Project Title

Nurse-Performed Bedside Dysphagia Screening for Post-Extubated Patients in ICUs

Project Lead and Members

Project lead: Yong Ying Bing

Project members: Chua Hsu Fung Cindy

Organisation(s) Involved

National University Hospital, NUHS

Project Period

Start date: May 2018

Completed date: March 2019

Aims

This quality improvement initiative aimed to achieve 80% of the nurses trained and competent in performing NPS for post-extubated patients within 12 months. It aimed to improve resumption of oral intake within 48 hours post extubation, reduced reintubation events, post-extubation pneumonia rates and length of hospitalisation in post-extubated patients within 12 months.It was targeted to achieve 75% of nurses' compliance rate to the NPS PED protocol over 12 months.

Background

Post-extubation dysphagia (PED) refers to the inability to safely transfer food and liquid from mouth to stomach after extubation. This occurs in 62% of intensive care unit (ICU) patients following endotracheal intubation for 48 hours or longer. PED predisposes patients to risk of aspiration, resulting in increased pneumonia, reintubation and prolonged hospitalisation. The high-risk patients in ICUs were directly referred to speech therapists for formal assessments. There was no standardised NPS PED protocol across the multiple care settings. As a result, patients were not receiving accurate and prompt routine screening after extubation. Moreover, swallowing

evaluations were delayed following extubation with the assumption that swallowing function improves over time. There were 69% of ICU patients who resumed oral intake more than 48 hours post-extubation. Delayed oral resumption commits patients to feeding tube dependence, thus prolonging patients' recovery. This resulted in reintubation events, pneumonia and increase length of hospitalisation within 12 months.It is essential to have a NPS PED protocol to standardise dysphagia screening practices across ICUs so as to allow nurses to screen post-extubation patients timely and accurately.

Methods

Refer to attachment

Results

Refer to attachment

Lessons Learnt

Introducing a new change in a healthcare setting that includes a diverse mix of specialty providers and differing practice styles pose challenges. Specifically, variability to training needs of end users, execution of implementation, and staffing arrangement display planning and logistical challenges, and require flexibility in how we approach the process. Hence, it is imperative to align and have a building consensus on implementing practice change and gain approvals from senior management and clinicians for any critical decisions.

Conclusion

Empowering nurses in PED screening improves early resumption of oral intake, decreases reintubation events, pneumonia rates and length of hospitalization. Measures will be put in place to modify the implementation and education methods with booster sessions to improve sustainability of nurses' compliance with the NPS PED protocol. Implementation of NPS for PED is safe and effective, hence enhances patients' outcomes.

Additional Information

PED affects not only patients but also their caregivers. It causes disruptions in their rehabilitation and is also associated with reduced quality of life. While improving standardisation of NPS PED allows healthcare professionals to screen in a more consistent and timely manner, yet we ought to ensure balance safety and efficiency, in order to adopt a safe feeding strategy for patients.

Project Category

Care Redesign

Keywords

Care Redesign, Quality Improvement, Clinical Improvement, Quality Improvement Tools, Cause and Effect Analysis, Plan Do Study Act, Workflow Improvement, Work Protocol Streamlining, Staff Training, Structured Training Programme, Staff Empowerment, Change Management, Intensive Care Unit, Nursing, Allied Health, National University Hospital, Nurses Compliance to Protocol, Nurse-Performed Dysphagia Screening Protocol, Dysphagia Screening, Post-Extubation Dysphagia, Intubation, Reintubation, Post-Extubation Pneumonia, Oral Resumption

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Nurse-Performed Bedside Dysphagia Screening for Post-extubated Patients in ICUs

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INTRODUCTION

- Post-extubation dysphagia (PED) occurs in 62% of intensive care unit (ICU) patients following endotracheal intubation for 48 hours or longer, delaying oral intake.
- PED predisposes patients to risk of aspiration, resulting in increased pneumonia, reintubation and prolonged hospitalization.
- Moreover, swallowing evaluations are delayed following extubation with the assumption that swallowing function improves over time. There are 69% of ICU patients whom resumed oral intake more than 48 hours post-extubation.
- A cause and effect analysis was utilized to identify root causes for delayed resumption of oral intake in post-extubated patients (Diagram 1).
- The team voted 5 of the root causes from the cause and effect analysis to focus on, namely lack of protocol, non-uniformity of dysphagia screening practices, knowledge gap/unfamiliarity on PED among doctors and nurses and resistance faced to allow screening by nurses.
- Currently, there is no standardised nurse-performed screening (NPS) and high-risk patients are directly referred to speech therapists (ST) for formal assessment.
- By streamlining NPS PED protocol, it aids nurses in early identification of PED and reduces unintended complications.

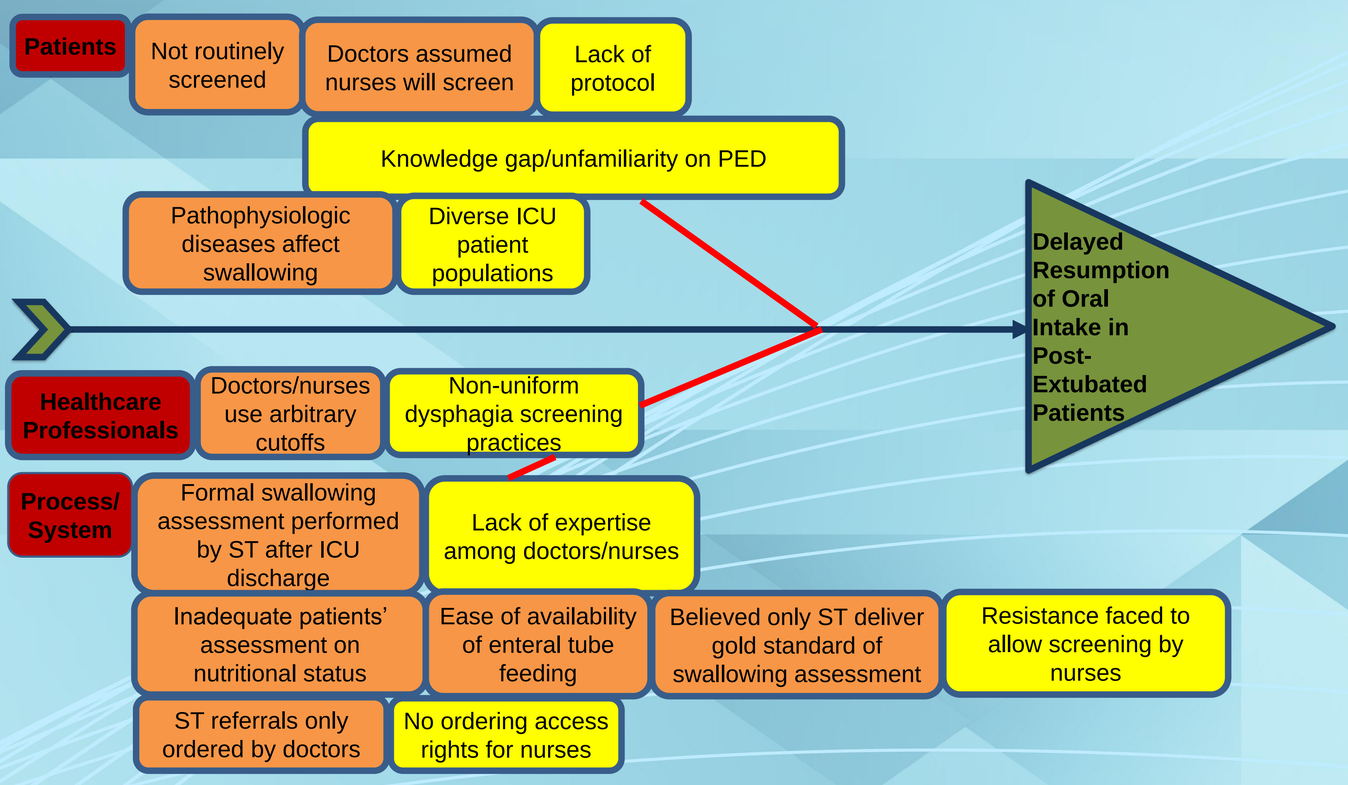
AIMS

This quality improvement initiative aimed to achieve 80% of the nurses trained and competent in performing NPS for post-extubated patients within 12 months.

It aimed to improve resumption of oral intake within 48 hours post extubation, reduced reintubation events, post-extubation pneumonia rates and length of hospitalisation in post-extubated patients within 12 months.

It was targeted to achieve 75% of nurses' compliance rate to the NPS PED protocol over 12 months.

Diagram 1: Cause & Effect Analysis



METHODS

Design	Plan-Do-Study-Act (PDSA) (Figure 1)
Setting	5 adult ICUs restructured hospital
Ethics consideration	Not required, project was conducted in accordance to hospital's clinical quality improvement policy
Inclusion Criteria	(1) ICU patients whom have tolerated extubation for at least 1 hour
Exclusion Criteria	(1) Known dysphagia on modified diet/fluids (2) Requires continuous non-invasive ventilation > 6 hours post extubation (3) Tracheostomy (4) Terminal extubation/palliation

Figure 1: PDSA cycle

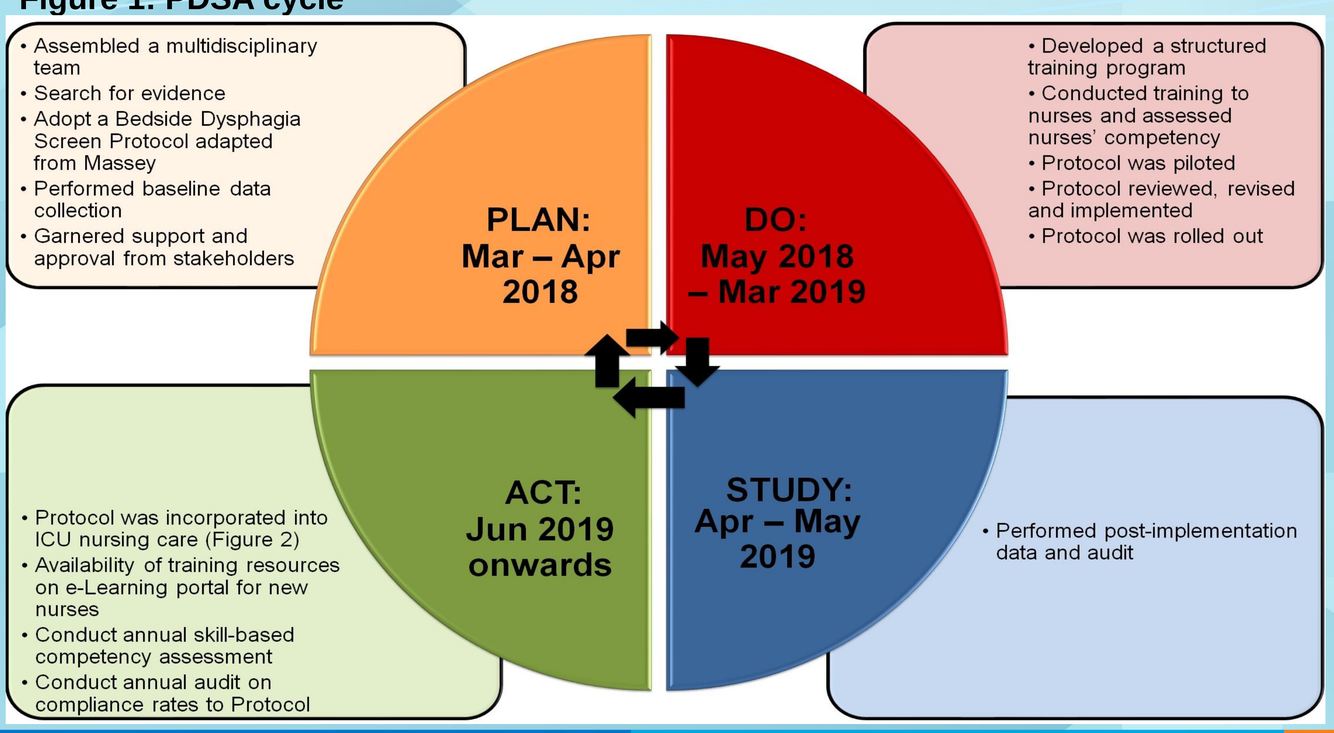
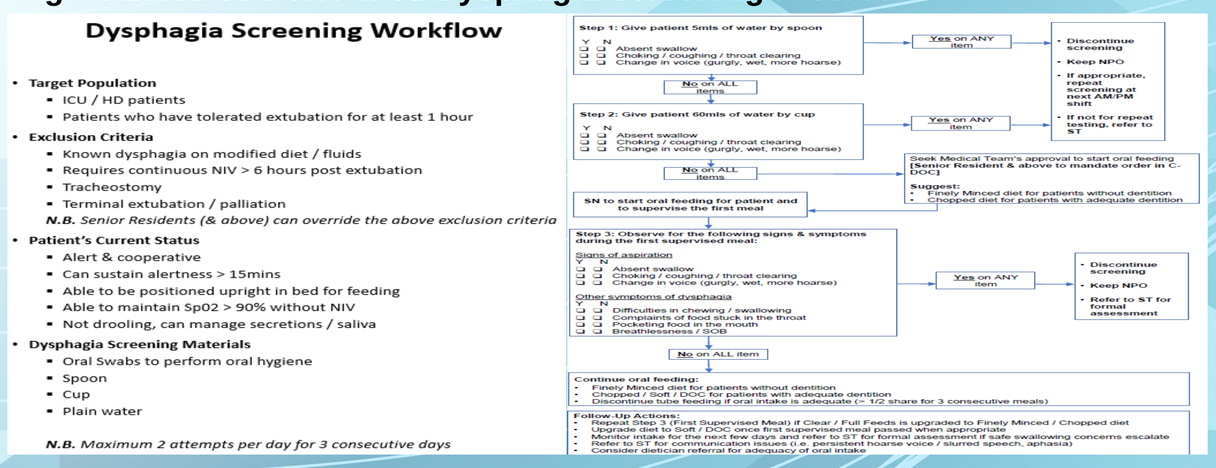


Figure 2: Nurse-Performed Dysphagia Screening Protocol



RESULTS

Results revealed:

- 100% of the ICU nurses were trained and competent in NPS PED screening
- Oral intake within 48 hours post extubation had increased from 32% to 76% (Figure 3)
- Reduction of reintubation events secondary to pneumonia from 71% to 12% (Figure 4)
- Reduction of post extubation pneumonia rates by 7% (Figure 4)
- Median length of hospitalisation was 21 days (IQR: 9.0-27.0) for pre-implementation; 14 days (IQR: 9.0-26.0) for post-implementation
- 54% of the nurses complied to all components in the audit criteria (Table 1)
- 82.9% of the nurses followed the screening criteria, which was the highest compliance rate among the 3 components (Table 1)
- 73% and 68.5% of nurses did not follow the standardised guidelines and performed inconsistent documentation respectively (Table 1)

Figure 3:

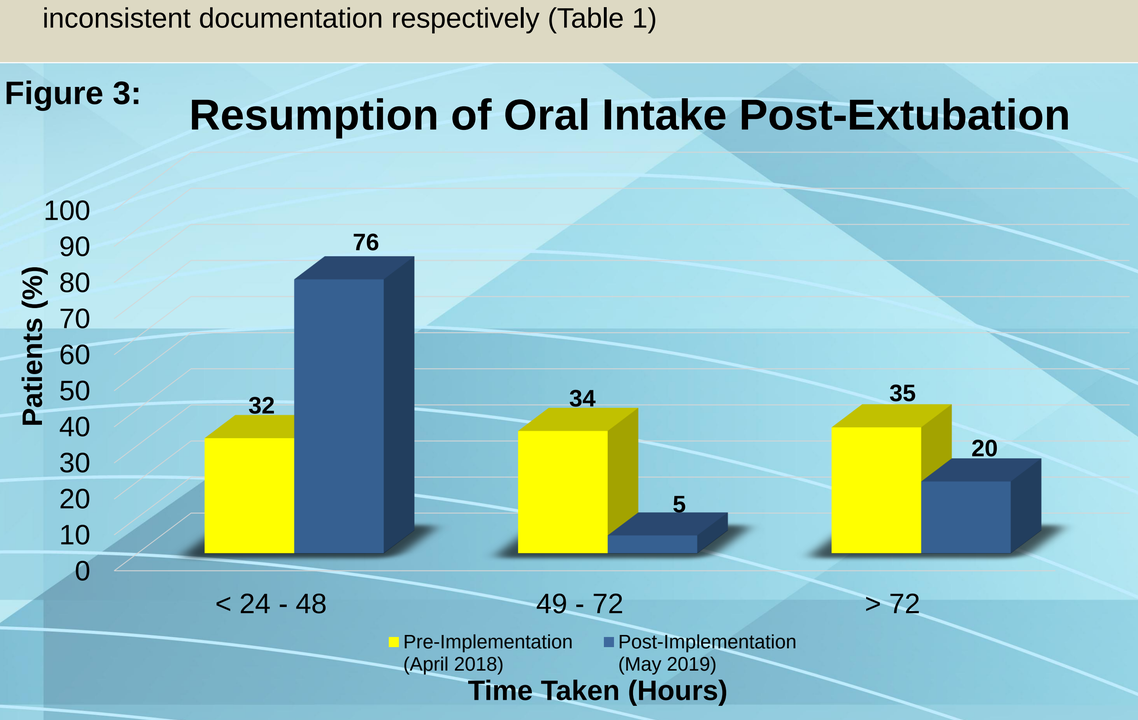


Figure 4:

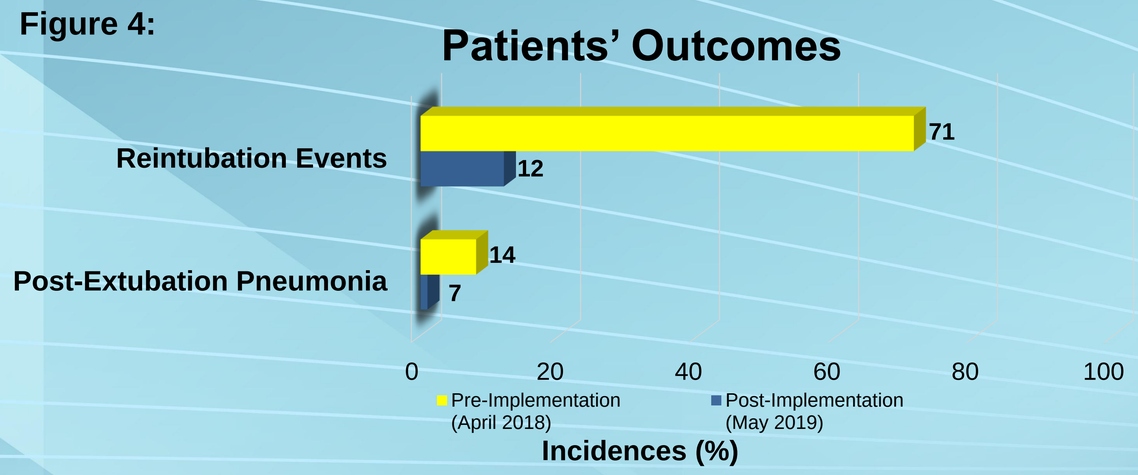


Table 1: Audit Results

Nurses' Compliance to Protocol Audit Results	Pre-implementation Group April 2018 N = 136	Post-implementation Group May 2019 N = 111
1. Nurse Follow Screening Criteria (Nurses who met criteria 1.1, 1.2 & 1.3)	Not applicable. Nurses assess all patients with their own clinical judgment High risk patients were referred to speech therapists directly	**92 (82.9%)**
1.1 Nurse adhere to inclusion and exclusion criteria		105 (94.6%)
1.2 Nurse adhere to patient's current clinical status prior to screening		104 (93.7%)
1.3 Nurse perform dysphagia screen at least 1 hour post-extubation		95 (85.6%)
2. Nurse Follow Standardised Guidelines (Nurses who met criteria 2.1, 2.2 & 2.3)	Not applicable. There was no standardized protocol for nurses to follow	**81 (73%)**
2.1 Nurse perform correct number of water attempts before the next escalation		89 (80.2%)
2.2 Nurse perform correct number of diet attempt before each ST referral		82 (73.9%)
2.3 Nurse complete follow through of bedside dysphagia screening before patient's self-feeding		86 (77.5%)
3. Documentation (Nurses who met criteria 3.1 & 3.2)	Not applicable. There was no standardized template documentation	**76 (68.5%)**
3.1 Nurse complete documentation by putting up bedside dysphagia screening template in cDOC post screening		79 (71.2%)
3.2 Nurse document in A STRIP-OF for any follow-up of dysphagia screening		81 (73%)
Nurses' overall compliance rate to all 3 components of the audit		**60 (54%)**

n, number complied with criteria; %, percentage complied with criteria

CONCLUSION

Empowering nurses in PED screening improves early resumption of oral intake, decreases reintubation events, pneumonia rates and length of hospitalization.

Measures will be put in place to modify the implementation and education methods with booster sessions to improve sustainability of nurses' compliance with the NPS PED protocol.

Implementation of NPS for PED is safe and effective, hence enhances patients' outcomes.