



Best Practice

Evidence Based Practice Information Sheets for Health Professionals

Identification and Nursing Management of Dysphagia in Adults with Neurological Impairment

Acknowledgment

This *Best Practice* Information Sheet is based on a systematic review of research published by The Joanna Briggs Institute entitled Identification and Nursing Management of Dysphagia in Individuals with Neurological Impairment¹. The primary references on which this information sheet is based are available in the review. This research has been supported by a grant from the Sylvia & Charles Viertel Charitable Foundation. A brochure intended for use in teaching safe feeding practices to families and unregulated carers, is available from The Queensland Centre of The Joanna Briggs Institute.

Purpose

The purpose of this information sheet is to provide a summary of the best available evidence (systematic review) on the identification and nursing management of dysphagia in adults with neurological impairment. This document has relevance to both institutional and home settings.

Quality of Research

The systematic review identified a number of issues concerning the quality of the research. Whilst four papers were found to be level III evidence (pre-post or time series design), the remaining thirty-seven were classified as level IV. Whilst the majority of the level IV studies were descriptive, 14 were expert

This Best Practice Information Sheet Covers the Following Concepts:

- Signs and Symptoms
- Pathophysiology
- Risk Factors
- Assessment
- Management

opinion. In some cases, variability of sample sizes and the lack of rigorous research methods have meant that the studies' findings could be subject to bias or error. Because of these limitations, the information given in this *Best Practice* Information Sheet is based on both the systematic review results (level III and IV evidence) and expert clinical opinion from members of the Expert Panel.

**Definition of Dysphagia
Difficulty in swallowing.**

Levels of Evidence

All studies were categorised according to the strength of the evidence based on the following classification system.

Level I

Evidence obtained from a systematic review of all relevant randomised controlled trials.

Level II

Evidence obtained from at least one properly designed randomised controlled trial.

Level III.1

Evidence obtained from well designed controlled trials without randomisation.

Level III.2

Evidence obtained from well designed cohort or case control analytic studies preferably from more than one center or research group.

Level III.3

Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments.

Level IV

Opinion of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Introduction

Dysphagia is associated with a large number of neurological conditions such as traumatic brain injury, stroke, amyotrophic lateral sclerosis, Parkinson's disease, dementia, myasthenia gravis, multiple sclerosis and motor neurone disease. In addition, it may occur in otherwise healthy older persons due to changes in the oropharynx associated with natural aging, or in individuals with subclinical neurological impairment. It may also be related to the use of a variety of medications.

It is essential that nurses within hospitals, nursing homes and community settings, recognise risk factors and early signs of dysphagia, and where required, initiate referrals for further assessment.

There is limited nursing research that identifies effective nursing interventions related to the recognition and management of dysphagia, or the teaching and supervision of untrained persons in feeding individuals with impaired swallowing.

This information sheet is a summary of the available evidence relating to these needs.

Pathophysiology

Normal swallowing is often categorised in terms of four phases: oral preparatory, oral, pharyngeal, oesophageal. The latter 3 of which are depicted in Figure 1 - Saggital Section of the Anatomy involved in Swallowing. Successful swallowing is

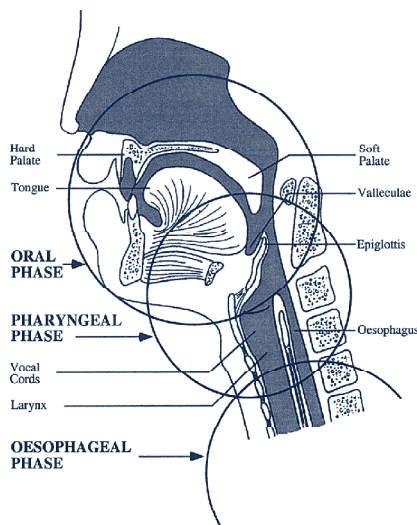


Figure 1 - Saggital Section of the Anatomy involved in Swallowing

dependent on the functioning of six cranial nerves, i.e. 5th Trigeminal; 7th Facial; 9th Glosso-pharyngeal; 10th Vagus; 11th Accessory and 12th Hypoglossal. Damage to any of these nerves may result in dysphagia.

Identification and nursing assessment of dysphagia

Early detection and referral is essential. The nurse's role in this process is to observe, assess, monitor and report. Knowledge of risk factors and signs of dysphagia, along with observation of eating/drinking habits, diet and signs of adequate nutrition and hydration, are necessary for early identification of swallowing problems.

An individual at risk of having swallowing problems must be referred to a medical practitioner or speech pathologist for further assessment.

In order to avoid the risk of aspiration, oral intake must be withheld until an appropriate health professional has undertaken the assessment.

In situations where assessment is not easily available, (e.g. geographical constraints, out-of-hours, long-term care setting) qualified nurses may be educated to perform a swallow screening assessment to identify signs of dysphagia.

Screening tools and flow sheets have been developed to aid nurses in their assessment and include the following points (Level IV):

- level of consciousness and alertness;
- cognition, orientation, memory, attention span and impulsiveness;
- drug therapy;
- strength, movement and symmetry of facial muscles, tongue and oral muscles;
- facial and oral sensation;
- voice and speech quality;
- cough reflex, presence and/or strength of a voluntary cough;
- swallow response and ability to perform voluntary swallow (to facilitate assessment of laryngeal movement and the time taken to swallow, place two fingers above and two below the thyroid cartilage);
- history of feeding problems; and
- current diet.

Signs and Symptoms of Dysphagia

General (Level IV):

- difficulty managing oral secretions or drooling
- absence or weakness of a voluntary cough or swallow
- changes in voice quality/tone (hoarseness/moist sounding)
- decreased mouth and tongue movements
- tongue thrust/primitive oral reflexes
- frequent throat clearing
- poor oral hygiene
- changes in eating patterns
- raised temperature
- weight loss and/or dehydration
- frequent chest infections

When eating or drinking (Level IV):

- slow to initiate a swallow and/or delay in swallow (over five seconds)
- uncoordinated chewing or swallowing
- multiple swallows for each mouthful
- pocketing of food in the cheeks
- oral or nasal regurgitation of food/fluids
- extended time to eat/drink
- coughing or sneezing during/following eating

Following the consumption of food or drink (Level IV):

- a wet or hoarse sounding voice
- fatigue
- changes in respiratory pattern

There is conflicting advice regarding assessing for a gag reflex, however, there is evidence to suggest that the presence of a gag reflex does not have a relationship to a person's ability to swallow safely.

It is important to remember that those who aspirate do not always present clinical signs of dysphagia.

Management

Nursing management aims to reduce the risk of aspiration and maintain nutrition and hydration through safe oral feeding practices. (Non-oral feeding methods are outside the scope of this practice sheet.) For the specific management of individuals with multiple sclerosis or Huntingtons Chorea please refer to the Systematic Review¹.

Team Approach

Many authors report that effective dysphagia management requires a multidisciplinary team approach, of which the nurse is an integral member. (Level III and IV)

The nurse's role is to:

- ensure that the texture, consistency and type of food and fluid is provided as prescribed;
- ensure that feeding is undertaken in accordance with specific techniques as recommended or taught by the speech pathologist or medical practitioner;
- ensure that medications are administered safely (as detailed in the following section);
- monitor oral intake and ensure adequate level of nutrition and hydration; and
- ensure that all team members involved in the individual's care are aware of their risk status, the appropriate food/fluid consistencies and specific feeding techniques to be used.

Risk Factors

Risk factors include (Level IV):

- individuals with the following neurological conditions: traumatic brain injury, cerebral palsy, cerebral vascular accidents, Alzheimer's Disease, dementia, diseases of cranial nerves, diseases of myoneural junction or muscles of swallowing such as Parkinson's Disease, amyotrophic lateral sclerosis, multiple sclerosis, myasthenia gravis, muscular dystrophies and motor neurone diseases
- an altered level of consciousness
- decreased cognitive abilities
- decreased alertness and attention span
- increased impulsiveness or agitation
- the use of medications such as psychotropic, neuroleptic, antidepressants, anticholinergic or phenothiazine drugs
- a hyper-extended neck or contractures
- facial and neck reconstruction
- cerebral anoxia
- long-term intubation
- advanced age
- speech problems

Maintenance of oral nutrition and hydration

The literature provided broad recommendations for nursing interventions aimed at maintaining oral nutrition and hydration in adults with neurogenic dysphagia, however, individual's needs and specific prescribed interventions must be a priority. (Level IV)

Considerations before feeding

- Oral hygiene can stimulate saliva flow and taste.
- Ensure a quiet, pleasant environment with no distractions.
- Check that the individual is alert and responsive, well rested and pain free.
- Check the individual's ability to communicate swallowing difficulty when feeding.
- If the individual has a dry mouth – try giving tart or sour foods/fluids before meals to stimulate saliva production and keep well hydrated.
- If thick oral secretions are a problem give proteolytic enzymes, such as papain (Paw-paw) before meals.

Positioning

Descriptive studies and expert opinion suggest:

- sitting upright with 90° hip and knee flexion, feet supported flat on floor/support, trunk and head in midline, head slightly flexed with chin down;
- supports may be necessary for the head or trunk;
- if bed-bound, using a high Fowler's position with head and neck supported and neck slightly flexed;
- if the head is unstable, the caregiver's hand can support the forehead (Note: a cervical collar may impede swallowing and is not recommended).

For unilateral paralysis:

- tilt the head slightly to the unaffected (stronger) side;
- rotate head towards the affected (weaker) side.

Diet

- Safer swallowing can be enhanced by using thickened fluids and a semi-solid diet with a homogenous texture (food that maintains its bolus shape easily and does not scatter in the oral cavity).

- The use of a bolus with heightened sensory qualities, such as, temperature, flavour and heaviness (for example, cold, sour or sweet foods) may stimulate an improved swallow. (It is important that cold food is not used if the individual has hypertonic reflexes).
- A high calorie, nutritious diet is essential to compensate for reduced intake and the additional physical effort needed to eat and drink.

Items to avoid

- Food and drink of extreme temperature.
- Thin liquids.
- Milk (this may contribute to excessive mucus production).
- Products that melt to a thin liquid in the mouth (e.g. ice chips, some gelatin products, ice cream).
- Foods containing mixed textures, for example, the combination of different consistencies such as is found in vegetable soup (solid and liquid food together).
- Dry crumbly foods.
- Particulate foods (for example, rice, dry breads).
- Stringy foods.
- Food that requires extensive chewing.
- Foods with seeds.
- Sticky foods (for example, peanut butter, bananas, soft white bread).

Feeding techniques

- The person feeding should sit at or below the individual's eye level when feeding.
- Avoid asking the individual to talk while eating.
- Give 1/2 to 1 teaspoon of solid food or about 10 - 15mls of liquid at a time.
- If the individual has unilateral paralysis, place

food in the unaffected side of the mouth.

- Avoid touching teeth or placing food too far back in mouth.
- Allow adequate time to feed.
- Encourage coughing after swallowing.
- Alternating liquids with solids may help clear the throat.
- An occupational or speech therapist may provide adaptive equipment (such as a modified cup to prevent neck extension).
- Special swallowing techniques may be recommended by the speech pathologist or medical practitioner.
- If fatigue is a problem (especially in neuro-degenerative diseases), six smaller meals a day and/or eating the main meal earlier in the day may be more effective.
- Check the mouth for pocketing of food.

Medications

For those who have a disease such as Parkinson's or myasthenia gravis, it is important that their medications are timed to facilitate peak drug action during meal times.

Safe administration of medications is essential. Consult a pharmacist on the most appropriate method to administer medication (not all tablets can be safely crushed), using the proper position, feeding techniques and appropriate consistency.

Specific interventions related to individuals with brain trauma or dementia

- Multisensory stimulation before meals may improve alertness.

- Orientate individuals to their surroundings.
- Provide a structured, quiet, eating environment without interruptions.
- Use verbal and visual cuing and/or paced prompting.
- Remove unnecessary food/utensils from tray to avoid distraction.
- Present small amounts of food at a time.
- If the individual has difficulty concentrating, there may be a need for smaller and more frequent meals (up to six per day).
- Oral desensitisation regimes may be used if there are hypertonic reflexes.
- Provide written directions for the consistency of food, amounts, and feeding techniques for those with memory deficits.

After feeding

- Check the individual's mouth for any remaining food and provide oral care.
- Keep the individual upright for approximately 30 to 60 minutes.

Monitoring

- Monitor individual's food and fluid intake and their weight for signs of dehydration or malnutrition.
- Monitor lung sounds and temperature to identify signs of aspiration.
- Regularly re-evaluate swallowing ability.

Family

Authors suggest:

- family/carer involvement in the care planning team;
- goals of treatment be communicated; and
- providing education or counselling for individuals with dysphagia and their carers.

Interventions to reduce the risk of aspiration

In order to prevent aspiration, it is essential that those considered at risk of dysphagia, or identified as having early signs of dysphagia, do not have any oral intake until they have been assessed by an appropriate health care professional. (Level IV)

Specific actions to reduce the risk of aspiration

- Ensure the individual is alert and not fatigued when feeding (give more frequent, smaller meals if necessary).
- Beware of the effects of medications such as tranquillisers, anti-epileptics, psychotropics and neuroleptics.
- If the individual is impulsive: provide constant reminders to slow down (cuing) and take small bites; only present a small amount of food at a time; use of cups with a lid and small hole may help slow fluid intake.
- Thin liquids should be avoided until after expert assessment.
- Avoid the use of straws or syringe feeding because of the difficulty controlling the rate and flow of fluids.
- Never leave the individual alone when eating/drinking.
- Avoid neck extension.
- Do not initiate oral feeding after removal of an endotracheal tube until swallowing assessment has been undertaken.
- Ensure that excessive oropharyngeal secretions are suctioned.
- Be prepared for emergency treatment of choking and

have the appropriate equipment easily available.

- Identify individuals at risk and communicate this to all staff.

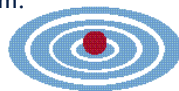
Education for staff, carers and family

The nurse's role includes ensuring that all caregivers (whether nurses, assistant nurses, volunteers or family) have the knowledge and skills to safely feed individuals with dysphagia. Education programs have been found to positively effect nursing knowledge and patient outcomes. (Level III and IV)

Programs aimed at nursing staff

Key aspects should include:

- anatomy and physiology of swallowing and abnormal swallowing;
- risk factors, signs and symptoms of dysphagia,
- nursing assessment techniques - both theory and practice;
- interventions such as diets and nutrition, feeding techniques, environment, adaptive equipment, positioning;
- emergency procedures;
- medications;
- organising care plans;
- referral guidelines; and
- the role of the nurse in the team.



Programs aimed at volunteers

Volunteers are increasingly used to assist those with feeding difficulties.

Programs designed to educate volunteers should include:

- signs of aspiration;
- safe feeding techniques;
- cuing techniques;
- positioning;
- dietary considerations;
- use of adaptive equipment;
- environmental management;
- post-meal care;
- infection control;
- safety and emergency procedures;
- practical learning sessions including observation and practice of feeding techniques; and
- supervision and assessment of the volunteers.

Programs for family/carers

No evaluations of education programs for families were found, however, suggested aspects of an education program include:

- safe, effective feeding techniques;
- emergency choking measures such as the Heimlich manoeuvre;
- information on nutrition, diet and dysphagia;
- positioning;
- essentials of safe swallowing;
- diet modifications appropriate to their home settings; and
- signs of adequate nutrition and hydration.

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FOR EVIDENCE BASED NURSING AND MIDWIFERY

Recommendations

These recommendations are based on the best evidence available, however, it must be noted that some studies were limited by small sample sizes and there is a need for further research to support the findings.

- A formalised multidisciplinary management program for dysphagia may be beneficial in promoting early recognition, appropriate management and prevention of complications. **Level III & IV**
- Knowledge of risk factors and signs and symptoms of dysphagia is essential for early detection. **Level IV**
- Nursing protocols or screening tools (including referral guidelines) may assist in early detection and management. **Level IV**
- An individual identified as being at risk of, or having dysphagia, must remain on nil orally until assessed by an appropriate health professional. **Level IV**
- Once an individual has been identified as being at risk of, or having dysphagia, they must be referred for further assessment to a medical practitioner or speech pathologist. **Level IV**
- Nurses should ensure that the texture, consistency and type of food and fluid is provided as prescribed. **Level IV**
- Nurses should ensure that feeding techniques are undertaken in accordance with the specific methods recommended by the speech pathologist or physician, and are aware of the safe feeding techniques generally recommended for individuals with neurogenic dysphagia (as detailed in this Information Sheet). **Level IV**
- Oral intake should be monitored to ensure adequate nutrition and hydration. **Level IV**
- Knowledge of interventions to reduce the risk of aspiration is essential. **Level IV**
- Nurses should ensure all caregivers have the knowledge and skills to safely feed individuals with dysphagia. **Level III & IV**

¹ Ramritu P, Finlayson K, Mitchell A, Croft G. Identification and Nursing Management of Dysphagia in Individuals with Neurological Impairment. The Joanna Briggs Institute for Evidence Based Nursing and Midwifery; 2000 Systematic Review No. 8

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