ASSISTING IN THE ADMINISTRATION OF A BLUE DYE TEST (SPEECH PATHOLOGY PROCEDURE)

1. Expected Outcome

At the discretion of the managing speech pathologist, blue dye testing will be used as a component of dysphagia assessment for patients with tracheostomy tubes. The speech pathologist will be assisted by suitably trained nursing/physiotherapy staff, who will provide tracheal suctioning and patient monitoring post assessment.

2. Policy Statement

Blue dye testing as part of dysphagia assessment and management is conducted by the speech pathologist, with the assistance of nursing or physiotherapy staff.
Policy must be read in conjunction with: Tracheostomy Tube Suction No. P. 18.9.3

3. Background

- Patients with tracheostomy tubes in situ are at increased risk of aspiration of their saliva and/or food/fluids. At Liverpool Hospital, with the exception of patients within ICU, all tracheostomy inpatients should be referred to the ward speech pathologist. Within ICU, the speech pathologist will receive referrals for patients with neurological involvement, head and neck injury/surgery, or where signs of aspiration have been observed.
- Where a patient has been referred to speech pathology, the speech pathologist may use blue dye testing as a component of his/her assessment, in consultation with a patient's medical team.
- Blue dye testing involves staining saliva/foods/fluids with food colouring, as a method of detecting aspiration in patients with tracheostomy tubes.
- A typical blue dye test will involve suctioning before commencing test, and at regular intervals (as specified by the Speech Pathologist) after ingesting stained saliva/foods/fluids.
- Speech Pathologists are not trained in administering tracheal suction, and therefore require the assistance of nursing staff or physiotherapists in conducting a blue dye test.
- Nurses and Physiotherapists who have completed a specific competency assessment for tracheal suctioning may assist the Speech Pathologist in conducting the procedure.

4. Indications

- Upon request of a Speech Pathologist, as a component of cuff deflation/dysphagia assessment, and
- Managing medical team consent for cuff deflation/food/fluid trials

5. Contraindications

5.1 Patients with a non-intact gastrointestinal tract

A number of cases of poor outcomes with use of food colouring have been reported in the literature. These cases involved larger volumes of dye (FD&C Blue No. 1) introduced into the enteral feeding bags of patients suspected of having a non-intact gastrointestinal tract. The dye used at Liverpool Health Service (Queen Fine Foods Blue Food

Colouring) contains food colour number 133, and the amount used in speech pathology blue dye testing is <0.1mL. As with all foods/drinks, food colour number 133 is considered irritating to the lungs, however no known poor outcomes have been reported by the manufacturer. Blue dye testing in patients with suspected or known non-intact GIT should proceed with caution, and with the express permission of the managing medical team.

5.2 Patients with repeated failure of blue dye cuff deflation trials

In patients with repeated failure at blue dye testing, close consultation between the speech pathologist and the managing team may result in a decision to proceed with cuff deflation despite demonstrated aspiration. In this case blue dye may be superfluous to standard clinical indicators of the patient's respiratory status and temperature changes. The multidisciplinary Tracheostomy Decannulation Team may be consulted for further advice and support.

6. Equipment

- As per the policy 18.9.3 – Tracheostomy tube suction
- Additional equipment including blue dye and food samples supplied by speech pathologist

7. Procedure

7.1 Role of speech pathologist

- Liaise with nursing/physiotherapy staff to confirm specific procedure and roles
- Negotiate the timing of the procedure with nursing/physiotherapy staff, accommodating clinical rationales
- Discuss any specific concerns about the patient's suitability for assessment, if relevant
- Inform patient of what to expect
- Deflate the cuff/administer dye/food/fluids as documented in Speech Pathology Departmental P&P
- Document the procedure, and required follow-up, including the times at which further suctioning is requested.
- Liaise with medical, nursing and allied health staff about the results, implications and subsequent plan.

7.2 Role of assisting nursing/physiotherapy staff

- Liaise with speech pathologist to confirm specific procedure and roles
- Negotiate the timing of the procedure with the speech pathologist, accommodating clinical rationales
- Discuss any specific concerns about the patient's suitability for assessment, if relevant
- Re-position patient as requested by the speech pathologist/patient, or as needed for patient comfort and optimal suction catheter access
- Pre-oxygenate the patient unless otherwise contraindicated
- Provide feedback on changes in respiratory status (eg. SpO_2 saturation) as required
- Provide suctioning per policy 18.9.3 'Tracheostomy Tube Suction' and monitoring before, during and after administration of the dye/food/fluids, per speech pathologist request and as documented in patient's Health Care Record. (Note: the requested suction regime will often specify increasing time between suctions, over a period of 3-4 hours, however this is dependent on the patient's needs and the clinical judgement of the speech pathologist). The nurse may need to intervene in addition to these specifications, as indicated by nursing assessment and the patient's condition

- Document procedure and patient response, over time, using the Tracheostomy Care Chart (CR 168) and Health Care Record
- Feed any specific concerns about the procedure back to the speech pathologist, or medical team after hours

References

1. *Thompson L. Suctioning adults with an artificial airway. The Joanna Briggs Insttitute for Evidence Based Bursing and Midwifery; 2000. Systematic Review No. 9*
2. *Higgins, D. and Maclean, K. 1997 Dysphagia in the patient with tracheostomy: Six cases of inappropriate cuff deflation or removal. Heart and Lung. 26(3):215-220.*
3. *Donzelli, J., Brady, S., Wesling, M. and Craney, M. 2001 Simultaneous modified evans blue dye procedure and video nasal endoscopic evaluation of the swallow. Laryngoscope. 111(10):1746-1750.*
4. *Pannunzio, T. 1996 Aspiration of oral feedings in patients with tracheostomies. AACN Clinical Issues Advanced Practice in Acute and Critical Care. 7(4):560-569.*
5. *Assessing tracheostomy patients for aspiration (critical questions). 1998 American Journal of Nursing. 98(1):16RR.*
6. *Murray, K. 1998 Swallowing in patients with tracheotomies. AACN Clinical Issues Advanced Practice in Acute and Critical Care. 9(3):416-426.*
7. *Swigert, N. B. 2003 Blue Dye in the Evaluation of Dysphagia. ASHA Leader. 8(5): 16-17.*

Author(s): Meredith Porter, Senior Speech Pathologist
Policy Reviewer(s): A/Speech Pathology Service Manager, CNCs for Intensive Care, Neurosciences, Surgery, CNE Brain Injury Rehabilitation Unit