

Oral care & swallowing

Oral care is important as it has a role to play in preventing healthcare associated infections. Dental plaque and the oropharynx can become colonized by bacteria and a 'biofilm' can develop on the inside of airway devices. Secretions can also pool in the subglottic region. Normal oral airflow is disrupted when gas is directed through the tracheostomy and this leads to reduced evaporation of oral secretions, which subsequently accumulate in the mouth.

Patients who are able to should be encouraged to maintain their own oral hygiene by using a toothbrush and using mouthwashes. Incapacitated patients should have a daily assessment of their buccal mucous membranes to observe for bacterial, viral or fungal infections, skin tears or ulceration.

Aspirated infective saliva can contribute to respiratory problems. If the patient has a dry mouth then consider artificial saliva.

Any obvious dental problems should be assessed promptly by an oral hygienist. There is an increasing amount of data in the literature which suggests that simple measures such as teeth cleaning and intermittent removal of oral secretions can have a significant impact on hospital-acquired infections such as ventilator-associated pneumonia.

Specific oral care measures

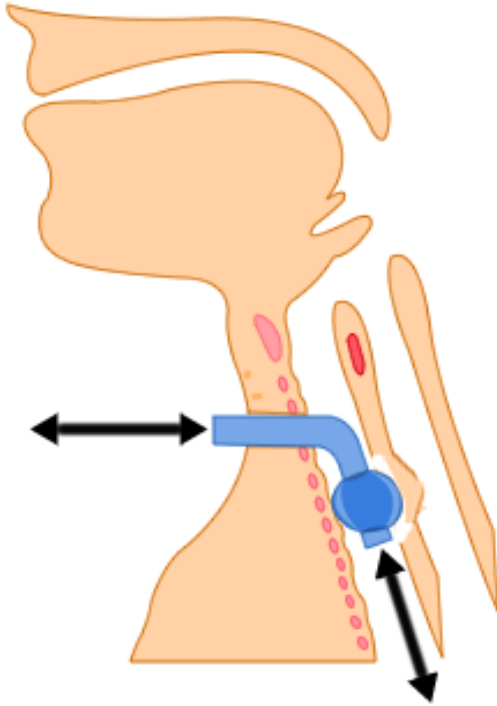
- Encourage self-care when possible
- Patient's teeth should be brushed with toothbrush and toothpaste at least twice a day.
- Chlorhexidine mouth washing twice per day (not immediately after tooth brushing)
- There is no reason why patients with tracheostomies can't wear their dentures.
- Showering is permitted

Dedicated commercial oral care packs are available which may improve compliance with mouth care bundles.

Swallowing

Most people with a new tracheostomy will have a naso-gastric tube or similar feeding route and regimen established. The cuff of the tracheostomy or the tube itself interferes with the swallowing mechanics of the larynx. These muscles can waste if not used (during prolonged ventilation or immobility) and require careful rehabilitation and assessment. The Speech and Language Therapist (SALT) is an essential member of the multi-disciplinary team.

The image below shows an inflated tracheostomy tube. The cuff is pressing on the oesophagus behind the trachea, offering a physical obstruction to swallowing. The tracheostomy tube tethers the anterior structures of the neck and limits the amount of movement of the larynx and upper airways that is required for normal, safe swallowing.



Patients with a tracheostomy tube are at high risk of developing swallowing difficulties, although some patients can swallow normally. The patient's underlying medical condition may compound swallowing difficulties. Assessment of the safety of the swallow is necessary as swallowing difficulties (dysphagia) can result in aspiration and the complications arising from this. A patient with a tracheostomy tube may have difficulty swallowing secretions as well as food and drink.

It is possible to eat and drink with an inflated tracheostomy tube cuff in situ. It may be appropriate to embark on a trial of enteral oral intake if the patient's general clinical condition

allows. There are a number of predictors of tracheostomy-related swallowing problems. The presence of any of the following should prompt referral to an appropriate SALT team:

- Following head & neck surgery
- Lower cranial nerve palsies (bulbar palsies)
- Clinical signs of aspiration (associated with attempted oral intake)
 - Coughing
 - Desaturation
 - Suctioning of particulate matter from the tracheostomy
- Weak, 'wet' or gurgly voice heard during trials of cuff deflation.

Any formal assessment of swallowing will include a trial of cuff deflation (if present) to assess the function of the larynx. The parent team should have adequate knowledge of the individual patient's condition, including indication for the tracheostomy, current nutrition and respiratory status and weaning plan before assessment. Those caring for the tracheostomy patient must also have a sound understanding of the signs of swallowing difficulties and must be able to take necessary actions in the event of an emergency.

Since the process of assessing the safety of the swallow is not without risk the screening, assessment and management of dysphagia must be carried out by an appropriate dysphagia-trained practitioner.

Assessment tools

Assessment usually involves attempting to normalize as much swallowing physiology as possible before examining and assessing how the patient manages trials of swallowing. This can be clinical assessment, or direct visual assessment using a suitable endoscope. Videos of fibreoptic endoscopic evaluation of swallowing (FEES) tests are housed within the e-learning modules at www.tracheostomy.org.uk.



Ideally the patient will have the cuff deflated and be wearing a speaking valve during assessment of secretion tolerance and oral intake. This is to help restore more normal physiology to the upper airway and provide the practitioner with more clinical indicators of swallow safety.

The use of 'blue dye' to test swallowing and aspiration is not generally supported by evidence due to a high false negative rate. The patient must be deemed safe at tolerating their secretions before assessing for tolerance of oral intake. Aspiration of secretions is significantly linked to aspiration of oral intake. Patients that are nil by mouth or are at risk of aspiration should have a strict program of oral care in place as discussed above, to help reduce the incidence of infection.

The following are the ideal circumstances under which to assess the swallow for tolerance of secretions and oral intake:

- The patient should be alert
- The patient should be sat upright (if medically able)
- The oral cavity should be clean and clear
- The tracheostomy tube cuff should be deflated (if present)
- A speaking valve should be attached

Signs of dysphagia to be aware of during and after assessment/intake are:

- Coughing or choking (NB patients may 'silently' aspirate)
- Increased work of breathing
- Fatigue
- Change in the voice quality e.g. sounds wet
- Noteworthy decrease in O₂ saturation levels and/or change in skin pallor
- Deteriorating chest status
- Increase in frequency of suctioning required
- Evidence of aspirated material on suctioning
- Loss of saliva or food/fluid from the mouth

- Holding of saliva or food/fluid in the mouth
- Patient reports difficulty swallowing



Video fluoroscopy is a radiological investigation which involves ingestion and attempted swallowing of a radio-opaque dye. X-ray screening is performed which can follow the contrast in real time as it is swallowed. Pooling, hold ups and tracheal aspiration can all be detected using this method. Some modern imaging devices can screen at the bedside, but most patients will require a visit to the X-ray department to have this test performed.

Therapies

If dysphagia is diagnosed, it may be possible to instigate tailored interventions with the aim of improving the swallowing. These include:

- ‘Training’ the larynx with increasing trials of using a speaking valve in an attempt to normalise airflow through the larynx and restore normal physiology
- Swallowing exercises
- Reducing the size of the tracheostomy tube (if possible)
- Using certain types of diet (e.g. thickened liquids)
- Treat the underlying condition

Often the problems are multifactorial and linked to the underlying condition. Any general muscle weakness may manifest as swallowing difficulties. Attention to nutrition, mobilisation and improving the general condition of the patient will often improve swallowing with time. Repeated assessments are usually indicated, the timing of which will be individual (days to weeks).

Documentation

Outcomes of the assessment of swallowing secretions and oral intake must be clearly documented in the medical notes. Documentation must convey to other members of the MDT the findings of the assessment and the resulting recommendations. The entry should also ensure accurate reporting of any adverse reaction the patient experienced with the procedure and actions taken or still required. If referral on to a specialist dysphagia practitioner (eg Speech and Language Therapist) is required or has been made, this must be documented.

Summary

The table below summarises key actions related to swallowing assessment and their rationales (adapted from NPSA expert working group)

Action	Rationale
Explain and discuss the procedure with the patient	To ensure consent, understanding and reduce anxiety.
Have communication aids available e.g. alphabet chart, pen and paper, interpreters if necessary	To promote effective 2 way communication
Sit the patient upright (unless contra-indicated)	To promote chest expansion and help reduce aspiration risk
Suction the patient if necessary	To remove secretions prior to cuff deflation
Perform cuff deflation whilst suctioning and observe for signs of acute respiratory distress, de-saturation or patient discomfort. Inflate cuff if not tolerated and agree review date. This may be as frequently as daily.	To ensure the patient is able to tolerate their secretions prior to proceeding to oral intake.
If cuff deflation tolerated, attach the speaking valve if applicable to the patients individual weaning plan following local policy.	To optimise physiology of upper airway and provide additional clinical indicators of dysphagia.
Assess voice quality. Proceed to fluid challenge below if voice adequate	Detect signs of failure to manage oral secretions
Trial initially with sips of water, observing for signs of dysphagia. If signs of aspiration are observed, cease trials and refer to a specialist dysphagia practitioner, ideally a speech and language therapist. If trials successful progress cautiously to oral intake as each consistency is deemed safe.	To optimize progression to oral intake and to reduce risk of aspiration.
Remove speaking valve and re-inflate the cuff post-assessment/trial according to the patient's individual weaning plan.	To optimise weaning success and reduce patient risk.
Involve MDT throughout process including patient and their family	To optimise success and reduce patient risk.