therapies. Current best-practice in the treatment of paediatric stuttering is the Lidcombe Program,[197]a behavioural treatment program developed by Speech Pathologists from Sydney University and in Bankstown, New South Wales. These 2 centres have developed similar programs for the management of adolescents and adults who stutter.

Speech Pathologists working with children who stutter have additional post-graduate training in appropriate treatment methodologies. Implementation of Speech Pathology best-practice paediatric stuttering treatment has resulted in:

- A reduction in treatment time (reduction in 'occasions of service').
- Reduction in disability and increased resilience to relapse.
- Empowerment of parents, resulting in increased confidence and skill in managing their child's speech fluency development.

An outcome of these work value changes has been a reduction in service delivery costs, a reduction in the number of adolescents and adults with chronic stuttering difficulties and corresponding reduction in the social costs that this disorder entails.

Prior to 1989

- Treatment was influenced by the *Diagnosogenic* theory that assumed parents were responsible for the onset of their child's stuttering.
- There was very little early intervention.

- Any treatment for pre-school children was based on environmental manipulation without directly treating or eliminating stuttering.
- Treatment for adults and school children took the form of intensive, sometimes residential programs of 1-2 weeks duration
- Therapy was expensive, labour intensive, inconvenient for speech pathology department and families
- Outcomes for clients were high rates of relapse, and if fluency was maintained the cost was unnatural sounding speech,

Current Practice

Speech Pathology management of stuttering has undergone radical changes since 1989. Current intervention strategies are scientifically rigorous and have expanded due to the increased evidence available.

To provide a quality service to people who stutter Speech Pathologists must be well-versed in the nature of stuttering, its impact and the factors that influence prognosis. Speech Pathologists must have an understanding of brain plasticity and be informed and skilled in the use of anxiety techniques as an adjunct to traditional therapies.

Instrumentation and Measurement

Effective management of stuttering entails the use of a range of measurement tools and computer software. Speech Pathologists require extensive training in the use of these tools to ensure not only accurate identification and treatment of stuttering, but also competent training in their use to clients. Specific measurement tools may include:

- Rating machines that provide an objective measure of stutter counts and speech rate [198] [199]
- Severity rating scales [200] [201] that classify severity of stuttering
- Naturalness scales [202] that define the quality of speech
- Social validity scale [203] [204] that address the impact of stuttering on a person's standing in society
- The Lidcombe Behavioural Data Language Scale which provides a detailed analysis of stuttered behaviours [205]

Therapies

Although speech therapy for the treatment of stuttering was available prior to 1989, it was traditionally provided in a rigid, highly structured format that was not suitable for many people. While the use of "prolonged speech" was highly effective in reducing stuttering in

adolescents and adults, it was associated with unnatural sounding speech, required an extraordinary amount of effort to master and was associated with a high rate of relapse.

Recent developments in therapy techniques for stuttering have produced outcomes of near zero stuttering with more natural sounding speech, shorter treatment times and the need for much less effort on the part of the speaker. These therapy approaches are easier to learn and use (for the client), improve client outcomes and reduce the amount of therapy required (and thus reduce health costs).[206] [207] [208] [209] For example, *Time-out* is a treatment that can be successfully used for some school-age children and adults in only 6 treatment hours. [210]

One of the most dramatic changes in stuttering therapy since 1989 is the focus on early intervention. Therapy programs are available for children that directly targeted stuttering behaviour with the expectation that children will have minimal stuttering 8 years after the conclusion of therapy.[211]

However it is known that many children will naturally recover from stuttering. There are now clinical indicators to guide clinicians when identifying children who may be at risk of developing chronic stuttering.[212] Research has identified the critical times for intervention that foster good outcomes and reduce the amount of treatment required.[213] Clinicians are now required to consider this information in the assessment and development of management plans for young children who stutter.[214]

Service Delivery Models

There were significant costs associated with the intensive treatment programs offered prior to 1989, to the client and their families as well as the healthcare providers. Speech Pathologists now consider the use of Telehealth, short, intensive periods of practice (1-day) as well as 1:1 treatment options.[215] [216] [217]

Adjunctive Therapies

It is accepted that speech-related anxiety is a common sequelae of stuttering. Speech Pathologists working with people who stutter are cognisant of adjunctive therapies to minimise the risk of therapy contributing to the distress of clients.[218] [219] The use of Cognitive Behavioural Therapy is particularly effective in reducing anxiety in adolescents and adults and Speech Pathologists working with these populations must be able to practice this technique, previously the domain of Clinical Psychologists.[220] [221]

Impact and Effectiveness in the Management of Stuttering

The impact on the nature of the work performed by Speech Pathologists working with people who stutter has been dramatic. Due to the expanded knowledge and evidence base, Speech Pathologists now are required to have additional postgraduate training in a greater range of

intervention methods, be familiar with a range of assessment and instrumental tools and be familiar with adjunctive therapies for stuttering.

The focus of intervention has also shifted towards self-management and empowerment of people who stutter and/or their families. The outcome of these changes to the management of stuttering has resulted in:

- An increased focus on early intervention during critical periods of speech development.
- A reduction in treatment time (reduction in 'occasions of service' and total hours of treatment) and thus a reduction in the financial cost to the health system.
- A reduction in disability and increased resilience to relapse.
- Empowerment of parents who have increased confidence and skill in managing their child's speech fluency development.
- Empowered adolescents and adults who are confident and skilled in managing their own speech fluency.

An outcome of these work value changes has been a reduction in service delivery costs, a reduction in the number of adolescents and adults with chronic stuttering difficulties and a reduction in the social costs that this communication impairment entails.

3.7 COCHLEAR IMPLANT

Introduction and scope of practice

The first Australian trials of cochlear implantation took place in 1985. The fitting of cochlear implants for bilateral severe to profound hearing impairment in children is now performed routinely and generally undertaken in tertiary referral centres throughout Australia. .

Speech Pathologists are integral to the successful functioning of specialist cochlear implant teams. Speech Pathologists provide support for initial candidacy evaluation and selection through assessment of a child's existing speech and language skills; they provide diagnostic auditory-verbal therapy; assistance with pre-operative stimulus-response training; contribute to team counselling of the parent and family regarding expectations of outcomes; are involved in initial device switch-on and mapping; and intensive habilitation of sound and speech awareness and of speech and language development. There is evidence in the literature that the Speech Pathologist is now considered to have a pivotal role in facilitating the successful use of the cochlear implant in children.[222]

Changes in work value since 1989.

While most Speech Pathology services for this population are initially provided at tertiary

level hospitals such as the Eye and Ear Hospital in Victoria and the Mater Hospital in Queensland, there is an emerging trend for children with ongoing needs to be transferred to local speech pathology clinics. Device maintenance and support is provided by the tertiary hospitals but educational and community settings such as early intervention centres (eg Tara Lee in Victoria) assume ongoing management related to articulation and language development. Children from rural settings require collaborative support from specialist cochlear implant Speech Pathologists to assist management by local public health sector Speech Pathologists.

Cochlear Implant and Training

Speech Pathologists working within cochlear implant teams require considerable postgraduate clinical experience focusing on early childhood communication disorders and precursors to communication. Speech Pathologists also require additional postgraduate exposure and education through peer support and review at accredited cochlear implant units. Regular ongoing training supports the constant technological advances in the program and the increasing application of the technology to a more diverse clinical population.

Impact and Effectiveness of Speech Pathology with Cochlear Implants

The increasing diversity of candidates has impacted on the number and complexity of cases managed by the Speech Pathologist. As such, the skills and knowledge required by speech pathologists to assess and provide treatment to clients with co-morbidities and other complex circumstances has increased significantly. These developments have also contributed to the overall increasing prevalence and numbers of clients requiring speech pathology management and support.

Technological Developments

The diversity of potential candidates for Cochlear Implant has increased with technological advances such as bi-nucleus implants. With ongoing research and development of the Cochlear Implant, patient candidacy has changed rapidly since 1997 in terms of age of candidacy, degree of benefit already achieved from hearing aids, and medical (multiple disabilities) and radiological status.

Medical developments in the field of Cochlear Implant have seen Newborn screening programs implemented throughout Australia. The degree of success achieved in children is highly correlated with the age at implantation.[223] [224] This increasingly earlier implementation process requires considerable Speech Pathology knowledge of the early phases of communicative development, an understanding of precursors to speech and language development and an awareness of the processes that facilitate habituation of auditory pathways and auditory perception.

Population changes

Changes to the demographics of the Australian population have increased the scope of Cochlear Implant practice for Speech Pathologists. Specifically, the number of families that Speech Pathologists see who have AUSLAN as their first language has increased, as have the number of clients with English as a second language. These changes have necessitated that Speech Pathologists develop proficiency in the use of AUSLAN and/or adjust delivery of Speech Pathology services to meet the needs of an increasingly culturally or linguistically diverse population.

3.8 CLEFT PALATE AND CRANIO-FACIAL SERVICES

Introduction and scope of practice

Cleft lip and cleft palate comprise the fourth most common birth defect in the United States and similar prevalence rates are reported within Australia. A *cleft lip* is a separation of the two sides of the lip. A *cleft palate* is an opening in the roof of the mouth in which the two sides of the palate have not fused or have joined together. Because the lip and the palate develop separately, it is possible for the child to have a cleft lip, a cleft palate, or both cleft lip and cleft palate.

A child born with a cleft frequently requires several different types of services, including surgery, dental and orthodontic care, and Speech Pathology, all of which need to be provided in a coordinated manner over a period of years.

Within all states of Australia, this co-ordinated care is provided by interdisciplinary cleft palate and craniofacial teams usually based at tertiary hospitals (eg; Princess Margaret Hospital, WA; Royal Children's Hospital, Vic.; Monash Medical Centre, Victoria; Mater Hospital, QLD). Speech Pathologists play an integral role in these teams and provide specialised diagnostic and therapy services over time for this at-risk population.

Changes since 1989

Up until the late 1980's, children with a cleft palate were not seen by a Speech Pathologist until they were 3 years old. Due to increased understanding of speech and language development, children are now seen at around 6 months of age to coincide with the initial palate repair.

There has also been the introduction and an increased use of instrumentation to assist in diagnosis and management of speech difficulties resulting from cleft palate, including the use of videofluoroscopy and nasendoscopy. Additional postgraduate training is required for a Speech Pathologist to be proficient in the use of these technologies (see Section 3: Dysphagia).

Advances in genetic diagnosis of syndromes have also increased the referral rates for other related disorders such as poor velopharyngeal function. A specialist second opinion clinic was established in the early 1990's to differentiate between palatal dysfunction and disordered speech patterns (accurate diagnosis is essential due to different remediation approaches to both disorders).

The establishment of state-based specialist units, for eg, the Mater Hospital in Queensland, Children's Hospital and Westmead Hospitals in NSW has also impacted on the expectations of and services provided by Speech Pathologists. Children with cranio-facial abnormalities are seen for assessment as part of the pre-surgery workup to identify likely functional outcomes as well as being seen post operatively for treatment.

Impact and Effectiveness in Cleft Palate and Cranio-Facial Services

Due to an increased understanding of the importance of the first 18-months of life in the long-term development of appropriate communication skills, Speech Pathologists are now intervening at a much earlier age. Quality Speech Pathology interventions at an early age are required in this population as children with cleft palate tend to grow into aberrant speech patterns rather than out of them. [225]

Speech Pathologists are also able to provide early diagnosis of velopharyngeal incompetence with the aim of establishing velopharyngeal function by 4-5 years of age. This facilitates the establishment of functional speech and language skills prior to school entry. [226]

3.9 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Introduction and Scope of Practice

Augmentative and Alternative Communication (AAC)[227] is an area of specialist speech pathology practice that provides viable communication options to people with a lack of functional speech associated with physical, neurological or sensory disorders. This lack of speech skills may be temporary or permanent and usually *severely* limits active participation in the wider community.

Both children and adults are serviced by this specialist area of practice. Specific client groups include people with degenerative neurological conditions such as Motor Neurone Disease, Parkinson's Disease or Multiple Sclerosis, acquired or traumatic brain injury including stroke or head injury, and developmental disabilities such as Autism Spectrum Disorders, intellectual disabilities and cerebral palsy. In addition to severe communication disability, many people within these client groups present with multiple co-existing disabilities.

Changes in work value since 1989

All Speech Pathologists graduate with basic knowledge and skills in the area of AAC[228] however, since 1989 there has been an increase in the expectations of AAC service provision, requiring the ongoing development of advanced skills within the field.

Advanced skill levels and specialist positions within the field of AAC have existed within disability service providers such as the Disability Services Commission and Cerebral Palsy Association prior to 1989. A recent change in the scope of practice has been the inclusion of specialist AAC - Speech Pathology positions in the Department of Rehabilitation Engineering (Royal Perth Hospital) as part of a multidisciplinary team that provides assistive technologies to people with complex needs. SCOPE in Victoria provides expert advice regarding AAC devices, as well as the opportunity to trial equipment. Speech Pathologists working in the Health sector require knowledge on AAC options, suitability of potential AAC users and strategies for implementation.

The major factors underlying changes in the nature of the work undertaken by Speech Pathologists in the area of AAC are:

Technological Advances

The rapid advances in technology have impacted significantly on the development of 'high-tech' communication solutions. There has been a growth in the development of dynamic voice-output communication devices with text-to-speech capabilities that allow for spontaneous and novel communication (as opposed to pre-programmed devices). The compactness of new communication devices has also improved portability, making the technology more appropriate for a wider client base.

There is also a greater acceptance and expectation of technological solutions within the wider community. At the same time, the real costs of communication devices have been driven down, enabling more people to access this technology as well as increasing the demand for custom-built devices.

The development of Multidisciplinary AAC services

People who require AAC solutions usually present with a range of complex needs best addressed within a multidisciplinary service model. Speech Pathologists play an important role in the assessment, provision and implementation of appropriate AAC systems and are key contributors to the multidisciplinary team.

Speech Pathologists whose clinical practice extends to the use of AAC are expected to be familiar with a range of high and low 'tech' communication options including familiarity with specialised treatment techniques such as Picture Exchange Communication System (PECS), Aided Language Stimulation (ALS) and formal gesture systems like Makaton.[229]

Research in the area of complex communication difficulties and the use of AAC systems

A growing body of literature has established the relationship between the introduction of appropriate AAC systems and the reduction in disability, as well as improvements in quality of life (QOL).

Frost and Bondy[230] report that the introduction of AAC systems enable students to initiate communication and result in reduced negative behaviours within the classroom. Improvements in social interactions and communicative opportunities within the classroom have also been supported by Lileenfeld and Alant.[231] The provision of appropriate AAC systems has also resulted in an immediate and substantial reduction in the frequency of challenging behaviours in people with severe communication difficulties.[232]

Children who are non-speaking are at significantly greater risk of poor literacy attainment due to the relationship that exists between oral and literate language. The use of AAC facilitates the development of literacy skills including the development of spelling vocabulary.[233]

In progressive neurological disorders such as Motor Neurone Disease, access to appropriate AAC systems is vital to continued workforce participation.[234] In addition, improvements in communication skills allows individuals to *remain active and contribute to daily activities* thus ensuring ongoing active participation and independence within family and social contexts.[235]

Impact and Effectiveness in Augmentative and Alternative Communication

Speech Pathologists have faced a steep learning curve in the growing field of assistive technologies. Prior to 1989 very few Speech Pathologists had a need to be familiar with assistive devices, and AAC was limited in its application (mostly low-tech solutions used within DOH). Now, Speech Pathologists are expected to be familiar with the broad range of assistive technologies and to take into consideration a wide range of client-related and environmental factors when considering the vast array of AAC options.

Speech Pathology Australia practice standards for Speech Pathologists working within the field of AAC were revised in 2004. [236] To operate at an advanced level of clinical practice, Speech Pathologists must be able to demonstrate an appropriate level of skill development in:

Assessment of the cognitive and communicative abilities of the person with complex communication needs that takes into consideration the impact of motor and sensory abilities. The assessment process needs to identify not only current but also projected needs and take into consideration environmental barriers or facilitators.

Intervention strategies that take into consideration the communication needs of an individual as well as their social and physical environments. The competent Speech Pathologist also needs to be aware of the range of assistive devices as well as appropriate methodology to match an AAC system to best suit an individual's communication needs.

3.10 RURAL AND REMOTE PRACTICE

Introduction and Scope of Practice

Rural practice is unique, and differs significantly from metropolitan practice in many ways. Differentiating environmental factors for rural practice include geographical isolation; access to support and training; access to equipment and support; access to specialist services; breadth of practice; service delivery techniques; organisational structure; access to teams; and role definition. Rural practice is characterised by a greater variety of tasks to be performed, different service delivery methodologies, as well as a greater need for management and administration skills due to limited access to senior staff.

Speech Pathologists in rural settings are required to provide services to a range of clients, including those with specialty disorders that would typically be managed by tertiary hospitals or specialty services within major cities.

To work effectively within the rural setting, a Speech Pathologist must be able to function as a *specialist-generalist* and be able to provide services to a broad range of clients presenting with a broad range of communication and/or swallowing difficulties. The diversity of rural practice and the complexity of the role require speech pathologists to have a strong theoretical and practical knowledge base across a broad range of service areas, including areas of specialist practice, and across a number of service settings, eg inpatient, acute, subacute, ambulatory, community and home based.

People within regional and rural settings have an increasing expectation of receiving complex services close to home. There is also an expectation that they will be able to receive the *same* services as they would receive in a specialist setting in the metropolitan area. This places additional pressures on rural Speech Pathologists to be well-versed in a broad range of clinical specialties.

Developments and Changes in Rural and Remote Practice since 1989

Clinical Practice Changes

In addition to the wider work value changes impacting on the profession as a whole, rural practice has been impacted by a variety of unique demands. Some of these changes have included:

- Increases in caseload size due to work value increases.
- The introduction of innovative service models such as Telehealth, Outreach and Therapy Assistants.
- Proactive policies to increase access to services for indigenous populations.

- DOH policy dictates advocating for an increase in frequency of primary and secondary intervention whilst managing tertiary intervention. Rural Speech Pathologists are required to balance service delivery to include direct clinical service provision, early intervention and health promotion. Early Intervention and heath promotion policies reflect holistic health principles. Speech Pathologists are now involved in a broader spectrum of health services that include generic child development areas such as parenting, antenatal and postal natal services.
- Increased clinical complexity due to an expectation of services being provided within the local community including management of children with Autism Spectrum Disorder, cleft palate management and complex swallowing difficulties including tracheostomy.

DOH Speech Pathologists are the primary service provider to rural people presenting with communication and swallowing problems. The Disability Service Commission no longer provides direct services in most rural areas (consultative support is provided to the rural clinic). Rural practitioners therefore must be competent in the delivery of a range of disability related Speech Pathology interventions.

Technological Developments

Rural Speech Pathologists are among the main practitioner users of Telehealth and e-HEALTH. It is a growing expectation that rural therapists will have technical competency in Videoconferencing, Web-based learning and training and Web-based service delivery to provide clinical and education services where appropriate.

Over recent years there has been a significant increase in the utilisation of Telehealth to deliver Speech Pathology services to rural and remote areas of Australia. Rural Speech Pathologists must demonstrate competencies in the utilisation of Telehealth technologies (specifically video-conferencing) in the provision of clinical Speech Pathology services. New skills required include:

- Understanding of the scope of service being provided by Telehealth and the 'operational' process and protocols that occur during a Telehealth service.
- Demonstrated understanding of policies, guidelines and standards relevant to the provision of services via Telehealth applications.
- Understanding and familiarity with appropriate Telehealth etiquette and the technology utilised in the encounter in order to ensure effective communication with the patient or client.
- Ability to determine each client's appropriateness for, and level of comfort with, the receipt of service via Telehealth applications.
- Ability to utilise existing clinical guidelines to guide the delivery of services in the Telehealth setting, recognising that certain modifications may need to be made.
- Ability to appropriately modify activities and advice traditionally provided in the face-to-face context to the medium of Telehealth.

- Identify and recognise services that cannot be appropriately or ethically provided via Telehealth.

The diversity of clinical presentation also dictates that rural Speech Pathologists are proficient in the use of supporting technologies for different populations including alternative communication systems and computer-based software for speech and voice analysis.

Therapy Assistants

Therapy assistants play an important role in supporting the work of Speech Pathologists. Within the rural setting, Speech Pathologists can supervise from one to twenty Speech Therapy Assistants, who may be located on site or in a remote community many kilometres away. Therapy Assistants provide services to a client, as directed by the supervising Speech Pathologist. Activities and competencies are required of both newly graduated and senior staff in supervising Therapy Assistants.

Outreach Service Provision

Rural Speech Pathologists are responsible for the provision of services to the community in which they are based as well as surrounding communities within the district or region. This may involve service responsibilities for immediately outlying communities that are within one hour from the service centre or remote communities that may involve up to six hours or more driving or flight.

The nature of remote and visiting services requires diverse service provision models, including use of video-conferencing, therapy assistants, consultation and programming. Innovative models of clinical practice are required to complement fluctuating face-to-face (traditional) service provision from as frequent as once per month to as infrequent as once every six months.

With improving technologies and access there has been an increase in the number of communities serviced by rural Speech Pathologists, with subsequent additional co-ordination and liaison demands. Different multidisciplinary teams have been formed that incorporate the locally based service providers and outreach service providers. Increased service delivery complexity also correlates with an increased number of communities serviced as time is spent developing an understanding of each community's needs, issues and expectations.

Culturally Appropriate Service Provision

Speech Pathology services to diverse cultural groups have increased over past years. This is especially so in the area of indigenous health, where many, services are provided to rural and remote communities. This has required additional skills in adjusting service delivery techniques and material to ensure they are culturally appropriate and relevant to the community.

Evidenced Based Practice

The paucity of empirical literature on implementing evidence-based practice in the rural and remote setting creates further challenges. Research on evidence-based practice may not be relevant or specific to the rural environment. The development of skills in the effective implementation of evidence based practice in the rural/remote environment is an area for future development.

Sole Practice

The sole practitioner is a unique rural allied health professional. A sole allied health professional is defined as not co-located with a peer of the same profession. Across the rural public health system there are a number of sole practitioner Speech Pathologists such as those at Derby, Kununurra, and a number of communities within the Wheat belt Health Region of Western Australia. Sole practitioners require significant clinical and management skills. They possess the largest scope of practice, with the highest degree of caseload variance. Sole Speech Pathologists must balance both service provision and managerial responsibilities, whilst maintaining their own professional skills and development.

Impact and Effectiveness in Rural Practice

As a general rule, undergraduate training programs do not provide Speech Pathologists with the full array of necessary skills and experience to work within the changing environment of rural practice. This places additional pressure on rural healthcare providers to undertake additional postgraduate training.

4. IMPACT AND EFFECTIVENESS OF SPEECH PATHOLOGY PRACTICE

As this document has outlined, there have been substantial and wide-ranging changes in the nature and scope of Speech Pathology practice as well as the level of professional responsibility since 1989. The impact of these changes on the value of the work performed by Speech Pathologists has been significant. While some changes have been evolutionary, most represent a substantial change in types of services delivered, the people who the services are delivered to, the way the services are delivered and the skills and experience required of the Speech Pathologists providing the services.

As previously discussed, a number of factors have been responsible for driving these changes in work value.

- Increased complexity and variability of patients and settings.
- Advances in research and theoretical models.
- Advancements in assessment and treatment methodologies and technologies.
- Changes in health policy and community expectations.
- Changes in non-profession specific skills.
- Changes in scope of practice resulting in increased demand for Speech Pathology services.

These factors have impacted across all specialties and all practice settings.

4.1 WORK QUALITY AND EXPECTATIONS

Treatment efficacy has always been a focus of speech pathology practice; however the focus on *outputs of the health system* as opposed to *inputs to the system* has had a significant impact on the type of services provided by speech pathologists and the way they are delivered.

Speech Pathologists in the DOH adopt the principles of evidence-based practice and the current research base informs the services that are provided.

The national professional body, Speech Pathology Australia, has responded to the challenge of the new workplace. Significant changes have been made to the undergraduate training programs for Speech Pathologists and these changes are reflected in the Competency-Based Outcome Standards of the profession. [237] The profession has also developed a range of *practice standards* to ensure the provision of quality services by appropriately trained and experienced Speech Pathologists.

The increased specialisation and the need to function at more complex levels of responsibility have resulted in a dramatic increase in the need for additional postgraduate education and training. Speech Pathologists graduate with basic core-competencies however additional training is required to provide services within each specialty.

While some of these training programs are non-mandatory and have been initiated by specific services to ensure quality control, most are mandatory courses to enable certification.

The development of competency skills in new assessment and treatment methodologies and technologies has impacted on the quality of services provided across the spectrum of Speech Pathology service. Section 3: Areas of Specialisation, highlights the significant gains made in the practice of the discipline and the impact this has had on the quality of the work performed. Specific examples of this include:

- Advances in the assessment and management of swallowing disorders due to developments in the use of diagnostic tools and evidence-based rehabilitation interventions.
- The impact on the communication skills of people with Parkinson's disease due to the Lee Silverman Voice Treatment (LSVT)
- The impact on the long-term communication skill development of young children due to the implementation of preventive and early intervention programs, specifically the Baby-Talk program and parent-education approaches such as the Hanen Program.

The radical changes in the treatment of stuttering in children, adolescents and adults that has seen a dramatic improvement in functional communication outcomes whilst at the same time reducing the costs associated with treatment.

4.2 WORK IMPACT ON SERVICE OPERATION

The increased focus on cost-containment and cost reduction within the hospital system has resulted in increased pressure to reduce length of stay and reduce the likelihood of complications or re-admission. Within the community there has been an increased focus on improving the overall health of the population and reducing the long-term costs associated with chronic disability.

Within the hospital system, the advances made in dysphagia management have impacted on the service by reducing the likelihood of complications arising from the disorder as well as reducing the need for alternative feeding solutions.

Work value changes in the field of childhood communication disabilities, including stuttering management have reduced the impact of chronic disabilities to the individual, the family system and the community.

4.3 ATTRIBUTES REQUIRED IN THE WORK SECTOR

As previously discussed, there has been a significant increase in the base level skills required of health professional across all work settings. Some of the non-discipline specific skills expected of Speech Pathologist include:

- Group management and facilitation skills

- Working with culturally and linguistically diverse populations (CALD)
- Counselling and advocacy skills
- Managing challenging behaviours
- Teamwork skills
- Case Management skills
- Cross-sectorial Collaboration
- Management and administrative skills
- Risk management and clinical governance responsibilities
- Skills in using new technologies – especially Telehealth and related technologies

The changing focus towards self-management of chronic disabilities or conditions has also impacted the skills demanded of Speech Pathologists. The changing focus from dependence upon the expert towards internal loci of control has required additional skill development in providing appropriate services.

Speech Pathologists also need to be flexible and responsive to the constantly changing demands of the system as well as to the demands and expectations of the community.

Speech Pathologists who work within regional areas of Australia have had to acquire an even broader range of skills to ensure that people who reside outside the metropolitan area are able to access services within their local communities.

4.4 PHYSICAL ENVIRONMENT CHANGES

Within tertiary hospitals, Speech Pathologists now provide services in the more acute medical settings to sicker patients at an earlier stage of their recovery. Speech Pathologist provides services in Intensive Care Units as well as high-dependency units, providing services to tracheostomised and ventilator dependant patients.

Service delivery changes have seen a significant increase in home-based therapy services. People with acquired communication and swallowing disorders are now seen within their home environment as part of early discharge and home-based rehabilitation services.

Community-based Speech Pathologists are also providing home-based programs. These programs are provided to much younger children than in previous years. New paradigms within the provision of community services have seen a focus on community development and enabling communities. This has required DOH staff to leave their centres and actively engage the community and other agencies.

These changes have required speech pathologists to develop new skill-sets. In addition to clinical skills, Speech Pathologists must now be familiar with adult-learning principles, be skilled in group facilitation and in behaviour-change management.

In addition to strong team skills within multidisciplinary healthcare teams, Speech Pathologists must also be able to engage effectively in cross-sectorial collaboration with both government and non-government agencies.

4.5 IMPACT OF WORK VALUE CHANGES

Speech Pathology interventions add value to the health system by reducing the financial, social and behavioural costs associated with communication and swallowing difficulties. More detailed commentary is provided in Section 3: Areas of Specialisation.

Financial Impact

Speech Pathology intervention with people with swallowing difficulties reduces the length of hospital stay due to decreasing medical complications arising from chest infections and other pulmonary complications as well as decreasing the length of time people require alternative feeding options. Provision of speech pathology services in Emergency Departments has been demonstrated to prevent hospital admissions, as well as accelerate the movement of patients from the Emergency Department to the wards.

The financial impact of intervention for disorders of communication is less well defined, though should be considered in terms of cost savings through return to work and independent participation in society, and prevention of complications such as anxiety and depression (and the associated costs of their treatment).

Social Impact

Health is more than an absence of disease. People with chronic communication and swallowing difficulties are at far greater risk of social isolation, reduced involvement in decision-making and depression. Speech Pathology interventions improve the quality of life of people with acute and chronic communication and swallowing difficulties by facilitating skills and enabling participation in everyday life activities,

Children with speech and language difficulties are at a higher risk of low academic achievement, in particular, literacy attainment. Children with speech and language difficulties are seven times more likely to have low academic achievement than their peers.[238]

Changes to workforce practices and the increasing importance of strong communication and literacy skills in the new technological age will have. long-term consequences for those with speech and language difficulties [239] People with often enter the workforce without these pre-requisite skills and face additional social and economic penalties.

Children with communication problems are at a higher risk of social and behavioural disruption, and as a general rule have socialisation difficulties. within and outside the school setting.[240] The incidence of victimisation or 'bullying' is also far more prevalent in children with communication disorders. This has significant ramifications for social acceptance, social integration and the development of self-esteem.

Significant communication and swallowing disorders do not just impact on the individual but on the surrounding social systems including families, carers and communities. Speech Pathology interventions target the broader social systems and impact on the wellness of the family.

Behavioural Impact

There is a strong association between early childhood communication disorders and the development of anti-social behaviour in later adolescence. There is over-representation of people with communication disorders within Australia's juvenile and adult justice systems.

Good communication skills have been identified as being a protective factor in childhood social development. Speech Pathology interventions have also been demonstrated to reduce challenging behaviours in children with ASD as well as children with complex communication disorders.

SUMMARY

There is substantial evidence to support the contention of a significant increase in work value within the speech pathology profession since 1989. This increase has resulted from: changing government policy and organisational structures; increased demands on the profession from regulatory bodies; advances in the medical and surgical management of patients; advances in technology; clinical developments within the speech pathology profession; a paradigm shift to evidence based practice; and increased community expectations.

Speech pathologists have successfully responded to the challenges presented to them. The profession has embraced the concept of evidence based practice and has welcomed new technologies that enhance patient management. Changes to training requirements and the establishment of minimum competency standards acknowledge the increasing complexity of patients and contribute to the expanding scope of speech pathology practice. A willingness to expand service delivery and consider service provision along a dynamic continuum ensures that, more than ever, consumers have access to the benefits provided through the increased value of speech pathology services.

5. REFERENCE LIST

1 Speech Pathologists are sometimes called Speech Therapists, Speech-Language Therapists and Speech-Language Pathologists within the professional literature.

2 Swallowing difficulties and dysphagia will be used interchangeably throughout this document. Dysphagia is the medical term that refers to problems swallowing.

3 Traumatic Brain Injury (TBI) and Acquired Brain Injury (ABI) will be used interchangeably for the purposes of this paper

[4] Supporting documentation contained in section 3 *'Areas of Specialisation'*

[5] Data supporting increased acuity and reductions in the length of stay are included in the HSU supporting documentation covering all disciplines.

[6] Birth outcomes for all live births in WA 1990 – 2003. Information from Department of Health WA identifying the increase in the survival rates of very-premature babies.

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[16] Data outlining the changes in public policy and the resultant changes in community expectations are outlined in HSU supporting documentation

[17] *Videofluoroscopy* is a radiological examination of swallow function

[17] Competency Based Occupational Standards (CBOS) for Entry Level Speech Pathologists is discussed in detail in section two *'Training, Qualification, Professional Standards and Registration*'.

[18] Supporting data for the increase in aggression and/or violence within the workplace is provided in the HSU supporting documentation.

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