



# NSW Speech Pathology Evidence Based Practice Interest Group

## Critically Appraised Paper (CAP)

**CLINICAL BOTTOM LINE:** The use of Passy-Muir Speaking valves in some tracheostomy patients may reduce aspiration of thin fluids, but recommend Modified Barium Swallow due to high incidence of silent aspiration.

**Clinical Question [patient/problem, intervention, (comparison), outcome]:**

What are the effects of the Passy Muir Speaking Valve (PMV) on aspiration in tracheostomy patients?

**Search Terms:** Tracheostomy; Aspiration; Management; Occlusion; Swallowing

**Search Systems:** CINAHL; Medline; CIAP

**Citation:** Elpern EH. Okonek MB. Bacon M. Gerstung C. Skrzynski M. Effect of the Passy-Muir tracheostomy speaking valve on pulmonary aspiration in adults. *Heart & Lung: Journal of Acute & Critical Care* 29 (4): 287-93 2000 .July-Aug

**Design:** Prospective, Descriptive study with heterogenous small group; A-B Case Series (A - nil occlusion; B – occlusion). Subject acted as own control.

**Participants:** 15 adults (8 men and 7 women), age range 32-84 years (mean = 60 years). Trache in situ for 13-58 days (mean = 32 days). 12 patients had used the PMV for 2 days-6 weeks but 3 had not used the PMV prior to the study. Nil required mechanical ventilation; they were all able to tolerate cuff deflation; all had patent upper airway.

**Experimental Group:** Examination of 15 patients swallowing of thin fluids with PMV in situ, via MBS. They recorded whether aspiration occurred; if so, whether before/during/post swallow; the degree of aspiration (ie: more or less than 50% of bolus); and whether patient silently aspirated.

**Control Group:** Patients without PMV

**Results:** 1) All aspirations were less than 50% of the bolus. 7/15 (46%) aspirated on more than 1 presentation (they were older but not significantly). 9/16 (56%) of aspirations were silent. Nil significant differences in characteristics of participants who aspirated vs those who didn't (eg: gender, trache type) 2) 71% of participants who aspirated did so without the PMV in situ. 29% of participants who aspirated did so with and without the PMV in situ. No subject aspirated exclusively with PMV. Aspiration was significantly less with the PMV on (p=0.016)

**Comments on Design:** Small sample size; Limited to thin fluids only; some subjects had training in PMV prior to study and others didn't; Reported results of incomplete study (ie: 2 did not complete protocol); wide range of length of time with trache; ?same trache types; ?cause for trache/aetiology; no blinding of rater

**Level of Evidence (NH&MRC):** 4

**Appraised By:**  
**Clinical Group:** Tracheostomy Discussion/EBP Group

**Date:** 30/8/2003