CLINICAL BOTTOM LINE: This systematic review described the results from 14 articles sourced from 1950-May 2009. It summarised the incidence range of dysphagia (3-63%) but reported flawed individual study design and risk of bias in all articles and questioned the accuracy of this incidence data. As such there is insufficient quality evidence to report on the relative incidence of dysphagia post dysphagia. Likewise the association with intubation time and dysphagia, and the specific patient factors associated with dysphagia could not be determined. Higher quality evidence is required.

Clinical Question: What is the incidence and what are the predictors for oropharyngeal dysphagia in extubated patients?

Citation: Skoretz, Stacey A. Flowers, Heather L, Martino, Rosemary. The incidence of dysphagia following endotracheal intubation: A systematic review. 2010; 137 (3): 665-673.

SEARCH STRATEGIES USED AND INCLUSION/EXCLUSION CRITERIA:
- Were databases specified? YES - 14 databases
- What years were included: 1950 – May 2009
- Were search terms specified / listed? YES
- How papers were initially identified: 1489
- How many papers were excluded: 1475
- How many papers were included: 14
- Did authors of the systematic review note inclusion / exclusion criteria for papers? YES
- What were the main search terms? Dysphagia, deglutition disorders, intubation

Inclusion criteria
- Underwent intubation and clinical ax for dysphagia
- Only articles with abstracts
- Adults over 18 years who underwent ETT
- Retrospective or prospective designs using only consecutive enrolment with sample size greater than 10
- Any language

Exclusion criteria
- Articles with pt's at high risk for dysphagia secondary to primary diagnosis – neurogenic, H&N, trachy
- Case series articles with less than 10 pt's
- Dysphagia by pt report
- Oesophageal dysphagia

POPULATIONS STUDIED WITHIN REVIEW
Clinical population of interest in the systematic review: Adult participants who underwent intubation and clinical or objective ax for dysphagia.

What was the author’s clinical question/s?
- The incidence of dysphagia following endotracheal intubation
- The association between dysphagia and intubation time
- Patient characteristics associated with dysphagia

Were the articles summarised adequately? Yes

Provide a brief description of patient cohorts within studies: 14 studies included - 8 studies enrolled surgical pt's with 5/8 being cardiovascular surgery and the final 3/8 mixed surgical diagnoses. 3 studies – mixed medical diagnosis. 3 studies had variety of both medical and surgical diagnoses.

STRENGTH AND QUALITY OF EVIDENCE
What did the author’s use to assess individual article evidence: (NHMRC (2009), GRADE (2004) or other)
Used GRADE levels. Reported that across all studies there was poor study quality and high risk of bias evidence. All articles scored the lowest rating “very low” for quality.
REPORTED RESULTS: (Including authors overall finding from the systematic review)

• Studies were heterogeneous in design, swallowing assessment used and study outcome.
• All were graded as very low level of evidence due to poor study design and risk of bias.
• Dysphagia frequency ranged from 3-62% and intubation duration from 124.8 to 346.6 mean hours.
• Some studies reported higher frequencies of dysphagia with longer intubation times. Others the reverse
• There was no consistent patient factor that predicted dysphagia.
• The heterogeneous nature of study design prevented meta analysis and comparison across studies. For example:
  - some studies used aspiration as only swallowing outcome, others considered other aspects of dysphagia
  - some studies assessed swallowing immediately up to 5 days post extubation
  - some studies used FEES, some MBS some clinical. FEES identified a greater ratio of dysphagia than other
    methods consistent with other research where FEES has been noted to be more sensitive
  - More evidence is required

CRITIQUE OF SYSTEMATIC REVIEW METHODOLOGY:

Quality of evidence based on PRISMA: 21 (Provide the score out of 27 and a brief summary of the overall strengths and weaknesses of the study with respect to:)

Title (1/1): Clear
Abstract (1/1): Good structured summary of background, objectives, eligibility criteria, participants, results
Introduction (2/2): Explicit
Method (8/12):
  - No electronic search strategy provided but otherwise very thorough
  - No protocol however registration information present
Results (5/7):
  - Clear and concise in qualitative descriptions
  - No meta-analysis done due to heterogeneous nature of articles
  - Nil additional analysis
Discussion (3/3): Good summary of main findings however evidence did not appear to support the authors conclusions
Funding (1/1): Specified clearly – scholarships and/or awards

Overall based on the PRISMA the study is very well structured, detailed and clear. The main weaknesses identified by the checklist were the absence of meta-analysis and additional analysis in the method and results sections.

Overall comments on quality

Limitations:
The authors make a concluding statement "given the high like hood of serious medical complications of dysphagia, particularly pneumonia, we recommend swallowing assessments be conducted on patients undergoing prolonged intubation durations" without evidence to support it. This statement needs to be interpreted with caution.
The authors do not comment or appear to consider the the type of intubation to be significant eg. grade 1 2 or 3 or how intubation occurred eg traumatic versus elective.
The authors refer to “prolonged intubation time” but don’t define the time period of what this refers to.

Appraised By:
NSW Health Tracheostomy and Critical Care EBP Group

Date: August 2015
