Oral Care for Non-Intubated Dysphagia Patients

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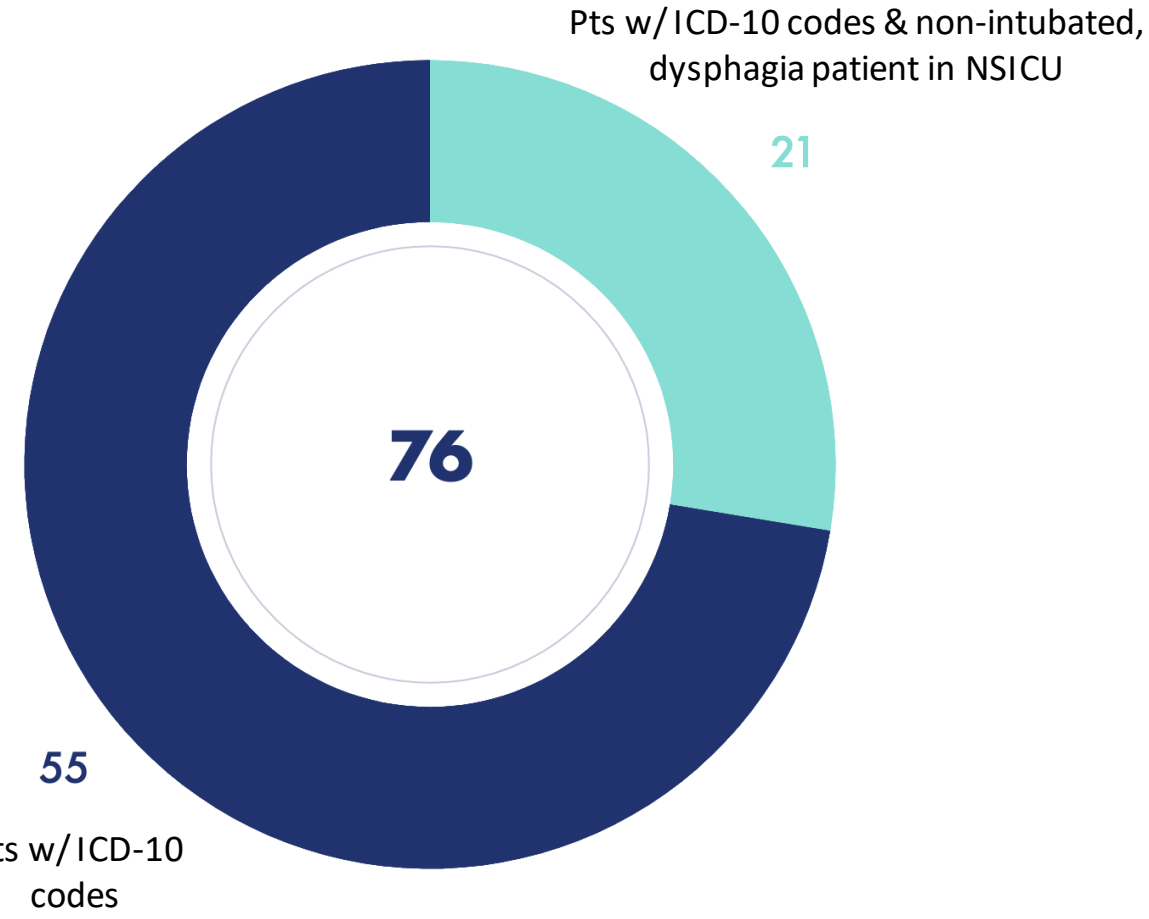
BACKGROUND

- Dysphagia puts patients at significantly increased risk for aspiration pneumonia (Klompas, 2021) and specifically for our stroke patients, studies suggest dysphagia may be one of the most significant risk factors for aspiration pneumonia (Sorensen et al., 2013).
  - Nearly 30% of all patients admitted to the NSICU that were coded with ICD-10 codes were non-intubated, dysphagia patients

- Studies suggest that robust oral care is one of the main preventative methods that can be implemented to help prevent aspiration pneumonia (Sorensen et al., 2013). Currently within the ICU cluster at OHSU, non-intubated dysphagia patients fall under the general standard of care which only requires tooth and tongue brushing once per shift.

Aspiration Pneumonia (ICD-10 codes for Non-POA and stayed in NSICU) Patients Fiscal Quarter 1 2019 to Fiscal Quarter 1 2021 in NSICU



PICO(T) QUESTION

- In hospitalized, non-intubated dysphagia patients **(P)**, would a standardized oral care protocol **(I)** compared to the current standard of Q shift teeth and tongue brushing **(C)** decrease the incidence of hospital acquired aspiration pneumonia **(O)**?

Key words/phrases for PubMed Search: aspiration pneumonia, dysphagia, deglutition disorders, oral hygiene, oral care, inpatients, hospitalizations

Literature Review

40 total articles after final literature review
6 total studies focusing on their own oral care protocol

Studies with Oral Care Protocols

Studies	Evidence Quality
Dysphagia screening and intensified oral hygiene reduce pneumonia after stroke (Sorensen et al., 2013).	Quasi-Experimental: Intervention group (n=58), Internal (n=58) and External Control group (n=30). Statistically significant findings. Level III.
Oral care may reduce pneumonia in the tube-fed elderly: a preliminary study (Maeda & Akagi, 2014).	Quasi-Experimental: Intervention group (n=31) and control group (n=32). Statistically significant findings. Level 2d.
Hydration and nosocomial pneumonia: killing two birds with one stone (a toothbrush) (Farrell & Petrik, 2009).	Organizational QI.
The effect of a daily application of a 0.05% chlorhexidine oral rinse solution on the incidence of aspiration pneumonia in nursing home residents: a multicenter study (Hollar et al., 2017).	Quasi-Experimental: Intervention group (n=103) compared to historical review- studied over 1 year. Level III.
Implementing oral care to reduce aspiration pneumonia amongst patients with dysphagia in a South African setting (Seedat & Penn, 2016).	Quasi-Experimental: Small sample size, positive correlation but no statistically significant findings. Level III.
Pilot study for risk assessment of aspiration pneumonia based on oral bacteria levels and serum biomarkers (Nishizawa et al., 2019).	Quasi-Experimental: Multi-component study. Measured oral bacteria count vs aspiration pneumonia rates- statistically significant decrease is bacteria. Level III.

Evidence Summary

- There is no one standard for oral care that has currently been implemented. Many different variations.
- Many studies include oral care regimens that include multiple components. All studies included teeth brushing. Frequency of oral care varied between studies
- Use of chlorhexidine was explored in a large study over several years with no significant difference found (Hollar et al., 2017)

ACTION PLAN

The Oral Care Protocol

- Patients who are not intubated and where YES can be answered to *any* of the following three criteria questions:
  - Do they fail the RN bedside swallow evaluation?
  - Do they require a feeding tube?
  - Are they on a modified texture diet?

- Protocol elements for patients who meet above criteria
  - Q Shift teeth and tongue brushing with **toothbrush AND toothpaste** (emphasis placed on oral care swabs not being an appropriate alternative to toothbrush and toothpaste)
  - Q4 hours
    - Swab with Corinz Antiseptic Rinse provided in stocked oral care kits (Cetylpyridium Chloride based rinse)
    - Artificial Saliva (MouthKote) ordered by RN via RN delegation protocol
    - Lip moisturizer applied

Stakeholder Support and Staff Education

Presented to:

- UBNPC
- Neuroscience Quality Oversight Committee
- NSICU Council
- Stoke Advisory Committee
- Share work with peers and tell them about the WHY
  - Gathered feedback

Staff education over 2 weeks with goal of > 80% of staff

- Computer cards and posters

PROJECT METRICS

	Metric	Operational Definition	Source of Data	Data Collection Frequency	Data Aggregation (frequency & level of analysis – unit, pt. pop)	Feedback Plan (to what stakeholders, & when)
PROCESS	Implementation of oral care protocol	Standard of care for non-intubated dysphagia patients	Electronic Health Record	Every Shift	Data is collected Qshift and updated at least weekly to daily management system chart	Verbal and written feedback from NSICU RNs, plan to present progress to Neuro Service Line
OUTCOME	Preliminary data collected- to do a full review 6 months from project initiation using ICD-10 codes from initial historic review	ICD-10 Codes for Non-POA Aspiration Pneumonia and NSICU admission	Electronic Health Record	6 months post intervention, potentially once more at 1 year post intervention	Continuously aggregating, to be synthesized at 6months and potentially 1 year	Presentation to original stakeholders

Daily Management System

Oral Care for Dysphagia Patient Protocol Audit Sheet

DATE:_____ **SHIFT:**_____

Criteria	Please circle the room numbers that meet criteria
If patient is **NOT** intubated *and* you can answer yes to any of the 3 Qs - Do they fail RN bedside swallow evaluation? - Do they require tube feedings? - Are they on a modified texture diet?	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Please Mark **YES or NO** for each protocol element on patients who meet criteria

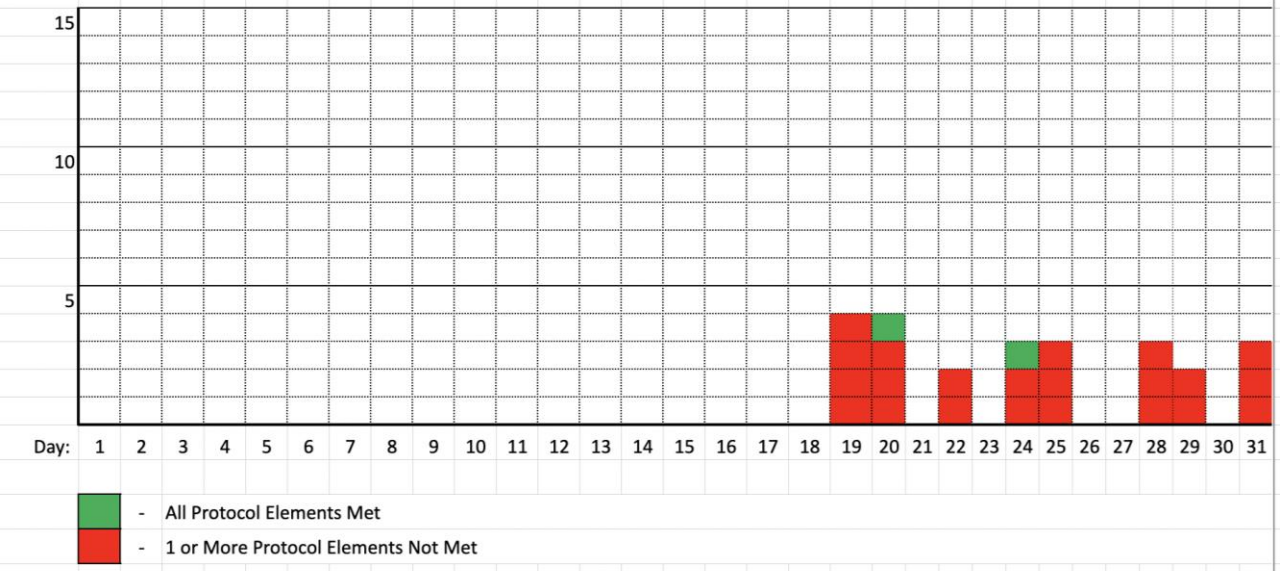
RM #	Teeth Brushed Q Shift	Tongue Brushed Q Shift	Swabbed with antiseptic rinse Q4	MouthKote applied Q4 (scanned to MAR)	Lip Moisturizer Applied Q4
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N	Y / N	Y / N

RESULTS – How it's going

- Implementation began Monday May 17th, 2021
  - It's still too early to begin investigating results regarding impact on aspiration pneumonia rates
- Everyone on the unit has found implementation of the protocol very feasible to their shifts
- Continue to work on consistency of implementation and auditing
- Patients are reporting that they are enjoying the oral care protocol
  - "It's the highlight of my day!"

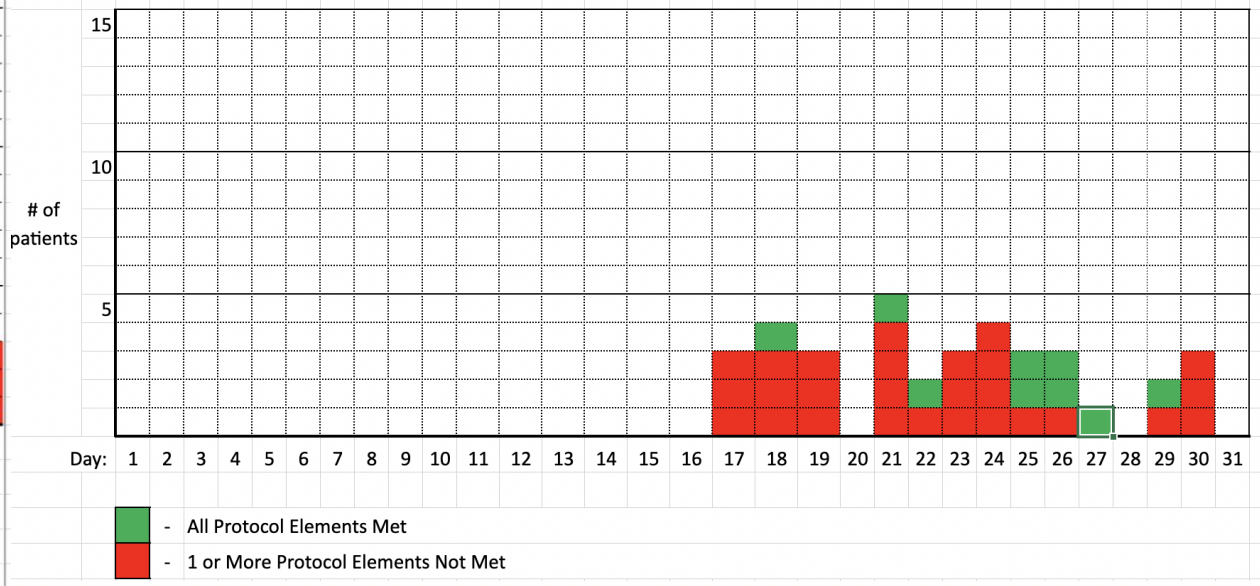
Oral Care for Dysphagia Patients Protocol

May 2021- Night Shift



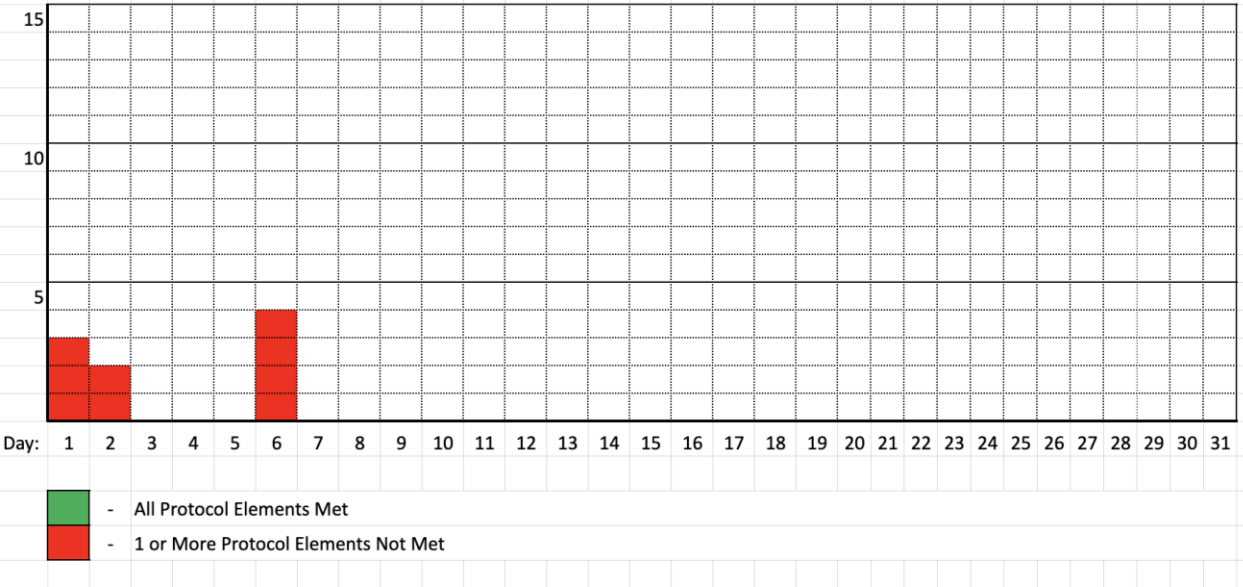
Oral Care for Dysphagia Patients Protocol

May 2021- Day Shift



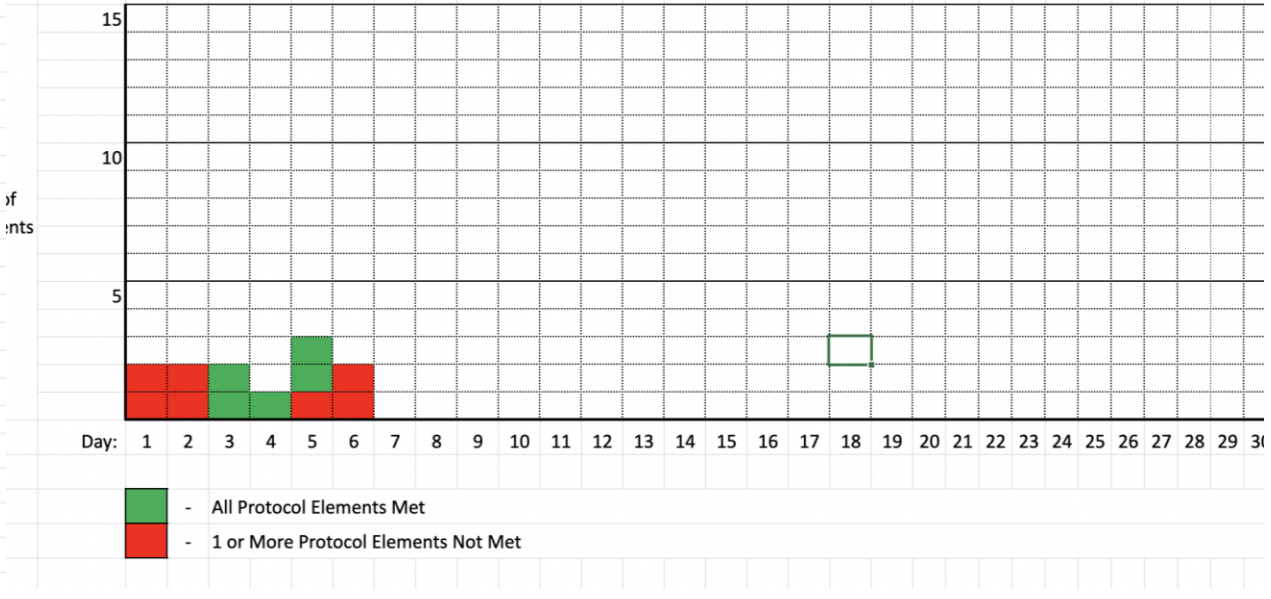
Oral Care for Dysphagia Patients Protocol

June 2021- Night Shift



Oral Care for Dysphagia Patients Protocol

June 2021- Day Shift



RETURN ON INVESTMENT

Cost of Change

Cost of Supplies:
- Printing for staff education
- Protocol Supply

Other equipment would include suction cannisters and tubing

Consider cost for nursing/staff (not quantifiable but to be considered)

Toothbrush- $0.05
Toothpaste- $0.17
Suction tubing- $2.29
Suction Cannister- $1.28
Lip Balm- $0.67
MouthKote- $6.00
Oral Care Kit- $15.47

Total Cost: $25.93

Benefit of Change

Hard to make an approximation- no data on the effectiveness of the intervention.
Consider:
- Cost of treatment
- Cost of stay
- Cost of complications

Cost of Various IV Antibiotic Regimens Used in Aspiration Pneumonia

Vancomycin: $127.40- $185.22 (Vancomycin: Drug Information, 2021)
Meropenem: $179.13 - $1092.00 (Meropenem: Drug Information, 2021)
Piperacillin-Tazo: $188.44 - $771.40 (Piperacillin-Tazobactam: Drug Information, 2021)

CHALLENGES

Challenges

- Transitioning to protocol implementation- people remembering to implement
- Clear auditing roles and auditing consistency
- Patients in "grey area" of qualification for protocol

Limitations

- Products that OHSU currently carries in stock
- Time

Implications for Practice

No results as study has very recently been launched. If aspiration pneumonia rates decrease, we can expect to see

- Decreased aspiration pneumonia rates
- Decreased Hospital Days
- Decreased Complications
- Decreased Morbidity and Mortality
- Overall improved patient experience

This practice could be expanded to all patients who are experiencing dysphagia. Consistent oral care throughout a patient's hospitalization regardless of what unit they find themselves in would provide more robust data to efficacy of the oral care project and will ensure that patients are receiving standardized care throughout their stay

CONCLUSION

- Oral care is one of the easiest, most cost-effective interventions that we can do to work towards mitigating the risk for aspiration pneumonia
- It will take time for aspiration pneumonia rates to be reported and for us to more clearly synthesize the results of implementation of oral care on this statistic
- As we begin to gather data, it would be worth looking at the opportunity for this protocol and expanding to other units in order to meet the needs of all non-intubated dysphagia patients hospital wide

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QUESTIONS & DISCUSSION