



SIGN

Scottish Intercollegiate Guidelines Network

Part of NHS Quality Improvement Scotland



119

Management of patients with stroke:
identification and management of dysphagia

A national clinical guideline

June 2010

KEY TO EVIDENCE STATEMENTS AND GRADES OF RECOMMENDATIONS

LEVELS OF EVIDENCE

1 ⁺⁺	High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
1 ⁺	Well conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias
1 ⁻	Meta-analyses, systematic reviews, or RCTs with a high risk of bias
2 ⁺⁺	High quality systematic reviews of case control or cohort studies High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
2 ⁺	Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2 ⁻	Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, eg case reports, case series
4	Expert opinion

GRADES OF RECOMMENDATION

Note: The grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation.

A	At least one meta-analysis, systematic review, or RCT rated as 1 ⁺⁺ , and directly applicable to the target population; or A body of evidence consisting principally of studies rated as 1 ⁺ , directly applicable to the target population, and demonstrating overall consistency of results
B	A body of evidence including studies rated as 2 ⁺⁺ , directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 1 ⁺⁺ or 1 ⁺
C	A body of evidence including studies rated as 2 ⁺ , directly applicable to the target population and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2 ⁺⁺
D	Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2 ⁺

GOOD PRACTICE POINTS

- | | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Recommended best practice based on the clinical experience of the guideline development group |
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identification and management of dysphagia**
A national clinical guideline



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1 Introduction

1.1 THE NEED FOR A GUIDELINE

Dysphagia is a frequent and potentially serious complication of stroke,¹ and in some cases may be the sole or overriding symptom.²⁻⁵ Reports of incidence vary according to the definition of dysphagia and the timing and method of assessment. Videofluoroscopic evidence indicates the presence of dysphagia in 64-90% of conscious stroke patients in the acute phase, with aspiration confirmed in 22-42% of cases.⁶⁻⁸

Dysphagia is associated with excess morbidity and increased mortality rates. It gives rise to a risk of aspiration and associated bronchopulmonary infections, fluid depletion and undernutrition.⁹⁻¹³ Whilst it is recognised that the development of undernutrition is multifactorial, nutritional problems may be exacerbated by decreased swallow function following stroke. Patients with acute stroke who are undernourished may take significantly longer to recover and have a higher mortality than those who are well nourished.^{14,15}

Most dysphagia resolves within the first few weeks,^{1,9,11-13,16} but in some cases it may persist^{1,6,17} with resulting long term consequences for nutrition management and psychosocial adjustment.

Implementation of a systematic programme of diagnosis and management of dysphagia within an acute stroke management plan can reduce the occurrence of pneumonia.¹⁸ Despite this evidence, the detection and management of swallowing problems in acute stroke is inadequate in many hospitals.¹⁹ The aim of this guideline is to assist practitioners in reducing the morbidity associated with dysphagia by early detection of swallowing disorders in stroke patients and application of appropriate methods to support food and fluid intake.

Although much has been written on the subject, there is a paucity of good, high level evidence to support the management of this aspect of stroke. There is an ongoing need for healthcare professionals to evaluate their practice in relation to outcomes and to consider carrying out audit and research in the field.

1.1.1 UPDATING THE EVIDENCE

This guideline is an update of SIGN 78 Management of patients with stroke: identification and management of dysphagia and supersedes it.

Since the publication of SIGN 78 in 2004, new evidence has been published in areas covered by the recommendations in that guideline resulting in the need for this selective update. Where this evidence was thought likely to significantly change the content of these recommendations, it has been identified and reviewed.

The guideline development group based its recommendations on the evidence available to answer a series of key questions, listed in Annex 1. This guideline was updated in conjunction with SIGN 118 Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning.²⁰ The guideline development group, specialist peer reviewers and others involved in consultancy, and the details of the systematic literature review are detailed within that guideline.

Where new evidence does not update existing recommendations, no new evidence was identified to support an update or no key question posed to update a section, the guideline text and recommendations are reproduced from SIGN 78. The original supporting evidence was not re-appraised by the current guideline development group.

1.2 REMIT OF THE GUIDELINE

1.2.1 OVERALL OBJECTIVES

This guideline provides recommendations based on current evidence for best practice in the identification and management of dysphagia after stroke.

The guideline does not apply to people with neurological conditions other than stroke, or to people with subarachnoid haemorrhage.

The guideline complements SIGN 118 Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning.²⁰ and SIGN 108 Management of patients with stroke or TIA: assessment, investigation, immediate management and secondary prevention.²¹

1.2.2 TARGET USERS OF THE GUIDELINE

The guideline is relevant to all personnel in contact with stroke patients throughout the care pathway from initial primary care response, through hospital admission, on to continuing care in the community. As the evidence base is strongest for patients in the acute setting, the emphasis is on this context.

1.2.3 SUMMARY OF UPDATES TO THE GUIDELINE, BY SECTION

2	Initial clinical evaluation of swallowing and nutrition after stroke	Minor update
3	Assessment	Unchanged
4	Training for screening and assessments	Unchanged
5	Effect of therapy on patient outcome	New
6	Nutritional interventions	Minor update
7	Other management issues	Unchanged
8	Provision of information	Minor update

1.3 DEFINITIONS

The World Health Organisation defines stroke as a clinical syndrome of rapidly developed clinical signs of focal or global disturbance of cerebral function, lasting more than 24 hours or leading to death with no apparent cause other than vascular origin.²²

Dysphagia, a difficulty in swallowing, can be caused by many pathologies including stroke. In patients with stroke, it is characterised by difficulty in safely moving food or liquids from the mouth to the stomach without aspiration. It may also involve difficulty in oral preparation for the swallow, such as chewing and tongue movement.

1.4 STATEMENT OF INTENT

This guideline is not intended to be construed or to serve as a standard of care. Standards of care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national guideline or any local guidelines derived from it should be fully documented in the patient's case notes at the time the relevant decision is taken.

1.4.1 PRESCRIBING OF LICENSED MEDICINES OUTWITH THEIR MARKETING AUTHORISATION

Recommendations within this guideline are based on the best clinical evidence. Some recommendations may be for medicines prescribed outwith the marketing authorisation (product licence). This is known as “off label” use. It is not unusual for medicines to be prescribed outwith their product licence and this can be necessary for a variety of reasons.

Generally the unlicensed use of medicines becomes necessary if the clinical need cannot be met by licensed medicines; such use should be supported by appropriate evidence and experience.²³

Medicines may be prescribed outwith their product licence in the following circumstances:

- for an indication not specified within the marketing authorisation
- for administration via a different route
- for administration of a different dose.

‘Prescribing medicines outside the recommendations of their marketing authorisation alters (and probably increases) the prescribers’ professional responsibility and potential liability. The prescriber should be able to justify and feel competent in using such medicines.’²³

Any practitioner following a SIGN recommendation and prescribing a licensed medicine outwith the product licence needs to be aware that they are responsible for this decision, and in the event of adverse outcomes, may be required to justify the actions that they have taken.

Prior to prescribing, the licensing status of a medication should be checked in the current version of the British National Formulary (BNF).²³

1.4.2 ADDITIONAL ADVICE TO NHSSCOTLAND FROM NHS QUALITY IMPROVEMENT SCOTLAND AND THE SCOTTISH MEDICINES CONSORTIUM

NHS QIS processes multiple technology appraisals (MTAs) for NHSScotland that have been produced by the National Institute for Health and Clinical Excellence (NICE) in England and Wales.

The Scottish Medicines Consortium (SMC) provides advice to NHS Boards and their Area Drug and Therapeutics Committees about the status of all newly licensed medicines and any major new indications for established products.

No relevant SMC advice or NICE MTAs were identified.

2 Initial clinical evaluation of swallowing and nutrition after stroke

Dysphagia affects a large proportion of stroke patients. Swallowing difficulties can result in aspiration and reduced oral intake. These in turn can lead to the potentially serious complications of pneumonia, undernutrition and dehydration. As these complications may be avoidable or reversible, it is important to screen all stroke patients in order to identify those individuals at risk.^{18,26,27}

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C All stroke patients should be screened for dysphagia before being given food or drink.

2.1 ASSESSING RISK OF PNEUMONIA

The presence of dysphagia indicates an increased risk of lower respiratory tract infection.²⁶ Confirmed aspiration has been found to increase the risk of pneumonia by some,^{11,28} although others have found no such link.¹⁰ The aspiration of solid material or thickened fluids leads to an increased risk of developing pneumonia.²⁸⁻³⁰ A prolonged pharyngeal transit time is also associated with increased risk of aspiration pneumonia.³¹

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Pneumonia does not always occur in the presence of aspiration and may occur in the absence of aspiration, as a consequence of other factors present in the stroke patient (eg smoking, respiratory disease, immobility or comorbidity).³²⁻³⁵

2+

The relationship between aspiration and pneumonia is complex, but aspiration is a risk factor and must be identified as a priority.

2.1.1 ASPIRATION RISK

Coughing is a sign of material penetrating the airway, but the absence of cough does not indicate safe swallowing; up to 68% of patients seen to aspirate on videofluoroscopy fail to cough.²⁶

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Risk of aspiration is suggested by the following:^{36,37}

- wet, hoarse voice
- weak voluntary cough
- any indication of reduced laryngeal function.

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Reduced conscious level is also an indicator of aspiration risk.³⁷

The gag reflex is unreliable and insensitive as an independent predictor²⁶ and should only be used as part of a more detailed assessment procedure (see section 3).³⁸

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One screening study suggests that reduced pharyngeal sensation may be associated with aspiration,⁸ although other papers report conflicting results.³⁹ Testing of pharyngeal sensation in stroke patients may be useful in predicting aspiration, but there is currently insufficient evidence to recommend its use as a screening tool.

3

Laryngopharyngeal sensory testing has also been described but insufficient evidence was identified to recommend it.⁴⁰

A water swallow test is often used to identify aspiration risk. The patient is given teaspoonfuls of water and the initiation of the swallow and any occurrence of coughing or alteration in voice quality are observed (see Annex 2). If there are no adverse signs, the patient is given a larger quantity to drink from a glass. This test has a reported sensitivity of >70% and a specificity of 22-66% for prediction of aspiration²⁶ and has been found to be a useful and reasonably sensitive screening test.^{16,41}

2++

B The water swallow test should be used as a part of the screening for aspiration risk in stroke patients.

2.1.2 OTHER RISK FACTORS

Dysphagia in conjunction with pulmonary compromise (eg chronic obstructive pulmonary disease, smoking or cough that does not clear the chest adequately) may increase the risk of pneumonia.^{27,33,42}

Requiring help with eating has been shown to be a significant risk factor in the development of aspiration pneumonia in elderly patients.³³

Dental decay, the presence of cariogenic bacteria and other oral pathogens may be important risk factors for aspiration pneumonia in elderly patients.^{33,43}

2+

C Clinical history taking should take into account comorbidities and other risk factors (eg smoking or respiratory disease) to identify increased risk of developing aspiration pneumonia.

Medications for pre-existing conditions that list dysphagia as a potential side effect should be excluded (eg bisphosphonate and potassium supplements, refer to the manufacturer's recommendations).

2.2 SWALLOW SCREENING

In clinical practice, the screening process is used to identify those patients who should be referred for full clinical assessment by a professional skilled in the management of dysphagia (usually a speech and language therapist; SLT). If the screening procedure does not identify any difficulties, the patient can be allowed to eat and drink, avoiding unnecessary restrictions on oral intake while awaiting a full clinical assessment.

Screening tests are based on identified risk factors and should be carried out by healthcare professionals trained in the procedure. In the acute setting, this is usually a trained nurse.

Studies assessing the natural history of swallowing function after acute stroke suggest that many patients with dysphagia recover their swallowing within the first week^{1,11-13} and the majority will have improved by the end of the second week.^{9,11}

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D Patients with dysphagia should be monitored daily in the first week to identify rapid recovery. Observations should be recorded as part of the care plan.

Patients not fit for assessment should be screened daily to avoid delay in referral for full clinical assessment.

2.2.1 SWALLOW SCREENING PROCEDURES

A number of similar screening procedures are described in the literature. All rely on a small range of clinical features, designed to highlight swallowing dysfunction.²⁶ An example swallow screening procedure is shown in Annex 2.

2++

B A typical swallow screening procedure should include:

- initial observations of the patient's consciousness level
- observations of the degree of postural control.

If the patient is able to actively cooperate and is able to be supported in an upright position the procedure should also include:

- observations of oral hygiene
- observations of control of oral secretions
- if appropriate, a water swallow test.

Screening protocols must include a clear pathway of action for all possible outcomes (eg onward referral, nil by mouth, commence oral diet).

- Patients who are nil by mouth or are on a modified diet should continue to receive clinically essential medication by an appropriate route as advised by a pharmacist.

2.3 ASSESSING RISK OF UNDERNUTRITION

Observational studies have determined that between 16-49% of stroke patients, with or without dysphagia, are undernourished on admission to hospital.⁴⁴⁻⁴⁶ In addition, dysphagia in itself is associated with undernutrition.²⁶

The predictors of undernutrition on admission to stroke rehabilitation are:⁴⁴

- the use of tube feeding
- a prior stroke
- diabetes mellitus.

The predictors of undernutrition at one week post stroke are:⁴⁴⁻⁴⁶

- pre-existing undernutrition
- swallowing problems
- increased free urinary cortisol.

Low serum albumin levels on admission show a significant association with poor outcome.¹⁵

- Early and sequential screening for nutritional risk is needed to permit appropriate nutritional intervention.

2.4 NUTRITIONAL SCREENING

Nutritional screening is a simple and rapid procedure that identifies clinical characteristics known to be associated with a reduction in nutritional status. The results of the screening process should direct any further action required, eg referral to a dietitian for a comprehensive nutritional assessment, or the recording of food and fluid intake. Early and regular screening of stroke patients for undernutrition is important.⁴⁷⁻⁴⁹

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Stroke population based studies concluded that nutritional deficits develop throughout the rehabilitation phase indicating the need for more structured monitoring of nutritional status.¹⁵⁵ In one study 57% of patients were found to have lost weight from week one to six months post-stroke and 22% were undernourished at six months post stroke.¹⁵⁶

Ongoing assessment of nutritional risk requires monitoring of a number of different parameters. A systematic review of eating difficulties post stroke highlighted the need to observe independent eating and volume of food consumed.¹⁵⁷ Other identified predictors of nutritional risk are severe stroke, higher dependence, low pre-albumin levels and impaired glucose metabolism and unintentional weight loss.^{155,158}

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The evidence supports the need to combine the results from these parameters to provide an accurate assessment of ongoing nutritional status rather than relying on any single measure.¹⁵⁹

D Patients' nutritional risk should be established using a valid and reliable screening procedure suitable for stroke patients.

D Assessment of nutritional risk should be carried out within the first 48 hours with regular re-assessment thereafter during the patient's recovery and be recorded prior to any discharge.

D Assessment of a patient's nutritional risk should include an assessment of their ability to eat independently and a periodic record of their food consumption.

D Ongoing monitoring of nutritional status should include a combination of the following parameters:

- **biochemical measures** (*ie low pre-albumin, impaired glucose metabolism*)
- **swallowing status**
- **unintentional weight loss**
- **eating assessment and dependence**
- **nutritional intake.**

D Results from the nutritional screening process should guide appropriate referral to a dietitian for assessment and management.

2.4.1 NUTRITIONAL SCREENING PROCEDURES

The following screening parameters have been suggested by the Nursing and Midwifery Practice Development Unit (2002)⁴⁹ as suitable for the care of adults in hospital:

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D Nutritional screening should cover:

- **body mass index (BMI)**
- **ability to eat**
- **appetite**
- **physical condition**
- **mental condition.**

Although many screening tools use BMI as a criterion to assess undernutrition, a recent review concluded that weight and weight change were more sensitive and more dynamic screening parameters than BMI in older people.⁵⁰ Weighing and measuring stroke patients may present some practical problems, as specialist equipment and training may be required.

The Malnutrition Universal Screening Tool (MUST), launched in 2004, has been endorsed by the British Dietetic Association, The Royal College of Nursing and the Registered Nursing Home Association. Further information is available at www.bapen.org.uk

2.5 ASSESSING RISK OF DEHYDRATION

Dysphagia is associated with dehydration but no evidence on the clinical predictors of dehydration was identified.^{9,12,51} There is no evidence of a clear relationship between radiological aspiration and oral dehydration.^{10,30}

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3 Assessment

Assessments by trained personnel typically use a range of fluid and solid textures to define the physiological dysfunction, identify the need for further investigation, test the effectiveness of selected treatments and enable the development of a management plan.

3.1 CLINICAL BEDSIDE ASSESSMENT

Two systematic reviews have assessed the sensitivity and specificity of the clinical bedside assessment (CBA) of oropharyngeal swallowing.^{26,27} The definition of CBA varies between studies.^{37,38,52-56} There is a need for research on a standardised CBA tool to allow direct comparison and aggregation of data.

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B A standardised clinical bedside assessment (CBA) should be used by a professional skilled in the management of dysphagia (currently speech and language therapists).

The CBA developed by Logemann contains 28 items (see Annex 3)³⁸ and has been tested for inter- and intra-rater reliability.

Grouping of some items increases sensitivity and specificity for the identification of oral stage swallowing problem, aspiration, pharyngeal delay and pharyngeal stage swallowing disorder.³⁸

2+

B The CBA developed and tested by Logemann, or a similar tool, is recommended.

3.2 INSTRUMENTAL ASSESSMENT

The CBA can also be used to determine the need for, and appropriateness of, additional instrumental assessment.⁵⁷ The limitations of clinical testing, eg poor detection of silent aspiration⁵² and poor information on the efficacy of an intervention, mean that a reliable, timely and cost effective instrumental swallow evaluation should be available for all patients following acute stroke.⁵⁸

3.2.1 MODIFIED BARIUM SWALLOW

The modified barium swallow (MBS) is a dynamic assessment of the oral, pharyngeal and upper oesophageal phases of swallowing using videofluoroscopy.⁵⁹ It provides a comprehensive instrumental assessment of swallowing, determining not only whether the patient is aspirating but also why. MBS allows for experimentation with dietary textures, postures and manoeuvres hypothesised to improve the safety and efficiency of the swallow.⁶⁰

MBS is regarded as the “gold standard” in the assessment of dysphagia, both diagnostically and therapeutically. It is difficult to assess MBS in the absence of an investigation with equivalent credibility. There is limited standardisation among centres and the reliability of reporting is variable. Inter- and intra-agreement varies between 66 and 98%.²⁶

2+

Although absence of aspiration observed on MBS may be a reliable observation, there is conflicting evidence regarding the clinical significance of aspiration observed on MBS.⁶¹ Some papers demonstrate a link between aspiration and lower respiratory tract infection, and other parameters, such as prolonged hospital stay and increased disability. One investigation has demonstrated no association with aspiration on MBS.¹⁰

2+

Other cited limitations of MBS include potential difficulty in transporting stroke patients to a radiology department, exposure to radiation and the limitations of basing management recommendations on a “snapshot” view of swallowing function.

3.2.2 FIBRE OPTIC ENDOSCOPIC EVALUATION OF SWALLOW

Fibre optic endoscopic evaluation of swallowing (FEES) is an assessment of swallowing using a flexible nasendoscope, which is passed into the nares, over the velum and into the pharynx.

Two well conducted studies support the value of FEES as an inexpensive, portable and reliable alternative to the MBS.^{62,63} No anaesthesia was used in either of these studies prior to passing the endoscope. FEES has been shown to be as effective as MBS in detecting laryngeal penetration, aspiration and residue. Sensitivity and specificity are best for penetration (100% and 75%) and aspiration (88% and 92%). In addition, FEES is a valuable tool for observing bolus movement through the hypopharynx and gauging the success of airway protection manoeuvres.⁶³ FEES cannot be used to assess oral stage of swallowing disorders or determine bolus movement at the point of swallowing.

There is some evidence, in a neurological dysphagia-specific group (not all stroke patients), that patient outcome with respect to development of pneumonia is essentially the same whether dietary and behavioural management are guided by the results of MBS or FEES.⁶²

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C The modified barium swallow test and fibre optic endoscopic evaluation of swallow are both valid methods for assessing dysphagia. The clinician should consider which is the most appropriate for different patients in different settings.

3.3 OTHER ASSESSMENTS

3.3.1 CERVICAL AUSCULTATION

Cervical auscultation (CA) involves placing a stethoscope on the lateral aspect of the larynx and listening to the airflow during normal breathing and swallowing.

There is no consistent evidence to support the usefulness of CA in the assessment of dysphagia. One study with a limited stroke population suggests that the addition of CA does not improve the accuracy of the CBA when assessing pharyngeal delay and residue.⁶⁴ When raters are experienced, however, good agreement can be achieved in the detection of aspiration when comparing CA with CBA and MBS although it should be noted that these assessments were not conducted simultaneously.⁶⁴

3

One study has shown that speech and language therapists cannot reliably detect aspiration when listening to swallow sounds in isolation in a mixed group of patients.⁶⁵

There is insufficient evidence to recommend CA for evaluating risk of aspiration and pharyngeal stage dysphagia. Further research is required as to the added value of CA to the CBA, given that it is an inexpensive and readily available test that presents no direct risk to patients.

3.3.2 PULSE OXIMETRY

There are several studies assessing the relationship between changes in oxygen saturation (measured in arterial blood flow by pulse oximetry) and aspiration. The results are conflicting and demonstrate that some stroke patients become hypoxic and in some, this coincides with eating and drinking. The weight of evidence would suggest that pulse oximetry registers a complex series of events in relation to swallow function.⁶⁶⁻⁷³

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One study demonstrates falls in oxygen saturation of 2% and 4% in 52% and 14%, respectively, of normal elderly people with no complaint of dysphagia.⁷⁴

Changes in oxygen saturation can occur for a variety of reasons and cannot at this stage be related to the presence of dysphagia or aspiration. The use of pulse oximetry should be investigated further.

4 Training for screening and assessments

4.1 SCREENING

Little evidence is available on the training required to become competent in dysphagia screening with water swallow tests. One simple reliability study suggests that inter-rater agreement on a standardised swallowing assessment is better amongst assessors who have received full training, including both theoretical and practical input.⁷⁵

3

It is generally agreed that nurses play a vital role in the early identification of swallowing difficulties. One systematic review of descriptive studies recommends that nursing knowledge and practice should include: risk factors, early signs, observation of eating and drinking habits and monitoring weight, body mass index and hydration.⁷⁶

4

Various training packages are available.⁷⁶ Evaluation of the effectiveness of training is largely informal but all evaluations report benefits of training in terms of knowledge, practical skills and confidence.^{77,78} Following nurse training, the rate of referral to SLTs was not reduced, but more of the referrals were appropriate.⁷⁹

3

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No single model for staff training emerges as better than any other but some training packages designed for use in specific NHS hospitals have been made available for wider use.^{80,81}

4

D A training package for nurses should include:

- risk factors for dysphagia
- early signs of dysphagia
- observation of eating and drinking habits
- water swallow test
- monitoring of hydration
- monitoring weight and nutritional risk.

4.2 ASSESSMENT

4.2.1 CLINICAL BEDSIDE ASSESSMENT

The Royal College of Speech and Language Therapists (RCSLT) provides guidelines for training and registration for professionals performing CBA and gives details of the knowledge and skills required.⁸²

4

4.2.2 MODIFIED BARIUM SWALLOW

Legislation in the UK requires all those conducting radiological assessments to be trained in radiation protection (IR(ME)R 2000).⁸³

4

There is no stipulated level of training which would guarantee competency in the use of videofluoroscopy or image interpretation. Several inter-rater reliability studies have produced disappointing results and some authors have suggested the need for training using specific or standard criteria in order to improve interjudge reliability.^{61, 84-86} Some authors have addressed this by proposing clearly defined rating scales^{87,88} (see Annex 4).

3

4

The RCSLT provides guidelines based on expert consensus, for pre-and postregistration training in dysphagia and the use of invasive procedures.^{82,89} Specialist training is required before an SLT can carry out an MBS test. The knowledge and skills required are outlined in the RCSLT guidelines, but no specific model of training is recommended.

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4.2.3 FIBRE OPTIC ENDOSCOPIC EVALUATION OF SWALLOW

The RCSLT guidelines and other expert opinion agree that fibre optic endoscopy should only be performed by suitably trained healthcare professionals.⁸⁹ Detailed course requirements are provided by RCSLT.

4

4.2.4 IMPACT OF TRAINING

The RCSLT recommends postregistration training for conducting instrumental assessments. Employers should be aware of this and be prepared to fund training and supervision as required.

- D All staff involved in the detection and management of dysphagia should be trained according to the recommendations of the relevant professional body.**
- D Standard criteria should be established for the interpretation of the results of radiological and fibre optic assessments.**

5 Effect of therapy on patient outcome

5.1 DIET MODIFICATION AND USE OF COMPENSATORY TECHNIQUES

Diet modification is the alteration of the texture or viscosity of food and fluids. Compensatory techniques refer to postures (the manipulation of head or body posture) or manoeuvres (the manipulation of an isolated aspect of the swallowing mechanism). Therapy techniques are exercises or strategies designed to facilitate or stimulate the swallow. The objective of these strategies is to influence the speed and directional flow of the bolus.

Diet modification and use of postures or manoeuvres have been shown to be effective in specific individuals using videofluoroscopy and are standard management of dysphagia following stroke.^{18,110}

Observational studies of the effects of therapy interventions are variable in quality (eg small sample size, highly selected patients and no control group) but have shown a favourable effect.¹¹¹⁻¹¹⁴

Advice on diet modification and compensatory techniques is usually given following analysis of swallowing physiology. This advice is best offered following assessment of swallowing function on FEES or MBS.^{18,57}

One randomised controlled trial (RCT) conducted in a stroke rehabilitation unit examined the effect of intensity of therapist intervention on the occurrence of complications following MBS assessment.²⁹ Treatment consisted of diet modification and compensatory swallowing techniques. All groups also received written advice. When comparing written education versus fortnightly review versus daily review, no significant benefit was noted for the group with the highest degree of therapist intervention.

D Advice on diet modification and compensatory techniques (*postures and manoeuvres*) should be given following full swallowing assessment.

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3
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1+

5.2 TEXTURE MODIFICATION

The nutritional content of texture modified food may be reduced in the processing. It may also look unappetising leading to poor adherence to such diets.

National guidelines on texture modification and fluid thickness have been agreed between dietitians and speech and language therapists (*see Annex 5*).^{115,116}

D Texture modified food should be attractively presented and appetising. Patients should have a choice of dishes.

Texture modified meals may be fortified to enable patients to meet nutritional requirements.

Food and fluid intake should be monitored and, if indicated, a referral made to the dietitian.

2+
2-

5.3 DYSPHAGIA THERAPY

Management of dysphagia is frequently based around a compensatory approach. Facilitatory therapy approaches are active therapeutic approaches which aim to have a direct and lasting effect on the swallowing physiology after stroke. A shift to increased use of facilitatory therapy approaches would have implications for therapy time and resources, which may be balanced by improved recovery to normal oral intake and less dependence on non-oral feeding.

A single RCT which compared the standard compensatory approach to dysphagia management with the inclusion of active behavioural therapy intervention demonstrated a consistent trend towards more positive outcomes with an increased proportion of patients returning to normal diet and improved swallowing at six months post stroke.¹⁶⁰ There was also a trend towards improved outcome in those treated more intensively.

1+

5.3.1 MUSCLE-STRENGTHENING EXERCISES

A small RCT of the effectiveness of a suprahyoid muscle-strengthening exercise programme demonstrated significant improvements. Fourteen of the 27 patients had chronic post-stroke dysphagia and were tube fed prior to the intervention.¹⁶¹ Suprahyoid strengthening programmes are designed to have an effect on the pharyngeal biomechanics of the swallow by increasing upper oesophageal opening, increasing anterior laryngeal excursion and reducing post-swallow aspiration.

1+

A cohort study examining the effectiveness of lingual exercises showed a positive effect on all patients in the sample, even those patients who were up to four years post stroke.¹⁶²

2-

5.3.2 ELECTRICAL STIMULATION

An RCT examining the effectiveness of oral stimulation treatment for dysphagia after stroke found no evidence of functional change in swallowing following treatment.¹⁶³

Poorly conducted studies examining the effectiveness of neuromuscular stimulation therapy in patients with dysphagia after a stroke present conflicting findings.^{164,165}

A cohort study in patients with chronic stable pharyngeal dysphagia, at risk of aspiration for six months or more, raised concerns about the potential worsening biomechanical effect on the swallow following a trial of electrical stimulation and the need for caution in selecting treatment parameters.¹⁶⁶ The studies available paid limited regard to the need to specify the chosen treatment parameters to demonstrate effectiveness or safety.

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5.3.3 BIOFEEDBACK

There was no good quality evidence available on the application of biofeedback to enhance the effectiveness of therapy interventions for dysphagia.

D All patients who have dysphagia for more than one week should be assessed to determine their suitability for a rehabilitative swallowing therapy programme. Consideration should be given to:

- the nature of the underlying swallowing impairment
- patient suitability in terms of motivation and cognitive status.

B Patients with dysphagia should have an oropharyngeal swallowing rehabilitation programme that includes restorative exercises in addition to compensatory techniques and diet modification.

6 Nutritional interventions

6.1 ORAL NUTRITIONAL SUPPLEMENTATION

Poor nutritional status post stroke increases length of hospital stay and risk of complications and undernourishment on admission is an independent marker of poor outcome at six months post stroke.^{159,167}

A large multicentre randomised controlled trial did not support the routine use of oral nutritional supplements in unselected patients with stroke.¹⁶⁸ A meta-analysis combining data from the FOOD trial with data from the general elderly hospitalised population, however, did demonstrate a reduced mortality and fewer complications with the prescription of oral nutritional supplementation for patients identified as undernourished.¹⁶⁹ This study highlighted the problem of patient compliance with supplementation over longer periods.

2++
2+

There continues to be a lack of evidence on nutritional support such as food fortification and specific dietary advice.

C Following nutritional screening, those identified as undernourished, and those at risk of becoming undernourished, should be referred to a dietitian and considered for prescription of oral nutritional supplements as part of their overall nutritional care plan.

6.2 TUBE FEEDING

6.2.1 SELECTION OF NASOGASTRIC OR GASTROSTOMY FEEDING

There are two ways of delivering nutrition by tube to patients who cannot swallow adequately. A nasogastric tube can be passed or a gastrostomy can be created. Both approaches serve to deliver nutritionally complete liquid feeds and medicines directly into the stomach and each has its advantages and disadvantages.

Gastrostomy tubes can be placed surgically, radiologically or endoscopically. The identified evidence for patients with strokes focuses almost entirely on percutaneous endoscopic gastrostomy (PEG).

Nasogastric (NG) tubes are quickly and easily passed and the technique has low procedure related mortality. The tubes are less well tolerated than PEG tubes and need to be replaced frequently.⁹¹ The mean effective life span of NG tubes varies between 10-28 days depending on the type and material of the tube and manufacturers' recommendations.⁹²⁻⁹⁴

Clear evidence for nutritional benefit from NG feeding is lacking. There is some evidence that nutritional improvement is less than with PEG feeding; that patients receive less of the prescribed feed and that tubes require frequent replacement because of displacement or blockage.⁹¹

Although procedure related mortality is low, inadvertent placement into the lungs can be a problem, and if unrecognised has serious consequences. Oesophagitis and upper gastrointestinal ulceration may also occur.

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2+
3+
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PEG tubes are cosmetically more acceptable to patients, they are less irritating and in the absence of complications, will not require replacement for several months. PEG placement is an invasive procedure requiring sedation and endoscopy and has a number of potential complications.^{91,95,96} Minor complications, such as tube displacement, minor skin infection, tube obstruction and leakage are relatively common with a reported rate of 13-62%. Major complications, such as gastric haemorrhage, serious abdominal wall infection, peritonitis and gastric fistula are reported in between 3 –19% of patients. The procedure related mortality is 0 –2.5%.

Long term mortality following PEG placement is high, presumably reflecting the seriousness of the underlying stroke. Mortality rates at 30 days, 6 months and 12 months are in the range of 20%, 40% and 50% respectively.⁹⁵⁻⁹⁸

With both types of tube feeding gastric intolerance can occur and may limit adequate delivery of nutrition. Gastro-oesophageal reflux and aspiration are common and neither type of tube feeding reduces the risk of aspiration after stroke.⁹⁹

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Although further research is required to assess the optimum method of feeding stroke patients, each method has advantages in different circumstances. A comparison of the two methods is given in Table 1. A flowchart for the assessment of a patient's suitability for a PEG tube is given in Annex 7.

Table 1: Comparison of Tube Feeding Methods

	NG feeding	PEG feeding
Insertion	Easy, quick	Invasive
Replacement	Often	Infrequent
Tube life	Up to 1 month	Several months
Patient acceptance	Poor	Good
Nutritional benefit	Uncertain	Some
Mortality reduction	None	Possible
Complications	+/-	++
Procedure related mortality	Very low	0-2.5%

6.2.2 TIMING OF FEEDING

Despite the lack of evidence to support NG feeding, many patients tolerate an NG tube well and will benefit from the administration of nutrition, fluid and medication, by this route, in the first few weeks of nutritional intervention.

- Patients with dysphagia who are unable to meet their nutritional requirements orally should be considered for initial NG feeding as soon as possible, within one week of onset. This decision should be made by the multidisciplinary team in consultation with the patient and their carers/family.

A prospective cohort study of patients with dysphagia following stroke suggests that early enteral feeding in undernourished patients is of benefit, although no time scale was given.⁴⁵ A similar study indicated that the decision to place a PEG should be based on impaired swallow and the need for enteral feeding for more than two weeks or the inability to tolerate NG feeding on at least two occasions.¹⁰⁰

2⁺⁺
2⁺

One report suggests that those patients with significant dysphagia at 5-7 days are at high risk of nutritional deterioration and should be considered for early PEG, but low numbers of patients were included.¹⁰¹

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- D** Patients in the early recovery phase should be reviewed weekly by the multidisciplinary team to ascertain if longer term (> 4 weeks) feeding is required.

- B** Feeding via percutaneous endoscopic gastrostomy (PEG) is the recommended feeding route for long term (> 4 weeks) enteral feeding. Patients requiring long term tube feeding should be reviewed regularly.

The FOOD (food or ordinary diet) trials are a family of three pragmatic, multicentre, international, randomised controlled trials which enrolled patients admitted to hospital with a recent stroke.

Two of the trials asked whether the timing and method of enteral tube feeding for dysphagic stroke patients influenced their outcomes. Data from the trials suggests that starting tube feeding early may reduce case fatality and that unless there are strong practical reasons why a PEG tube should be used, early tube feeding should be via an NG tube. The trials do not support a policy of early initiation of PEG feeding in dysphagic stroke patients.¹⁶⁸

6.2.3 QUALITY OF LIFE AND ETHICAL ISSUES

The problems that may be encountered with tube feeding combined with the high mortality in enterally fed patients emphasise the importance of weighing carefully the risks and benefits for each patient. Failure to provide nutritional support for patients who have not met, or are unlikely to meet, their nutritional requirements for a long period of time (seven days or longer) has been considered unethical.¹⁰² In patients with poor life expectancy, however, there should be good indications for PEG placement as feeding may merely slow the rate of decline or prolong an imminent death.

There is no evidence that PEG feeding actually improves quality of life. One study showed that whilst patients were grateful for the nutrition provided by PEG feeding, they remained ambivalent about the process.¹⁰³

Survey evidence indicates that a high proportion of patients with PEG remain dependent on carers and highlights the social impact of PEG feeding.¹⁰⁴

Patients and carers may have unrealistic expectations of the benefits of PEG feeding⁹⁷ and should be counselled on the benefits and burdens of PEG feeding before the intervention takes place. Those patients and carers who cope best are those who feel well informed and supported.¹⁰³

The decision to place a PEG should balance the risks and benefits and take into consideration individual patient needs. Patients should also be given the opportunity to decide whether they want to go ahead with a procedure.

D **Patient's and carer's perceptions and expectations of PEG feeding should be taken into account and the benefits, risks and burden of care fully explained before initiating feeding.**

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7 Other management issues

7.1 EFFECT OF REGULAR REVIEW ON PATIENT OUTCOME

Routine nutritional monitoring and interventions (ie regular weighing, nutritional analysis, staff attention to swallowing, texture modified diets, and tube feeds) contribute to improvements in nutrition and ensure that dysphagia is not associated with undernutrition in patients surviving beyond one month.⁴⁴ After discharge from hospital, unintentional weight loss (> 6 kg in three months) and older age may also indicate nutritional risk in stroke patients.⁴⁴

Undernutrition at follow up is associated with:⁴⁴

- age (over 70 years)
- weight loss
- lack of community care.

- Measurement of weight should continue after discharge, particularly in older stroke patients.

The psychosocial impact of compromised oral feeding should not be underestimated.¹⁰⁵ Re-evaluation of dietary recommendations often shows that a more extensive range of textures can be tolerated (see *Annex 5*).^{106,107}

A small number of patients with persisting dysphagia recover late and benefit from review and change in the management of their feeding. As with other disabilities following stroke, dysphagia may improve over time so regular review over the longer term is good practice.^{105,107-109} A named professional should be responsible for ensuring that such review occurs.

- D** **Patients with persistent dysphagia should be reviewed regularly, at a frequency related to their individual swallowing function and dietary intake, by a professional skilled in the management of dysphagia.**

- Ongoing support from health professionals after initiating feeding is essential and there should be an infrastructure to support enterally fed patients in all settings.

- A named professional, made known to the patient and carers, should have specific responsibility for the management of anyone discharged on PEG or NG feeding. This should also be considered for anyone on a modified diet.

An example protocol for postdischarge monitoring of patients on home enteral tube feeding is given in *Annex 8*.

7.2 OTHER CONSIDERATIONS

7.2.1 ORAL HYGIENE

Stroke patients with dysphagia may have particular problems in maintaining good oral hygiene. Oral hygiene is an important part of patient care and it should not be assumed that patients who cannot swallow and are being fed parenterally do not require mouth care. Good oral hygiene needs to be maintained in all patients to ensure that dental plaque is removed and pathogenic organisms are not allowed to proliferate in the mouth, preventing oral and dental disease^{124,125} and reducing the risk of aspiration pneumonia.^{33,43} Pre-existing disease should be recognised and the patient referred to a dentist for further examination.

- D** **Good oral hygiene should be maintained in patients with dysphagia, particularly in those with PEG or NG tubes, in order to promote oral health and patient comfort.**

- An appropriate oral care protocol should be used for every patient with dysphagia, including those who use dentures (see *Annex 6*).

7.2.2 MEDICATION

Patients with dysphagia often have difficulty taking their medication.⁷⁶ Administration of medicines by NG and PEG tubes has some inherent problems. Alternative formulations of medicines, routes of administration, or medication may be available. It is not always appropriate to crush tablets to aid administration, as this may affect the pharmacokinetics or efficacy of the drug. Drug-feed interactions are also possible. Published guidance is available.¹²⁶

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D Hospital and community pharmacists or medicines information centres should be consulted by the professional managing the patient's dysphagia, on the most appropriate method of administering medication.

7.3 CARE OF PATIENTS WITH DYSPHAGIA

Various training packages for nurses and carers have been described in the literature, appropriate for both community¹²⁷⁻¹²⁹ and acute care.^{41,75,79,81} The training packages differ in the level of input required from an individual, ranging from merely raising awareness of good practice, to specific training in all aspects of dysphagia care for a "Dysphagia Nurse Specialist".

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All caregivers should have the knowledge and skills to feed patients with dysphagia safely.⁷⁶ Staff, carers and patients should be trained in feeding and monitoring patients with dysphagia.

D Staff, carers and patients should be trained in feeding techniques. This training should include:

- modifications of positioning and diet
- food placement
- management of behavioural and environmental factors
- delivery of oral care
- management of choking.

Assessment results and management recommendations should be carefully documented and communicated to the relevant health professionals, carers and patients.

7.4 THE EFFECT OF COMMUNICATIVE OR COGNITIVE IMPAIRMENT ON THE MANAGEMENT OF DYSPHAGIA PATIENTS

Barriers to effective communication (particularly dysphasia or confusion) are common in stroke patients with dysphagia. Patients with severe strokes and associated dysphasia (eg total anterior cerebral syndromes) or prior cognitive impairment tend to have a poorer prognosis than patients without these features.¹³⁰⁻¹³³

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If an adult is incapable of acting, making, communicating, understanding, or remembering decisions, any medical treatment must be formally certified by the responsible medical practitioner under the terms of the Adults with Incapacity (Scotland) Act 2000.¹³⁴

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D Communication, cognitive function, and the capacity for decision making should be routinely assessed in patients with dysphagia.

Information should be provided to patients with communicative or cognitive impairment in an appropriate manner (eg aphasia friendly literature).¹³⁵

8 Provision of information

This section reflects the issues likely to be of most concern to patients and their carers. These points are provided for use by health professionals when discussing dysphagia with patients and carers and in guiding the production of locally produced information materials.

8.1 PATIENT INVOLVEMENT IN GUIDELINE DEVELOPMENT

In November 2001, a meeting was held with eight patients and four carers with experience of stroke dysphagia. The meeting was facilitated by SIGN staff and members of the guideline development group. Attendees were asked to consider what they would have changed about their NHS care, what they most valued and what information they had received.

The feedback highlighted both positive and negative aspects of the NHS care the patients had received. The most consistent comment was the poor level of information received by patients and carers, as regards stroke in general, stroke dysphagia and the likely consequences of the condition.

Areas in which patients would have liked more and earlier information include:

- the causes of stroke and how to prevent another
- what help is available
- how they can help in their own care and recovery
- types of treatment available and how they work
- how drugs work and their possible side effects
- explanations of why treatments might change.

A series of patient and carer quotes are included in section 8.2 to highlight the main issues raised.

Given the information gap identified by patients, a literature search was performed to answer the question: what information is needed for patients and their families to understand and cope with the diagnosis, treatment and outcome? When and how should this information be given?

The small amount of published material identified was consistent with the general points raised by the patients.¹³⁶⁻¹⁵⁰

The views of the patients and carers also agreed with a survey of 1,206 stroke patients and carers carried out by the Clinical Standards Board for Scotland (now part of NHS Quality Improvement Scotland).¹⁵¹

This identified the following issues as being of most importance to the patients and carers (in order of priority):

- explanation of the condition given by the doctors and nurses
- adequate physiotherapy
- adequate speech and language therapy
- overall hospital care/treatment given
- information provided (eg leaflets on the condition, information on allowances available)
- postdischarge care (general lack of it barring one or two exceptions)
- opportunity to talk to doctors and nurses about the condition (ie the health professionals offering time to speak to patients and carers)
- understanding/attitude shown by the health professionals
- information on the likely outcome, degree of recovery or long term care needs
- adequate occupational therapy.

The participants stressed the value of the availability of a programme of therapies rather than occasional or limited numbers of sessions.

8.2 PATIENT AND CARER QUOTES

Carer: "A lot more information could have been given a lot earlier."

Patient: "The treatment from the nurses on the ward was great once the speech and language therapist had given me the exercises."

Carer: "There was a lack of continuing care after being discharged from the hospital. We could have benefited from longer treatment from a speech and language therapist."

Carer: "I felt more involved with the speech therapist/occupational therapist and was kept much more informed. I learnt a lot more about the condition through working with them."

Patient: "The doctor's attitude left much to be desired. He was not very encouraging about me getting my PEG tube out and told me to prepare for the worst. I would like to have been told it was only temporary. I have now had the tube removed after 7 months."

Patient: "The time taken to start the exercises to improve the muscles of the throat was very long. I had to wait 12 weeks and felt I had to practice this earlier myself."

Patient: "I felt I was well looked after all the time – the girls took the time to come and talk to you and they were very nice."

Patient: "I needed a better explanation about the treatment – the side effects, what each drug was for, the reasons for the treatment – it should have been explained to me step by step."

Patient: "Perhaps the biggest handicap which I faced on leaving hospital was the inability to swallow my own saliva, requiring me to be continually spitting, which I felt very embarrassed about whenever I was in company."

8.3 PATIENT PREFERENCES

Information should be imparted in a format suitable to the patient and carers.¹³⁵ Written information, such as the leaflets provided by Chest, Heart and Stroke Scotland, should be given to patients/carers to take away with them.

Patient feedback has suggested people experiencing stroke dysphagia appreciate receiving encouragement that their condition may improve.

- Stroke patients with dysphagia and their families or carers should be given information to enable them to make informed decisions about management of the swallowing disorder.
- Patients/carers should be informed about the full implications of their treatment, the timescale for altered diet or PEG feeding and how often they will be reviewed.

8.4 QUALITY OF LIFE

Research into the pathophysiology and management of swallowing has been clinically led. There is a paucity of data on health outcomes from the patient's perspective, such as quality of life and patient satisfaction. Some attempts are now being made to redress this with the use of quality of life questionnaires and patient focused outcome measures.¹⁵²

- Healthcare professionals should be aware of the importance of the social aspects of eating. An inability to eat normally may affect patient morale, lead to feelings of isolation and could contribute to clinical depression.

8.5 SOURCES OF FURTHER INFORMATION

The following organisations provide support and information for stroke patients and their carers:

British Association for Parenteral and Enteral Nutrition (BAPEN)

Website: www.bapen.org.uk

BAPEN has produced resources and information leaflets for healthcare professionals and patients on tube feeding and the administration of medicines.

Carers Scotland

91 Mitchell Street, Glasgow, G1 3LN

Tel: 0141 221 9141

www.carerscotland.org • Email: info@carerscotland.org

Provides information and advice to carers on all aspects of caring.

Chest, Heart and Stroke Scotland

65 North Castle Street, Edinburgh, EH2 3LT

Tel: 0131 225 6963 • Advice Line: 0845 077 6000 • Fax: 0131 220 6313

www.chss.org.uk • Email: admin@chss.org.uk

Offers communication support through the volunteer stroke service (VSS), the CHSS Advice Line, website and patient information, stroke nurses and young stroke support workers, local stroke support groups, stroke training programmes, Stroke Voices, enabling patients and carers to participate meaningfully in MCNs and other NHS stroke planning groups, backed up by free booklets, fact sheets DVDs and videos.

Different Strokes (Scotland)

53 Elmore Avenue, Glasgow, G44 5BH

Tel: 0141 569 3200

www.differentstrokes.co.uk • Email: glasgow@differentstrokes.co.uk

Helps people of working age who have had a strokes to optimise their recovery, take control of their own lives and regain as much independence as possible by providing a national network of weekly exercise classes, practical, easy to use information, newsletters, interactive website and 'StrokeLine' telephone service.

Intowork (Edinburgh)

Norton Park, 57 Albion Road

Edinburgh EH7 5QY

Tel 0131 475 2369 • Fax 0131 475 2379

Employment consultancy and support for people after acquired brain injury

Intowork West Lothian (Livingston)

Braid House, Upper Floor, Labrador Avenue

Howden, Livingston EH54 6BU

Tel 01506 443100 • Fax 01506 443055

Email: iwwl@intowork.org.uk

Princess Royal Trust for Carers

Charles Oakley House, 125 West Regent Street, Glasgow, G2 2SD

Tel: 0141 221 5066

www.carers.org • Email: infoscotland@carers.org

Provides information, advice and support to Scotland's carers and young carers.

Speakability

1 Royal Street, London, SE1 7LL

Helpline: 080 8808 9572

www.speakability.org.uk • Email speakability@speakability.org.uk

Offers impartial information and support and self-help for people with aphasia and their carers through its helpline, website and training courses, and distributes its own fact sheets, low-cost publications and videos.

8.6 CHECKLIST FOR PROVISION OF INFORMATION

This section gives examples of the information patients/carers may find helpful at the key stages of the patient journey. The checklist was designed by members of the guideline development group based on their experience and their understanding of the evidence base. The checklist is neither exhaustive nor exclusive.

Screening and assessment
<ul style="list-style-type: none"> ▪ Explain to patients and carers what dysphagia is and what we mean by ‘aspiration’. ▪ Advise about the assessment process, highlighting the water swallow test, what it is and how long it takes. ▪ Explain that if the water swallow screening test identifies problems, they will be referred for a full assessment of their swallowing function. ▪ Give details of when the situation will be reviewed. ▪ Ensure patients and carers are fully informed of tests (eg, videofluoroscopy of swallow) and outcomes plus reassurance that they will be carried out by fully trained staff. ▪ Discuss the need to assess the risk of the patient becoming malnourished.
Treatment
<ul style="list-style-type: none"> ▪ Explain the different types of treatments that are available and ensure patients are aware of how they work. Ensure patients are aware of why they may or may not be getting a particular treatment. Provide sufficient information on why treatments may change. ▪ Ensure patients and carers have sufficient information to comply with their specific recommendations for safer swallowing (eg, how to modify food textures or specific postures and positioning). ▪ Discuss the alternative ways of feeding with patients and carers. The possibility of maintaining/improving nutritional status using a nasogastric (NG) tube or a percutaneous endoscopic gastrostomy tube (PEG) tube should be discussed. Inform patients and carers about the full implications of their treatment, the timescale for treatment and how often they will be reviewed. ▪ Discuss quality of life issues with patients and carers when considering long term PEG feeding: <ul style="list-style-type: none"> - risks and benefits - support required in the community - social aspects of eating. ▪ Reassure patients and carers that they will be trained in eating techniques. ▪ Ensure patients and carers are aware of the importance of maintaining good oral hygiene and provide advice on how to do this. ▪ Advise patients and carers of the alternative methods for administering medication and discuss any anxieties with them. ▪ Inform patients that they may be asked to take part in a clinical trial. Explain what this involves and ensure patients and carers are aware of the risks involved
Communication
<ul style="list-style-type: none"> ▪ Provide information to patients with communication difficulties or cognitive dysfunction in an appropriate manner (eg, use accessible and easy to read information resources and communication aids, as appropriate). ▪ Acknowledge that patients with communication difficulties can still be fully involved in discussions and making decisions with appropriate communication support. ▪ Provide encouragement to patients and carers that the condition may improve. ▪ Ensure that time is made available to discuss the conditions and answer questions. ▪ Give written information to patients and carers to read in their own time. ▪ Ensure patients and carers are aware of what help is available in the community for people who have had a stroke, including communication partners and, where appropriate, telerehabilitation services, including speech and language therapy. ▪ Explain to patients and carers how they can help in their own care and recovery. ▪ Advise patients and carers of how they can access CHSS stroke services and other stroke clubs.

9 Implementing the guideline

Implementation of national clinical guidelines is the responsibility of each NHS Board and is an essential part of clinical governance. Mechanisms should be in place to review care provided against the guideline recommendations. The reasons for any differences should be assessed and addressed where appropriate. Local arrangements should then be made to implement the national guideline in individual hospitals, units and practices.

9.1 AUDITING CURRENT PRACTICE

A first step in implementing a clinical practice guideline is to gain an understanding of current clinical practice. Audit tools designed around guideline recommendations can assist in this process. Audit tools should be comprehensive but not time consuming to use. Successful implementation and audit of guideline recommendations requires good communication between staff and multidisciplinary team working.

The guideline development group has identified the following as key points to audit to assist with the implementation of this guideline:

- comorbidities and correctable risk factors are assessed on admission
- nutritional risk is assessed within 48 hours of admission
- screening for dysphagia takes place before any food/drink is given
- screening for dysphagia in inpatients is repeated daily for a minimum of one week after initial assessment
- criteria are in place to highlight the need for referral to a dietitian or SLT and referral procedures are in place
- documentation of nutritional management of the patient (including justification of the decision not to feed, consistency of modified diets and monitoring of food and fluid intake) is available
- non-compliance of patients on modified oral intake does not reflect lack of appropriate care
- the patient has received the modified diet and drinks that have been recommended
- a pharmacist is involved/consulted at an early stage
- multidisciplinary training programmes are in place
- the timing, institution and complications of tube feeding (NG and PEG) are recorded
- named professional in charge of patients discharged with NG or PEG has been identified
- an oral care protocol is in place
- patients with persistent dysphagia are reviewed
- the relevant information has been imparted to the patient and family/carer in an appropriate format.

10 The evidence base

10.1 SYSTEMATIC LITERATURE REVIEW

The evidence base for this guideline was synthesised in accordance with SIGN methodology. A systematic review of the literature was carried out using an explicit search strategy devised by a SIGN Information Officer. Databases searched include Medline, Embase, Healthstar, Cinahl, and the Cochrane Library. The main part of the strategy was based on that used by the Cochrane Library. The year range covered was 1980-2001. Internet searches were carried out on various websites including the New Zealand Guidelines Programme, the UK Health Technology Assessment programme, and the US National Guidelines Clearinghouse. The Medline version of the main search strategies can be found on the SIGN website, in the section covering supplementary guideline material. The main searches were supplemented by material identified by individual members of the development group. All selected papers were evaluated by two members of the group using standard SIGN methodological checklists before conclusions were considered as evidence.

10.1.1 LITERATURE SEARCH FOR PATIENT ISSUES

At the start of the guideline development process, a SIGN Information Officer conducted a literature search for qualitative and quantitative studies that addressed patient issues of relevance to early management of patients with stroke. Databases searched include Medline, Embase, Cinahl and PsycINFO, and the results were summarised and presented to the guideline development group.

10.2 RECOMMENDATIONS FOR RESEARCH

The following areas for further research have been identified.

Prospective controlled trials are required to evaluate which variable of the screening and management modalities for dysphagia result in the best outcome. Studies should be of sufficient size and with a representative stroke population. Specifically, the following areas lack a strong evidence base:

- predictors of aspiration
- predictors of aspiration pneumonia
- nutrition screening tools for stroke patients
- the standardisation of the clinical bedside assessment
- the effectiveness of instrumental assessments
- optimum feeding methods and timing of feeding
- impact of long term PEG feeding on quality of life
- use of oral nutritional supplements to improve nutritional status in stroke patients with dysphagia
- the most effective intensity of treatment
- the effectiveness of thermal stimulation/biofeedback
- optimum delivery of care to people with chronic dysphagia in the community
- the effectiveness of nursing staff and family/carer education programmes
- the exploration of the patient's experience of dysphagia and its relation to quality of life after stroke.

10.3 REVIEW AND UPDATING

This guideline was issued in 2010 and will be considered for review in three years. Any updates to the guideline in the interim period will be noted on the SIGN website: www.sign.ac.uk.

11 Development of the guideline

11.1 INTRODUCTION

SIGN is a collaborative network of clinicians and other healthcare professionals, funded by NHS Quality Improvement Scotland. SIGN guidelines are developed by multidisciplinary groups of practising clinicians using a standard methodology, based on a systematic review of the evidence. Further details about SIGN and the guideline development methodology are contained in "SIGN 50: A Guideline developer's handbook" available at www.sign.ac.uk

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Ms Fiona Strachan	<i>Senior Dietitian, Woodend Hospital, Aberdeen</i>
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Mrs Kathryn Wood	<i>Principal Pharmacist, Tayside Primary Care Trust</i>

The membership of the guideline development group was confirmed following consultation with the member organisations of SIGN. Declarations of interests were made by all members of the guideline development group. Further details are available from the SIGN Executive. Guideline development and literature review expertise, support, and facilitation were provided by the SIGN Executive.

11.3 CONSULTATION AND PEER REVIEW

11.3.1 NATIONAL OPEN MEETING

A national open meeting is the main consultative phase of SIGN guideline development, at which the guideline development group presents its draft recommendations for the first time. The national open meeting for this guideline was held on 16 May 2002 and was attended by 100 representatives of all the key specialties relevant to the guideline. The draft guideline was also available on the SIGN website for a limited period at this stage to allow those unable to attend the meeting to contribute to the development of the guideline.

11.3.2 SPECIALIST REVIEW

The guideline was also reviewed in draft form by a panel of independent expert referees, who were asked to comment primarily on the comprehensiveness and accuracy of interpretation of the evidence base supporting the recommendations in the guideline. SIGN is very grateful to all of these experts for their contribution to this guideline.

Dr Alan Begg	<i>General Practitioner, Montrose</i>
Professor Martin Dennis	<i>Professor in Stroke Medicine, Department of Clinical Neurosciences, Western General Hospital, Edinburgh</i>
Professor Peter Donnelly	<i>Director of Public Health and Health Policy, NHS Lothian</i>
Dr George Duncan	<i>Consultant in Care of the Elderly, Ayrshire Central Hospital, Irvine</i>
Ms Alison French	<i>Senior Dietitian, Member of the Joint Working Party – National Descriptors for Texture Modification, British Dietetic Association, Birmingham</i>
Professor Ian Gilmore	<i>Consultant Physician and Gastroenterologist, Royal Liverpool University Hospital, and Honorary Professor of Medicine, Liverpool University</i>
Ms Tara Hegney	<i>Senior Dietitian, Royal Edinburgh Hospital</i>
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Dr Ron MacWalter	<i>Consultant Physician, Ninewells Hospital, Dundee</i>
Mr John McCall	<i>Stroke Specialist Nurse, Falkirk Royal Infirmary</i>
Dr John Norton	<i>General Practitioner, Ardrrossan</i>
Ms Kerry Sainsbury	<i>Senior Dietitian, Borders General Hospital, Melrose</i>
Mr Cameron Sellars	<i>Speech and Language Therapist, Glasgow Royal Infirmary</i>
Dr David Smithard	<i>Head of Elderly and Stroke Medicine, William Harvey Hospital, Kent</i>
Ms Susan Watt	<i>Education and Clinical Effectiveness Advisor, Royal College of Nursing, Scotland</i>
Professor Mark Wiles	<i>Head of Medicine and Section of Neurology, University of Wales College of Medicine, Cardiff</i>
Professor Janet Wilson	<i>Professor of Otolaryngology, Head and Neck Surgery, University of Newcastle</i>

11.3.3 SIGN EDITORIAL GROUP

As a final quality control check, the guideline is reviewed by an Editorial Group comprising the relevant specialty representatives on SIGN Council to ensure that the peer reviewers' comments have been addressed adequately and that any risk of bias in the guideline development process as a whole has been minimised. The Editorial Group for this guideline was as follows:

Dr David Alexander	<i>Scottish General Practice Committee</i>
Professor Ian Campbell	<i>Royal College of Physicians of Edinburgh</i>
Professor Gordon Lowe	<i>Chairman of SIGN</i>
Miss Tracy Nairn	<i>Senior Professional Adviser, South Glasgow University Hospitals NHS Trust</i>
Dr Safia Qureshi	<i>SIGN Programme Director</i>
Dr Sara Twaddle	<i>Director of SIGN</i>
Professor Joanna Wardlaw	<i>Royal College of Radiologists, Faculty of Radiology</i>
Dr Bernice West	<i>National Nursing, Midwifery and Health Visiting Advisory Committee</i>

Each member of the guideline development group then approved the final guideline for publication.

11.4 ACKNOWLEDGEMENTS

SIGN is grateful to the following former members of the guideline development group and others who have contributed to the development of this guideline:

Dr Subrata Ghosh	<i>Consultant Gastroenterologist, Edinburgh</i>
Mr Duncan Hope	<i>Lay representative</i>
Dr Jill Pell	<i>Consultant in Public Health, Greater Glasgow Health Board</i>
Dr George Savage	<i>General Practitioner, Perthshire</i>

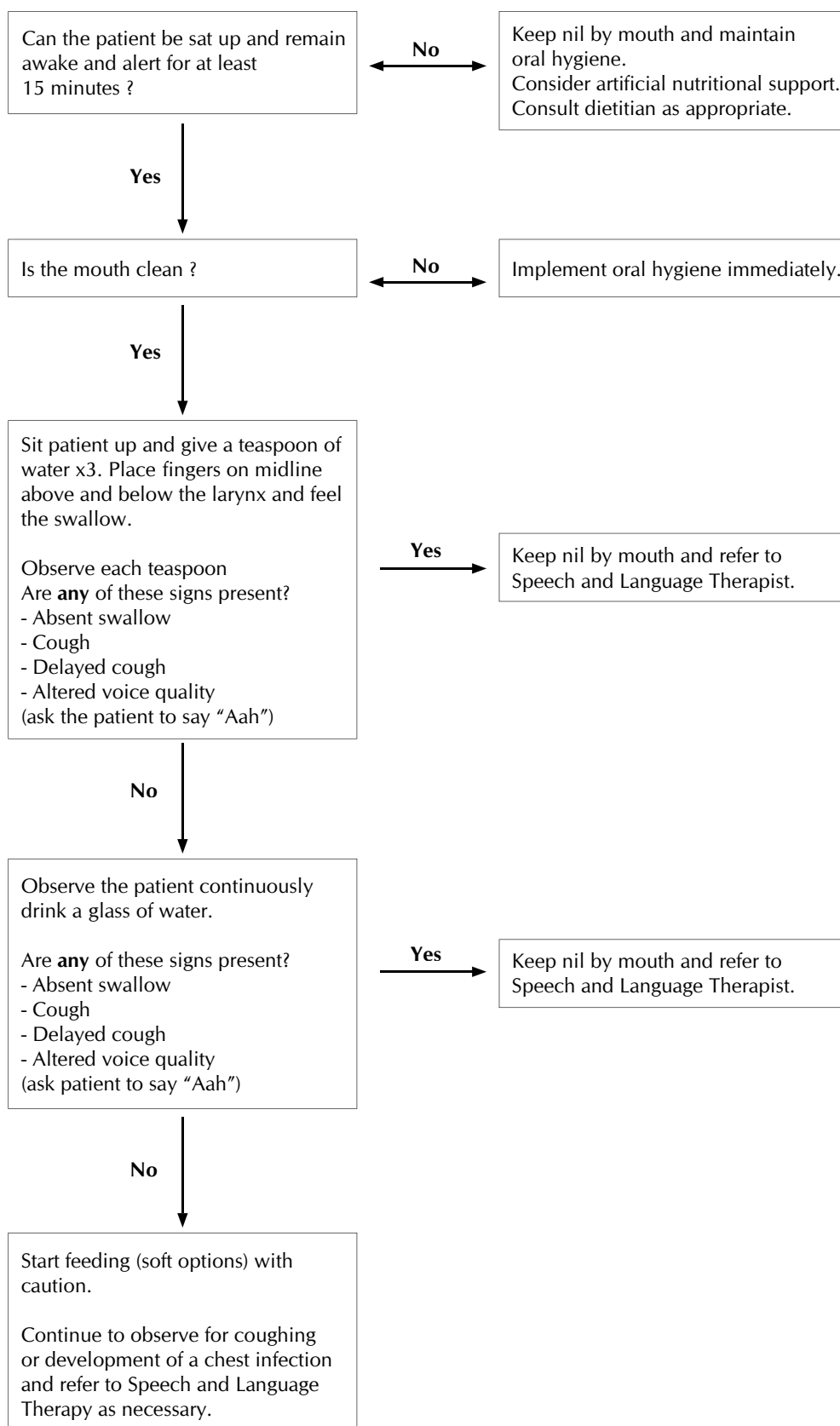
Annex 1

The key questions used to update the guideline

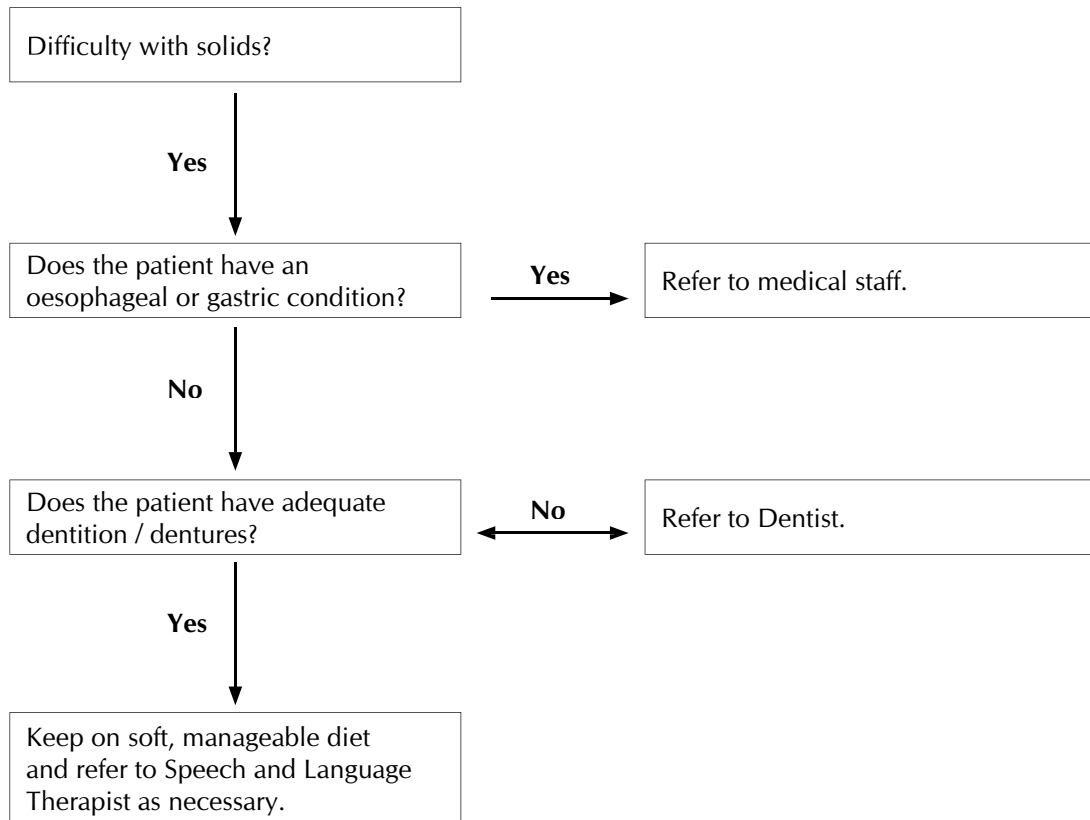
	Key question	See guideline section
1.	How should stroke patients be assessed for nutritional status in order to identify patients at risk who require nutritional intervention?	2.4
2.	In stroke patients who cannot swallow adequately, what is the evidence for the effectiveness of the following therapies? (a) facilitation exercises with or without biofeedback (b) sensory enhancement.	5.3
3.	Is there evidence that stroke patients, who are nutritionally at risk and/or dysphagic, benefit from nutritional supplementation, food fortification, or dietary advice? Specify setting.	6.1

Annex 2

Example swallow screening procedure



Annex 2 (continued)



Annex 3

Example clinical bedside assessment

The following clinical bedside assessment, was developed by Logemann. For further instructions and for interpretation of the results, refer to the original article.³¹ Categories of variables on the Northwestern Dysphagia Patient Check Sheet: each variable is rated as “safe” or “unsafe” for each patient.

	Safe	Unsafe
Medical history variables		
1. History of recurrent pneumonia		
2. Frequent temperature spikes		
3. Question of aspiration pneumonia		
4. Long term intubation (+ 1 wk) or tracheostomy (+ 6 mo)		
Behavioural variables		
5. Alertness		
6. Cooperativeness/agitation		
7. Attention/interaction ability		
8. Awareness of problem(s) swallowing		
9. Awareness of secretions		
10. Ability to manage secretions		
Gross motor function		
11. Postural control		
12. Fatigability		
Oral motor test results		
13. Oral, pharyngeal, laryngeal anatomy and physiology		
14. Ability to follow directions		
15. Dysarthria		
16. Facial weakness		
17. Oral apraxia		
18. Oral sensation		
19. Pharyngeal wall contraction on gag		
20. Saliva swallowing		
21. Voluntary cough, throat clearing		
Observations during trial swallows: 1 cc thin liquid, 1 cc pudding, ¼ biscuit (if chewing were possible)		
22. Apraxia of swallow		
23. Oral residue		
24. Coughing/throat clearing		
25. Delayed pharyngeal swallow		
26. Reduced laryngeal elevation		
27. Gurgly voice		
28. Multiple swallows per bolus		
Three additional summary variables are created from the categories above: 1.the total number of unsafe observations made on the 28 variables in all categories. 2.the total number of unsafe observations made on behavioural and gross motor function variables. 3.the total number of unsafe observations made during oral motor testing and observations during trial swallows.		
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Annex 4

The modified barium swallow assessment using videofluoroscopy

An example standard protocol for the modified barium swallow assessment using videofluoroscopy (adapted from a published protocol): ¹⁵³

Lateral projection, patient sitting in usual position of comfort
Speech sample
Swallow 5 ml of thick liquid from a spoon
Drink thick liquid from a cup (1 swallow)
Swallow 5 ml of thin liquid from a spoon
Drink thin liquid from a cup (1 swallow)
Modifications and other liquids as appropriate
Masticate and swallow 1 teaspoon (or ¼ biscuit) formable solid food (category A) – patient seated in usual position of comfort with head in neutral position
Masticate and swallow 1 teaspoon particulate solid food (category B)
Modifications and other foods as appropriate
Postero-anterior projection, patient sitting upright with neck slightly extended if possible
Take thin liquid from a cup, hold it in the mouth, and then swallow
Modifications or other foods as appropriate
Additional swallows of thin liquid as needed for imaging the oesophagus

An example MBS rating scale is shown on the next page.

Annex 4

(continued)

ORAL PHASE						
	NORMAL	ABNORMAL *NFR	ABNORMAL	LIQUID	PASTE	SOLID
LIP SEAL						
CHEWING ACTION						
ORAL CONTROL OF BOLUS						
LOSS OF BOLUS TO PHARYNX						
TONGUE STRIPPING ACTION						
PHARYNGEAL PHASE						
TRIGGERING OF SWALLOW REFLEX						
RESIDUE						
CRICOPHARYNGEAL FUNCTION						
LARYNGEAL ELEVATION						
PHARYNGEAL PHASE (ANTERO-POSTERIOR VIEW)						
HEMIPARESIS						
LARYNGEAL CLOSURE						
RESIDUE ON VOCAL CORDS						
ASPIRATION						
POTENTIAL/OBSERVED (P/O)	: BEFORE SWALLOW					
(NORMAL = 1 P = 2 O = 3)	: DURING SWALLOW					
	: AFTER SWALLOW					
NFR = Not Functionally Relevant SCORING 1 = Normal, abnormal/nfr, 2-5 = abnormal (slight-severe), 6 = not attempted or not observed						

Additions to standard procedure:

Further comments:

Signed:

Source: Dunnet & Sellars 1990 unpublished study. It is advised that clear criteria be established for each category of answer in order to provide rating consistency.

Annex 5

Guidelines on texture modification and fluid thickness

TEXTURE MODIFICATION - FOOD

TEXTURE	DESCRIPTION OF FOOD TEXTURE	FOOD EXAMPLES
A	<ul style="list-style-type: none"> ▪ a smooth, pouring, uniform consistency ▪ a food that has been pureed and sieved to remove particles ▪ a thickener may be added to maintain stability ▪ cannot be eaten with a fork 	<ul style="list-style-type: none"> ▪ tinned tomato soup ▪ thin custard
B	<ul style="list-style-type: none"> ▪ a smooth, uniform consistency ▪ a food that has been pureed and sieved to remove particles ▪ a thickener may be added to maintain stability ▪ cannot be eaten with a fork ▪ drops rather than pours from a spoon but cannot be piped and layered ▪ thicker than A 	<ul style="list-style-type: none"> ▪ soft whipped cream ▪ thick custard
C	<ul style="list-style-type: none"> ▪ a thick, smooth, uniform consistency ▪ a food that has been pureed and sieved to remove particles ▪ a thickener may be added to maintain stability ▪ can be eaten with a fork or spoon ▪ will hold its own shape on a plate, and can be moulded, layered and piped ▪ no chewing required 	<ul style="list-style-type: none"> ▪ mousse ▪ smooth fromage frais
D	<ul style="list-style-type: none"> ▪ food that is moist, with some variation in texture ▪ has not been pureed or sieved ▪ these foods may be served or coated with a thick gravy or sauce ▪ foods easily mashed with a fork ▪ meat should be prepared as C ▪ requires very little chewing 	<ul style="list-style-type: none"> ▪ flaked fish in thick sauce ▪ stewed apple and thick custard
E	<ul style="list-style-type: none"> ▪ dishes consisting of soft, moist food ▪ foods can be broken into pieces with a fork ▪ dishes can be made up of solids and thick sauces or gravies ▪ avoid foods which cause choking hazard (see <i>list of High Risk Foods</i>) 	<ul style="list-style-type: none"> ▪ tender meat casseroles (approximately 1.5 cm diced pieces) ▪ sponge and custard
Normal	Any foods	Include all foods from “High Risk Foods” list

From the British Dietetic Association and the Royal College of Speech and Language Therapists joint document: National Descriptors for Texture Modification in Adults, 2002.115

Annex 5

(continued)

HIGH RISK FOODS

Stringy, fibrous texture including pineapple, runner beans, celery, lettuce
Vegetable and fruit skins including beans (eg broad, baked, soya, black-eye), peas, grapes
Mixed consistency foods including cereals which do not blend with milk, (eg muesli), mince with thin gravy, soup with lumps
Crunchy foods including toast, flaky pastry, dry biscuits, crisps
Crumbly items including bread crusts, pie crusts, crumble, dry biscuits
Hard foods including boiled and chewy sweets and toffees, nuts and seeds
Husks including sweetcorn and granary bread

TEXTURE MODIFICATION - FLUID

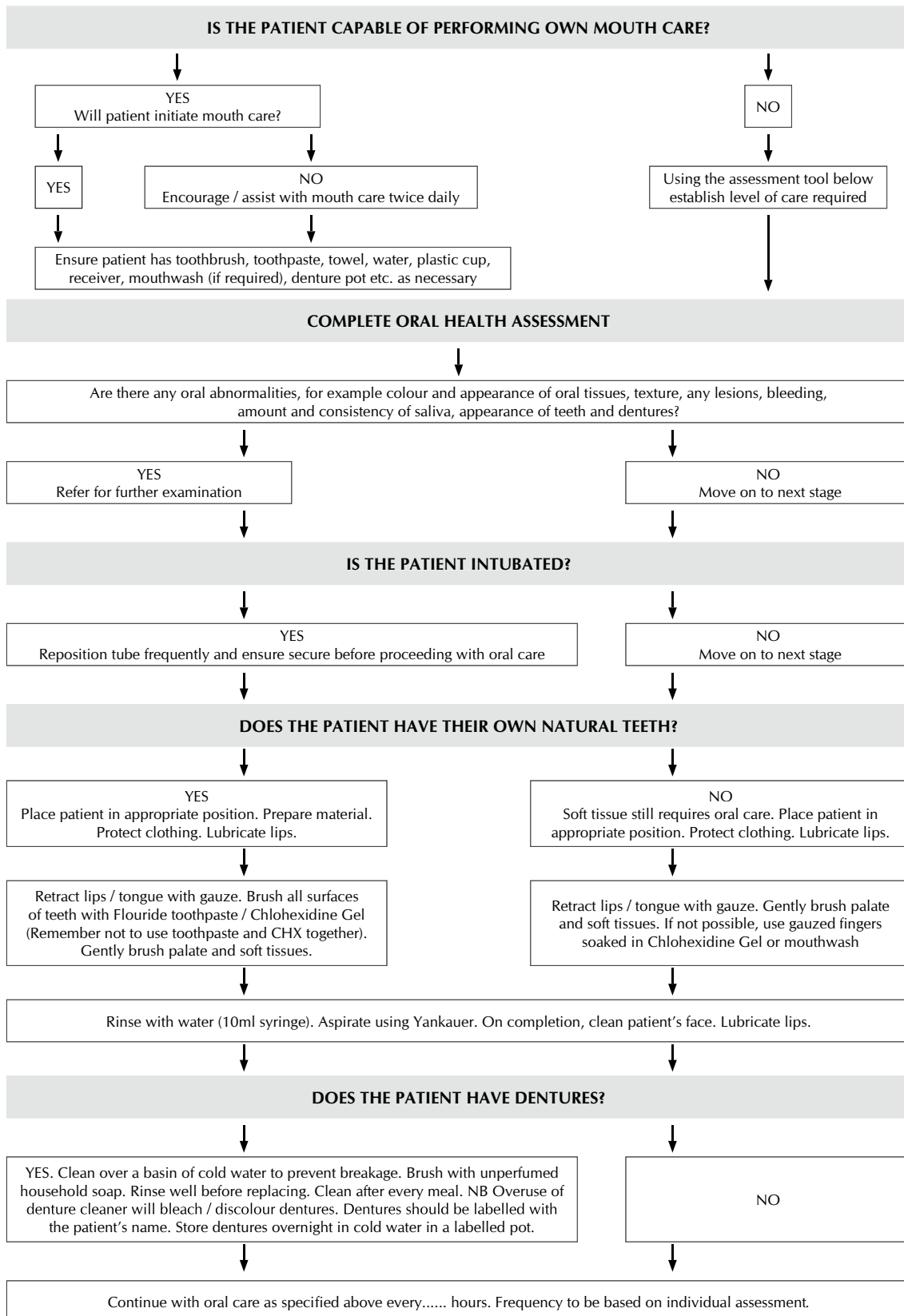
TEXTURE	DESCRIPTION OF FLUID TEXTURE	FLUID EXAMPLES
Thin fluid	still water	water, tea, coffee without milk, diluted squash, spirits, wine
Naturally thick fluid	product leaves a coating on an empty glass	full cream milk, cream liqueurs, Complan, Build Up (made to instructions), Nutriment, commercial sip feeds
Thickened fluid	Fluid to which a commercial thickener has been added to thicken consistency	
Stage 1 =	<ul style="list-style-type: none"> ▪ can be drunk through a straw ▪ can be drunk from a cup if advised or preferred ▪ leaves a thin coat on the back of a spoon 	
Stage 2 =	<ul style="list-style-type: none"> ▪ cannot be drunk through a straw ▪ can be drunk from a cup ▪ leaves a thick coat on the back of a spoon 	
Stage 3 =	<ul style="list-style-type: none"> ▪ cannot be drunk through a straw ▪ cannot be drunk from a cup ▪ needs to be taken with a spoon 	

NHS Quality Improvement Scotland, has produced clinical standards on "Food, Fluids and Nutritional Care in Hospitals" (www.nhshealthquality.org).¹¹⁷

Annex 6

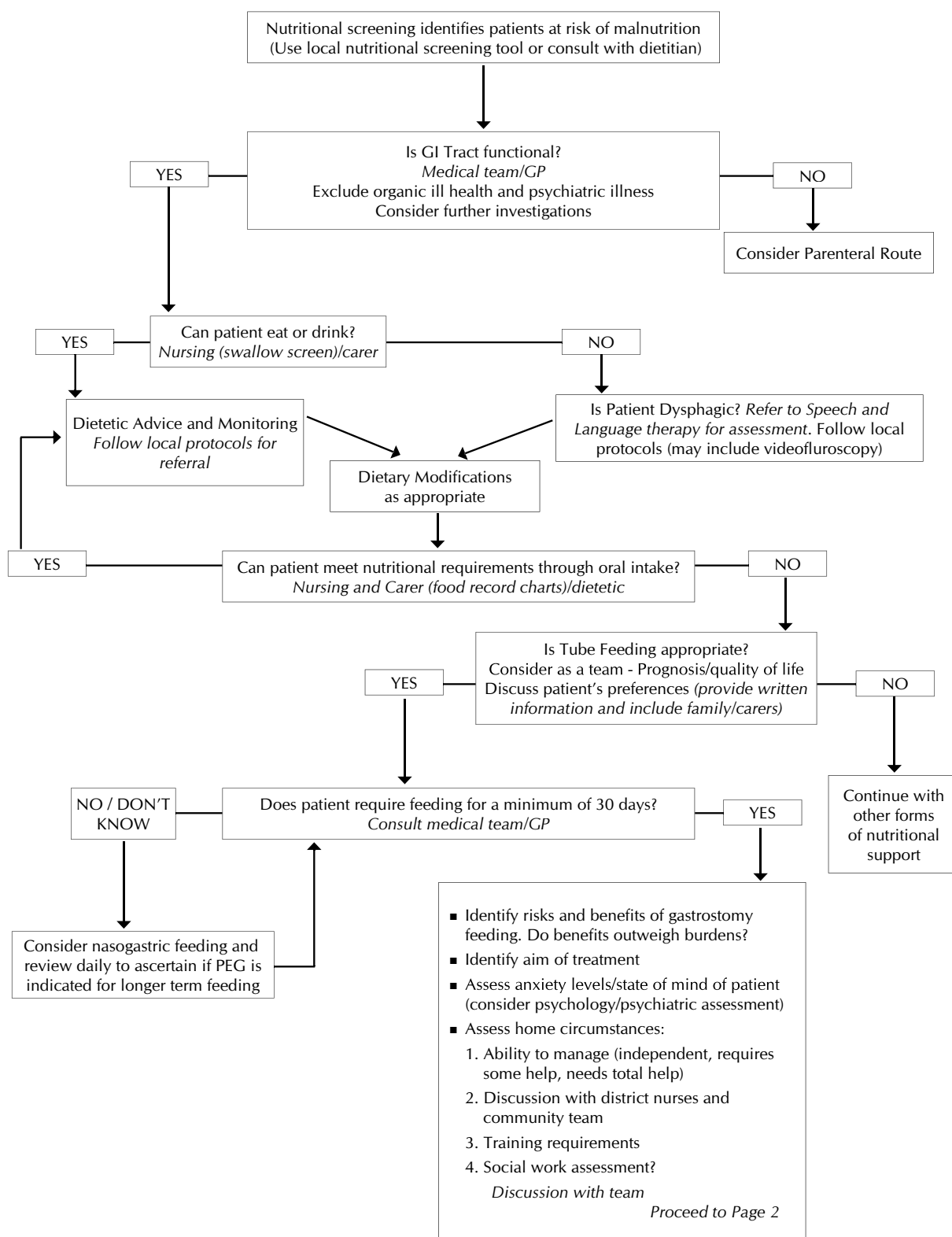
Example oral care protocol

Reproduced with permission from Griffiths and Lewis¹²⁴



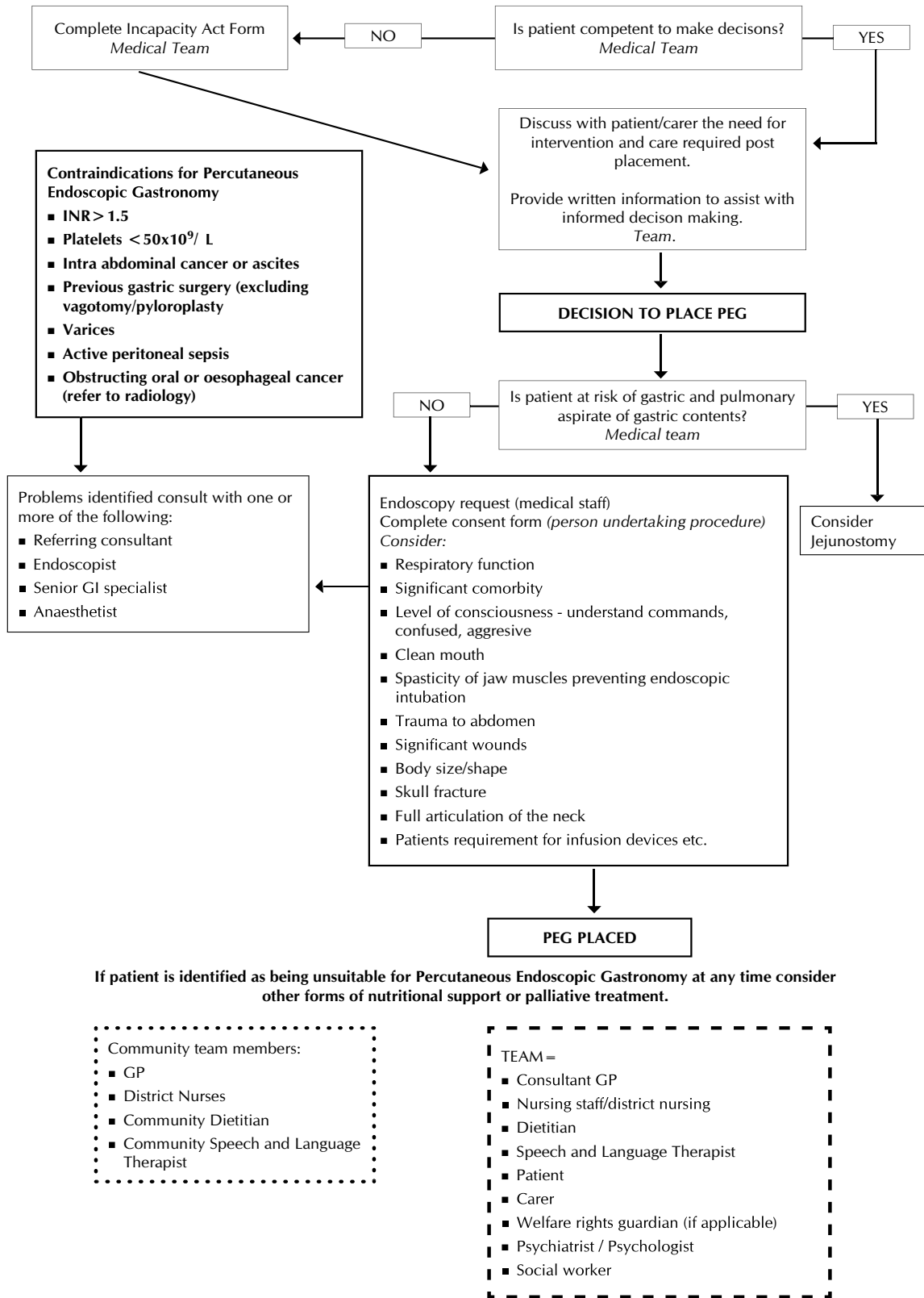
Annex 7

Assessment of patient suitability for PEG tube



Annex 7

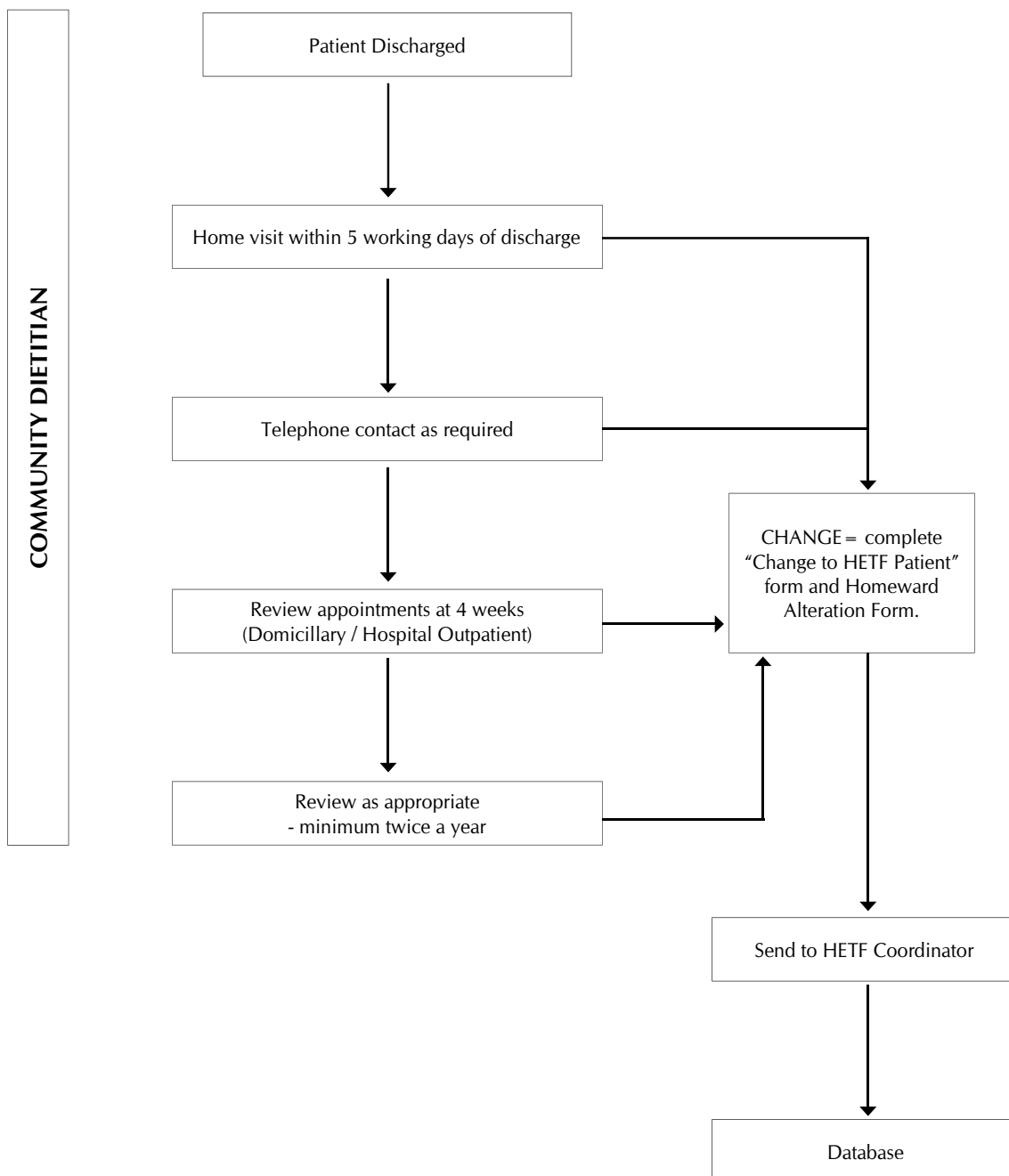
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Annex 8

Postdischarge monitoring for patients on home enteral tube feeding



Community Dietitian will liaise with relevant healthcare professionals to ensure that appropriate monitoring is carried out.

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