

SPEECH AND LANGUAGE THERAPY

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INTRODUCTION

Speech and language therapy is primarily concerned with assessment, diagnosis and clinical management of communication difficulties, which can occur across a wide age range, and may be congenital, developmental or acquired. Some therapists are also qualified to work with certain types of swallowing difficulties. This article describes speech and language therapy and swallowing therapy for adults with acquired disorders associated with stroke, in the Lancaster district.

Local context

The speech and language therapy service (10.29WTE) is structured as shown in Figure 1, and is delivered at various locations across the district, with the majority of provision purchased by Morecambe Bay Health Authority. The service to adults with acquired disorders (2.30WTE) is provided across both NHS Trusts including acute, community and mental health settings, with emphasis on assessment and advice as part of a multi- and inter-disciplinary approach to health and social care.

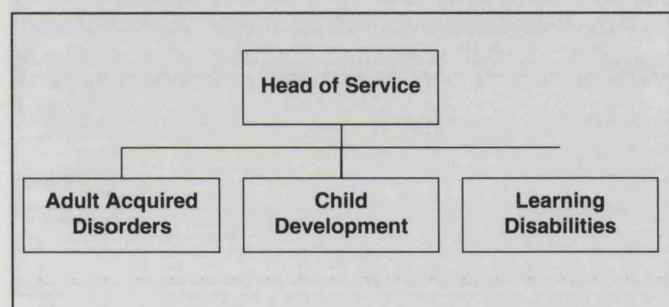


Figure 1 – Speech and Language Therapy Service structure

Referral

Departmental audit of referral records has shown that 67% of all referrals for adults with acquired disorders are for patients with difficulties related to stroke (Figure 2).

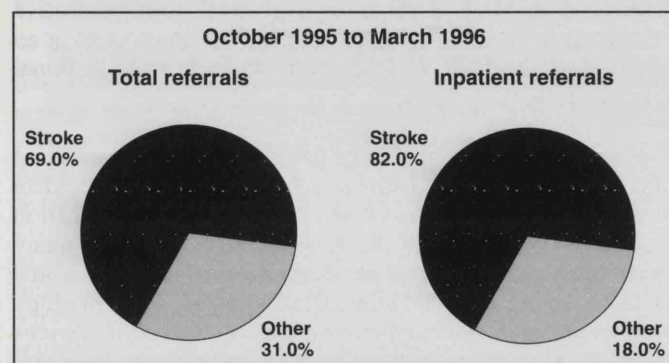


Figure 2 – Referrals for adults with acquired disorders; October 1995 to March 1996

The majority of these referrals are from consultant teams in general medicine, or elderly medicine, and general practitioners (GPs).

An open referral system is available for patients with communication difficulties, including self-referral, and referrals can be made in writing, by telephone, or in person. A written referral from a medical practitioner is required to support speech and language therapy input for patients with swallowing difficulties, in accordance with national professional standards⁽¹⁾ and local service policy.

Contact

Initial contact is essential to evaluate factors that indicate appropriate case management and prioritisation, as opposed to a waiting list based on date of referral alone. Form and frequency of contact is determined with regard to the objectives of clinical management and the effects of input.

COMMUNICATION

Specific communication disorders associated with stroke are, in the majority of cases, varying forms and degrees of dysphasia and/or dysarthria depending on features of the lesion. Other disorders include dyspraxia and dysphonia. A patient may exhibit characteristics of one or more of these disorders. Such disorders are present in about 35% of immediate survivors following cerebrovascular accident⁽²⁾.

Initial assessment of a stroke patient with communication difficulties is a combination of:

- relevant case history details and professional reports
- appropriate screening procedure
- patient/carer perspective

This is used to:

- establish the level of communication skills and communication needs
- provide information for the patient, carers and other professionals, including diagnostic detail
- indicate further assessment
- plan clinical management and set objectives

Clinical management is based on strengths and aimed at optimising function, and a number of key factors (Table 1) must be considered. It is important to address impairment, disability and handicap⁽³⁾, and especially the social aspects of disability, by including carers in the work and by the development of communication opportunities, in order to help generalise skills, promote useful communication and support adjustment.

Type/form of difficulty
Severity of difficulty
General condition
Overall prognosis
Access to service
Support
Awareness
Importance of communication
Motivation
Other psychosocial aspects

Table 1 – Key factors in clinical management of communication difficulties

Depending on the particular objectives, the effect of input can be related to:

- level of functional communication
- change in communication skills
- adjustment
- independence

DYSPHASIA

Dysphasia is a disorder affecting the ability to process language, and in adults, occurs as a result of acquired and recent damage of the central nervous system, typically focal damage in the left hemisphere. It is a multimodality disorder, represented by a variety of difficulties with understanding and output of spoken and written language, and ranges from mild word-finding problems to almost total inability to comprehend and produce language.

Considerable discussion in the literature has focussed on definition and classification of dysphasia⁽⁴⁾ and the influence on clinical management. In practice, it is necessary to recognise the contribution from traditional classification systems along with more recent cognitive neuropsychological models and functional communication approaches⁽⁵⁾.

Initial contact at a relatively early stage following a stroke is particularly important in cases of patients with dysphasia, because of the implications for other aspects of care and for psychological and social adjustment. Presence of dysphasia, and in particular comprehension difficulties, after stroke has been reported as severely underestimated by medical staff, nursing staff and carers⁽⁶⁾.

Assessment of dysphasia

Typically, a departmental criterion-referenced screening procedure is administered to obtain a basic profile of:

- **language understanding** – ability to comprehend single words, short instructions and complex constructions (both spoken and written forms)
- **language output** – ability to produce words, phrases, and sentences (both spoken and written forms)
- **functional communication** – ability to use non-verbal and verbal forms of communication

Numerous **formal assessments** are also available, the majority of which provide information about linguistic skills (Frenchay Aphasia Screening Test, Whurr Aphasia Screening Test, Boston Diagnostic Aphasia Examination, Psycholinguistic Assessments of Language Processing in

Aphasia). Assessment must take account of communicative competence – patients' abilities to cope with communication difficulties in natural situations. Fewer published assessments exist for evaluation of functional skills.

Assessment is used to identify problems, strengths and needs, and to monitor progress. As for any communication difficulty, but especially with dysphasia, it is necessary to consider a range of key factors (Table 1) to determine appropriate clinical management and objectives. Patients presenting with marked similarities in terms of linguistic impairment, may need quite different input because of differences – for example, in terms of carer support.

Clinical management of dysphasia

Advice for patients, carers and other professionals is essential, including explanatory booklets and individualised guidelines about dysphasia and ways to support effective communication. Discussion with the patient and carers is vital to the adjustment process, and helps to establish realistic expectations in terms of both recovery and therapy whilst developing confidence.

Specific treatment approaches may be used as part of clinical management. The choice and individualisation of interventions is again dependent on clinical judgement of various factors⁽⁷⁾.



Figure 3 – Specific treatment approaches: note the variety of aids, which encourage personal interaction

Some approaches are aimed directly at linguistic skills, such as comprehension training, semantic exercises, naming tasks and sentence production.

Others are focussed on non-verbal aspects, such as gesture, drawing and PACE (Promoting Aphasics' Communicative Effectiveness), and in many cases, these are introduced at an early stage because of the need to support functional communication.

Communication aids can be helpful to some patients, and range from basic communication charts/boards/folders through to computerised systems. Electronic communication aids have, until recently, been of limited benefit to many dysphasic patients, as most devices have used letters or words as their main means of input. Developments in technology offer considerable improvements both in terms of devices dedicated to communication (System 2000 Versa, Dynavox 2c) and personal computer-based software (Words+ software, Dynavox 2 software, EasySpeaker for Windows, Intact)^(8,9).

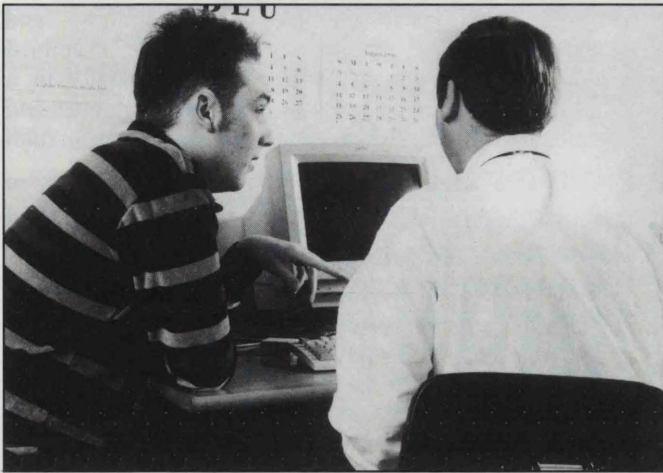


Figure 4 – Computerised system in use

These can be used as part of instruction and for functional purposes, in conjunction with other modes of communication. Issues regarding funding and training/support for patients and carers significantly affect availability and effective use of technology.

Ongoing support must be addressed in view of the long-term effects of dysphasia and the wider needs of the dysphasic person^(1,10). This is achieved through established healthcare, social and education services, and partnerships with voluntary organisations – notably the Stroke Association Dysphasic Support and Action for Dysphasic Adults initiatives at local level.

DYSARTHRIA

Dysarthria is a motor speech disorder resulting from disturbance in neuromuscular control⁽¹¹⁾. This is caused by damage to the central or peripheral nervous system, leading to weakness, slowness and/or incoordination of the speech mechanism. Different types of dysarthria can be identified following stroke:

flaccid
spastic
ataxic
mixed

Any of the basic components of speech production may be involved:

respiration
phonation
resonance
articulation
prosody

The characteristics of speech are changed, affecting the overall intelligibility of speech and functional communication.

Assessment of dysarthria

Screening procedures and formal assessments (Robertson Dysarthria Profile, Frenchay Dysarthria Assessment) are available, depending on the detail needed, and provide both quantitative and qualitative information about the main parameters of speech. As discussed above, a range of factors must be considered along with impairment when planning clinical management, which is aimed at maximising intelligibility of speech.

Clinical management of dysarthria

General modifications which affect posture, breathing and speaking environment can be of great help to patients with dysarthria. Advice from physiotherapy staff is used to establish optimum posture and breathing to support speech production. Basic changes in the speaking environment can be implemented in relation to background noise, seating arrangements, and length and pace of conversation.

Treatment methods may form part of clinical management⁽¹²⁾.

Compensatory strategies focussed on using residual potential, for example:

pausing to assist breath support
phrasing to promote articulatory precision
reduced rate of speaking to help intelligibility

Exercises for purposeful practice of relevant activity, for example:

breathing exercises (type, capacity, control)
voice exercises (phonation type, loudness, pitch)
neuromuscular facilitation techniques (manipulation by pressure, stretch and/or resistance)
oro-facial musculature exercises
articulation work
intonation exercises

It is important to balance the benefits of any exercise against the effects of potential fatigue.

Alternative/augmentative forms of communication may be useful for some patients, especially those with severe dysarthria, and include hand written methods, alphabet charts and synthetic speech devices.

SWALLOWING

In line with national trends, referrals to speech and language therapy for patients with swallowing difficulties have steadily increased over recent years (Figure 5). Departmental audit has shown that 60% of referrals for patients with difficulties related to stroke are for those with swallowing difficulties (generally together with communication difficulties).

Speech and language therapy input is concerned with pre-oesophageal physical swallowing difficulties. The term

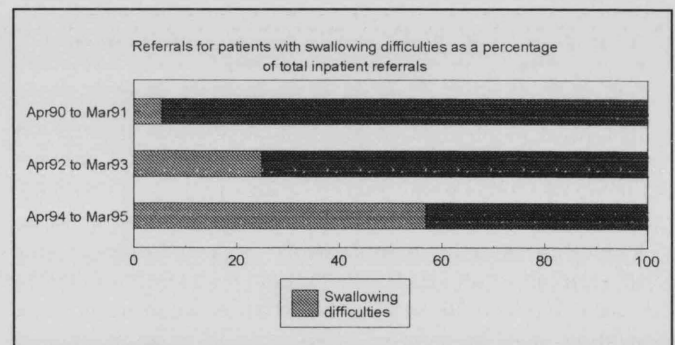


Figure 5– Inpatient referrals for adults with acquired disorders with swallowing difficulties

swallowing is used to refer to the entire act of deglutition from placement in the mouth through the oral and pharyngeal stages of the swallow until the material enters the oesophagus through the cricopharyngeal juncture⁽¹³⁾. Swallowing difficulties associated with stroke vary, depending on predominance of upper or lower motor neurone features⁽¹⁴⁾.

Assessment of swallowing difficulties

Speech and language therapy assessment is focussed on provision of information about the oral and pharyngeal stages of swallowing in terms of function and safety, which as a part of multidisciplinary assessment, is used to help to determine the overall clinical management coordinated by medical staff^(13,14).

Erroneously, the presence or absence of a gag reflex has been considered as an indication of the ability to swallow. Studies have shown the gag reflex to be highly variable among healthy persons and its assessment is not a reliable predictor of airway safety⁽¹⁵⁾.

A structured approach to assessment is needed, including:

- detailed case history with professional reports and patient/carer descriptions
- thorough "bedside" examination
- videofluoroscopy on selected patients

Other instrumental techniques, such as videoendoscopy, may also be applied in certain cases.

Bedside examination is comprised of observation and tactile monitoring of significant features in the oral and pharyngeal stages of the swallowing process⁽¹³⁾, and has two main parts:

- 1 **preparatory examination with no actual swallows** including examination of oral anatomy, lip function, tongue function, soft palate function, oral reflexes, oral sensation and laryngeal function.
- 2 **trial swallowing examination with actual swallowing** including examination of lip closure and lateral tongue movement for oral preparation, anterior to posterior tongue movement for bolus propulsion, triggering of the pharyngeal swallow and pharyngeal stage events of laryngeal elevation and anterior movement, and timing. Certain symptoms may be observed including collection of material in the oral cavity, coughing before/during/after swallowing, changes in voice quality, excessive secretions, regurgitation through the mouth or nose, and complaints of food sticking in the throat.

Bedside examination is also used to obtain information about posture for swallowing, consistencies, position of bolus in the mouth, and instructions for swallowing.

Videofluoroscopic examination is recommended for certain patients with difficulties that are not clearly limited to the oral cavity or with suspected aspiration. Pharyngeal stage difficulties may be inferred from bedside examination but many patients with aspiration are not identified because there is no sign of the aspiration^(16,17).

In conjunction with radiology, radiography and physiotherapy staff as appropriate, patients are examined with a modified barium swallow procedure, ideally in a seated position and viewed laterally, using small amounts and appropriate consistencies of material (liquid barium, barium paste, barium-coated solids)^(13,14).

This procedure is designed to investigate the dynamic and rapid process of swallowing in terms of:

- **physiology**, especially timing and pharyngeal stage events of tongue base action, velopharyngeal closure, pharyngeal wall movement, laryngeal closure, laryngeal elevation and anterior movement, and associated cricopharyngeal opening
- **symptoms** particularly bolus control difficulties, premature spillage, pharyngeal clearance difficulties, laryngeal penetration, aspiration, and regurgitation
- **treatment methods and efficacy**, including use of postures and manoeuvres, sensory facilitation, changes in the feeding process, and certain exercise techniques.

This examination would not be appropriate for patients with particularly severe difficulties – for example, complete failure to trigger a swallow in acute and early rehabilitation phases.

Data suggest that videofluoroscopic examination of the entire swallowing tract, in conjunction with bedside examination, is useful not only for diagnostic purposes but also for clinical management of swallowing^(18,19). At present, in the district, there are not the necessary facilities to perform videofluoroscopy. Local speech and language therapists are involved in supporting patients with regard to this procedure, which is arranged on an extra-contractual referral basis.

Clinical management of swallowing difficulties

Information from speech and language therapy assessment of oropharyngeal swallowing regarding anatomical structures, neuromuscular function, and any associated risk factors, is used by the multidisciplinary team to help to determine two main aspects of clinical management for patients with swallowing difficulties: type of feeding and type of treatment.

Type of feeding

Patients may be fed by **oral and/or non-oral methods** of intake. Clinical management of swallowing difficulties is superimposed on continuously adequate nutrition. Two parameters of swallowing are especially significant for nutritional management – the time taken to swallow a bolus of a particular consistency, and the aspiration risk in relation to a particular consistency.

Type of treatment

Treatment may include **direct work on swallowing using oral intake** and/or **indirect work on swallowing without oral intake**. Speech and language therapy input is a combination of advice to support the work of other professionals – nursing, physiotherapy and dietetics staff among others, and particular treatment approaches. Written guidelines, demonstration and supervised practice are needed to support the implementation of direct and indirect work on swallowing.

Compensatory strategies may be employed:

specific postures which affect pharyngeal dimensions and/or food flow such as chin down, head tilt, head rotation

modifications of texture

increased sensory input through taste, temperature, volume

alterations in feeding process in terms of speed, utensils, presentation of food/drink

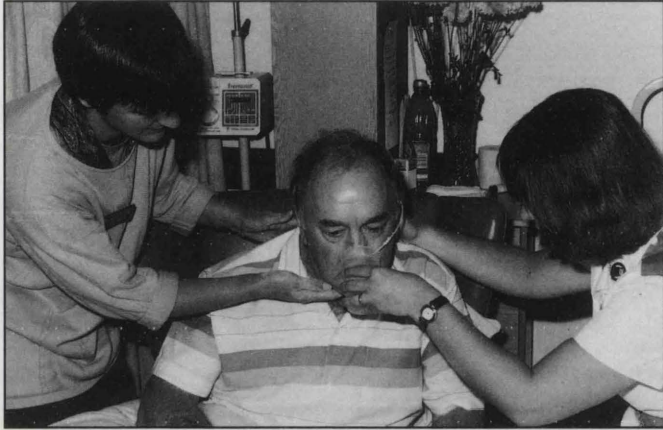


Figure 6 – Swallowing practice

Exercise techniques and procedures, aimed at changing the swallow physiology, may be used:

range of movement exercises for lips, tongue, vocal fold adduction

resistance exercises particularly for the tongue

bolus control and propulsion exercises

thermotactile stimulation techniques

swallow manoeuvres such as supraglottic swallow

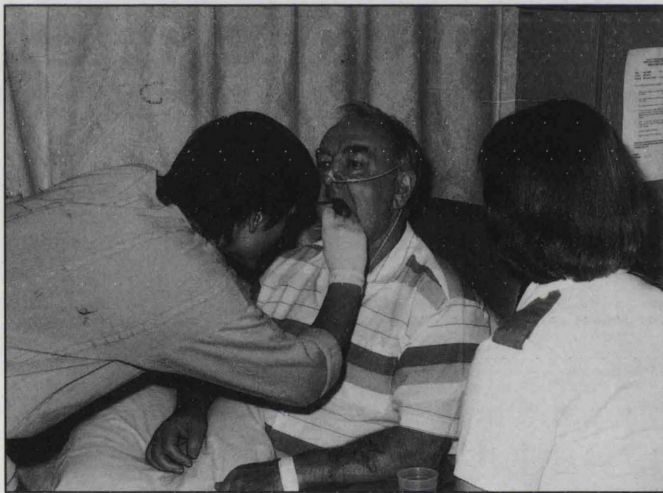


Figure 7 – Thermotactile stimulation

A pragmatic approach based on informed decision-making is essential in clinical management of swallowing difficulties. Depending on the particular objectives, the effect of input can be related to:

- prevention of complications
- change in swallowing function
- change in type of feeding method
- level of independence

A pre-referral screening assessment is currently being developed with nursing staff from acute medical wards to support identification of oropharyngeal swallowing difficulties and appropriate onward referrals, and to prioritise and maximise speech and language therapy input. Short

training workshops are planned prior to a pilot implementation phase to evaluate the design and effectiveness of the assessment protocol. The protocol will be linked to care pathway documentation developed through the Lancaster Priority Services NHS Trust Stroke Audit Project.

CONCLUSION

Stroke, as part of one major health topic in Morecambe Bay Health Authority Purchasing Plan, is identified as a common cause of disability, and rehabilitation is emphasised as a key focus for services to stroke patients. The role of speech and language therapy has been outlined above, and effective delivery of provision is dependent on considerable flexibility within the limited resources available locally. Recent initiatives have included establishing a new community service for adults with acquired disorders, and working with the Stroke Association to develop dysphasic support; both projects are funded for a fixed duration through joint finance. It is important to recognise and address the needs of stroke patients, particularly those with communication difficulties, and provide rehabilitation with a constructive emphasis that helps minimise the effects of disability.

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