

The Health Care Improvement Foundation
2015 Delaware Valley Patient Safety and Quality Award
Entry Form

1. **Hospital Name**

Hospital of the University of Pennsylvania

2. **Title Of Initiative**

Project Sit Up: An Interprofessional Quality Improvement Initiative to Reduce Aspiration Pneumonia

3. **Abstract (Please limit this description to 250 words)**

Aspiration pneumonia (AP) leads to serious complications for hospitalized patients, including mortality. With proper risk identification and surveillance, AP is easily preventable. A review of medical records at our academic medical center revealed that general medicine patients were at particularly high risk for AP and had higher confirmed cases of AP as compared to national averages. In January 2014, Project SITUP was developed and implemented by an interprofessional team of nurses, physicians, and speech/language pathologists (SLPs). SITUP (Screen, Identify, Test, Understand, Plan) is a quality improvement process utilizing an evidence-based (EB) algorithm to guide clinical decision-making for AP prevention care. Clinical nurses assume a vital role in AP risk detection and preventative care. To be successful in AP prevention, nurses need guidelines to support patient care and decision making. Nurses screen all patients according to risk criteria upon admission. If one or more risk factor is present, nurses collaborate with physicians to institute 'nothing by mouth' (NPO) status and consult SLP for evaluation and interprofessional care planning. For patients without risk factors, nurses independently implement a three-ounce water drinking test and observe for signs of difficulty swallowing and aspiration. A positive test requires NPO status and SLP consultation. Following initial screening, patients are reassessed daily. Twelve months following the initiation of Project SITUP, the interprofessional team demonstrated an 88% adherence rate to the protocol, and cases of AP were reduced by 40%, ($p=0.006$). Interprofessional clinical decision support tools such as EB algorithms empower nurses to proactively collaborate in AP prevention.

4. **What were the goals of your initiative?**

The goal of this initiative was to decrease the risk of aspiration and the potential for aspiration pneumonia through early assessment and identification. This goal was met by creating an interprofessional team who each had a role in the selection of the evidence based algorithm and its implementation at the point of care.

5. **What were your initiative's baseline data and the results of your initiative?**

Aspiration pneumonia cases examined through mortality review demonstrated a high number of aspiration pneumonia across the three medical units. When comparing our academic medical center against similar institutions using benchmark data from University HealthSystem Consortium (UHC), we were also above the national average. This information prompted further investigation into identifying areas of improvement.

At our hospital, the actual rate of aspiration on three large medical units prior to the initiative was 12 cases per 1000 patients (.012). Although these units are categorized as medical unit, the patient population is extremely complex and many patients multiple co-morbidities. Once admitted, they are typically assigned to either a hospitalist service or a subspecialty (Gastroenterology, Pulmonology, Infectious Disease and Renal) service.

The Unit Based Clinical Leadership (UBCL) teams across the three units brainstormed with key stakeholders to look at current practice and identify a future state. Since no formal assessment tool was presently in use, there was no process through which to identify a potential aspiration risk. Therefore, an opportunity to implement such a tool existed. The project was implemented in December of 2013 and by July 2014, the rate of aspiration decreased to 7 cases per 1000 patients (.007) which correlates to a 40% reduction and is statistically significant.

Compliance with utilization of the evidence-based screening tool across the three medical units has been >88%. In recent months, the compliance rate was impacted by clinical nurse turnover. To support sustainability, re-education occurred across all three units. Likewise, this risk assessment is included in our annual competencies. In addition to electronic data collection, weekly auditing is performed by the clinical nurse specialists (CNS) on the units to capture real time information from the EMR regarding the AP assessments and provide feedback to the clinical nurses.

6. Describe the interventions that were instrumental in achieving the results for your initiative.

The pulmonary attending completed mortality reviews on cases of aspiration pneumonia to better understand the gaps that existed. Chart reviews were then performed to identify risk factors. However, decision tree analysis of risk factors could not identify a narrow target population. With this information, an interprofessional team was created to brainstorm on areas of improvement and broad-based interventions were considered. Process analysis was performed to understand pre-intervention approaches and an opportunity to positively impact the patient on admission prior to food or medication was identified. Initiation of the intervention at this junction would allow clinicians to understand the patient's ability to swallow rather than consider alterations with swallowing technique as an afterthought once a potential aspiration occurred. This project involved the development of a standardized nurse-driven bedside screening tool to be utilized on admission. After a review of the literature, a valid screening tool which included 3 parts: pre-screen risk evaluation, psychomotor assessment and the 3oz water test was selected for use. We partnered with the Information Systems (IS) department to create a documentation form within the inpatient electronic medical record (EMR) which would translate seamlessly into the nursing workflow. Based on the information inputted into the system and once the screening process was complete, logic built into the EMR indicated a pass or fail result.

As part of the EMR, this information was easily accessible to all members of the interprofessional team from any location at all times. Furthermore, this intervention

enabled effective communication between nursing, medicine and SLP which led to appropriate patient centered plans of care to be created. Auditing compliance and providing real time feedback have been instrumental in the program's success and sustainability.

Nurse champions on the 3 units were trained and their practice was validated on execution of the screening tool by SLP. They partnered with the SLP to receive additional education so that they would be able to reach the large number of nurses (close to 120) across the three units. In turn, they were able to assist with the validation process of all clinical nurses and provided real time feedback.

It was determined that an annual competency and on-going education with standardization of the knowledge would be crucial to the sustainability of the intervention. As a result, the interprofessional team partnered with the Nursing Professional Development Specialists (NPDS) to create an online learning module and post- test through Knowledge Link. This tool has now been released to the nursing units and is completed prior to the real time validation. Once the nurse completes the online module they are then eligible to be validated in the practice setting by one of the unit champions.

7. How can this initiative be replicated through the region? (Please limit this description to 100 words.)

Creation of an interprofessional team including nursing, physicians, and SLP is the first step to improving patient and team outcomes. Next, knowledge pertaining to the anatomy/physiology of normal swallowing coupled with potential outcomes of dysphagia is key to the protocol's success. Then, identification of nursing champions as subject matter experts to assist with initial and ongoing training is critical to the sustainability of the intervention. Finally, documentation in the patient's EMR is essential to track progress, provide structure to the process and enable metrics and data collection to be collected and analyzed which could yield potential areas of improvement.

8. Explain how the initiative demonstrates innovation (Please limit this description to 100 words.)

Implementation of a risk screening process for potential aspiration prior to any oral intake can improve patient outcomes. The nurse-driven algorithm allows for improved timeliness and volume of patients screened for AP. Through interprofessional partnerships, relationships are created and a patient centered plan of care can be established. Unintended negative outcomes such as increased oxygen requirement, antibiotics, radiology tests and perhaps a transition to a higher level of care are avoided. Documentation of the screening process coupled with the results in the patient's EMR creates a complete clinical picture of the patient and is readily accessible to all providers.

9. How does this initiative demonstrate collaboration with other providers within the continuum of care? (Please limit this description to 100 words.)

Interprofessional collaboration, although a basic concept, helped to enhance the work of the team across disciplines. As the project evolved, collaboration occurred among the team to provide education and standardize the process. Once established in the nurse's workflow, outcomes were examined and recommendations for improvements could be made. Each participant's contributions assisted with the sustainability and led to expansion in other areas such as the Medical Intensive Care Unit (MICU). Ultimately, having the patient's screening history and results accessible can assist in the plan of care for future hospitalizations. Consequently, a patient's progress can be closely monitored throughout future admissions.

10. Explain ways in which senior leadership exhibited commitment to the initiative (Please limit this description to 100 words.)

Senior leadership's commitment was essential to the initiative's success. Collaboration occurred during all project phases. Senior leadership allotted time and resources for the work of the interdisciplinary team. They attended planning meetings and formally recognized the contributions across disciplines. Leadership served as champions on behalf of the team to support IS/EMR integration and reduce potential barriers. They facilitated communication and dissemination of the team's work across the health system. This project was strongly aligned with our strategic imperatives for Quality and Safety which focus on "Engagement, Continuity, and Value to improve the health of our patients and assure safe care".

11. Appendices (i.e., tables and graphs)

Table 1

Process Map: Before Intervention/Screen

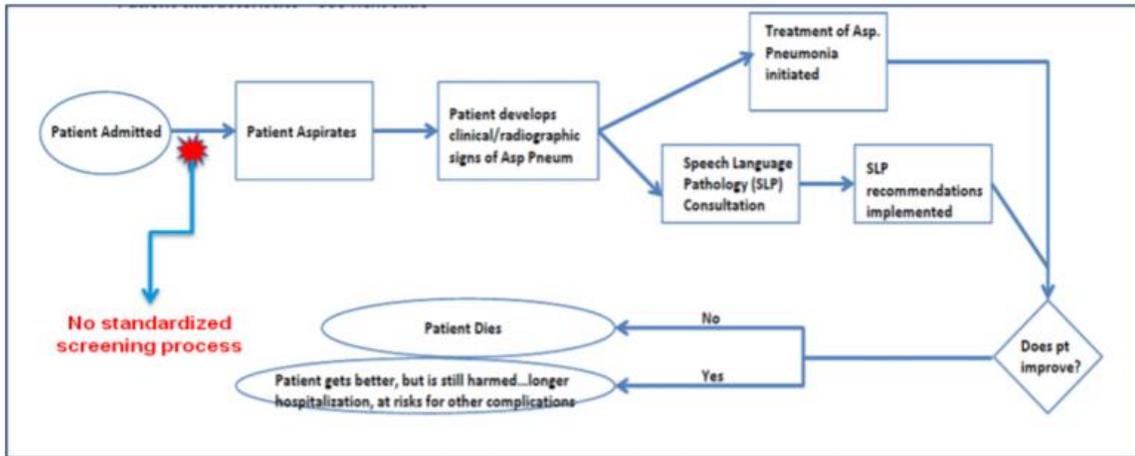


Table 2

Screening Tool in EMR

List Set Description

Aspiration Risk Tool 1: Pre-Screen Assessment: Screen to be completed prior to any oral intake - including medications. (This window will stay open until all questions are answered.)

<input type="checkbox"/> Facial droop/weakness or slurred speech?	<input type="checkbox"/> History of dysphagia (difficulty swallowing)?	<input type="checkbox"/> Wet retention/ manage secretions?	<input type="checkbox"/> Tracheostomy tube/feeding tube?	<input type="checkbox"/> Active speech evident?
<input type="checkbox"/> yes	<input type="checkbox"/> yes	<input type="checkbox"/> yes	<input type="checkbox"/> yes	<input type="checkbox"/> yes
<input type="checkbox"/> no	<input type="checkbox"/> no	<input type="checkbox"/> no	<input type="checkbox"/> no	<input type="checkbox"/> no

Review selected items below.

OK Cancel

List Set Description

Aspiration Risk Tool 2: Psychomotor/Level of Consciousness Assessment (This window will stay open until all questions are answered.)

<input type="checkbox"/> Delirious or not consistently alert?	<input type="checkbox"/> Unable to sit upright?	<input type="checkbox"/> O2 saturation <90% or requires NRB, BPAP, or HFNC?	<input type="checkbox"/> Rising respiratory rate > 30?
<input type="checkbox"/> yes	<input type="checkbox"/> yes	<input type="checkbox"/> yes	<input type="checkbox"/> yes
<input type="checkbox"/> no	<input type="checkbox"/> no	<input type="checkbox"/> no	<input type="checkbox"/> no

Review selected items below.

OK Cancel

List Set Description

Aspiration Risk Tool 3: Instructions: Drink continuously from cup without interruption or sipping (may use straw if patient unable to self-feed). Monitor for 1 minute after drinking for the following:

<input type="checkbox"/> No difficulty noted	<input type="checkbox"/> Coughing	<input type="checkbox"/> Oxygen desaturation/shortness of breath
<input type="checkbox"/> Difficulty noted	<input type="checkbox"/> Throat clearing	<input type="checkbox"/> Delayed/difficult/painful swallow
	<input type="checkbox"/> Wet/gurgling voice	<input type="checkbox"/> Tearing with swallowing effort
	<input type="checkbox"/> Loss of fluid from mouth/dribbling	<input type="checkbox"/> Patient unable to drink continuously

Review selected items below.

OK Cancel

Table 3

Documentation in EMR

Safety Factors					
Morse Fall Risk Assessment	History of Falls (0) no Secondary Diagnosis (15) yes Ambulatory Aid (0) none/total bed rest IV Therapy/Heparin Lock (20) yes Gait/Transfers (10) weak: stooped but Mental Status (0) oriented to own abi Total Morse Score 45				
Score > 45 indicates fall risk. Copyright Janice Morse. Used with permission.					
Aspiration Risk Tool 1: Pre-Screen Assessment: Screen to be completed prior to			no facial droop/weakness no history of dysphagia no wet voice and can r no tracheostomy tube		
Aspiration Risk Tool 2: Psychomotor/Level of Consciousness Assessment (This			not alert able to sit upright Oxygen saturation abc Resting respiratory rat		
Aspiration Risk Tool 3: Instructions: Drink continuously from cup without interru			No difficulty noted		
Guidance when patient is failed in dysphagia screening test					
Aspiration Screen Result			Pass: Proceed with de		
Shift Aspiration Risks					

Table 4

Dysphagia Screening Rates Across the Medical Units

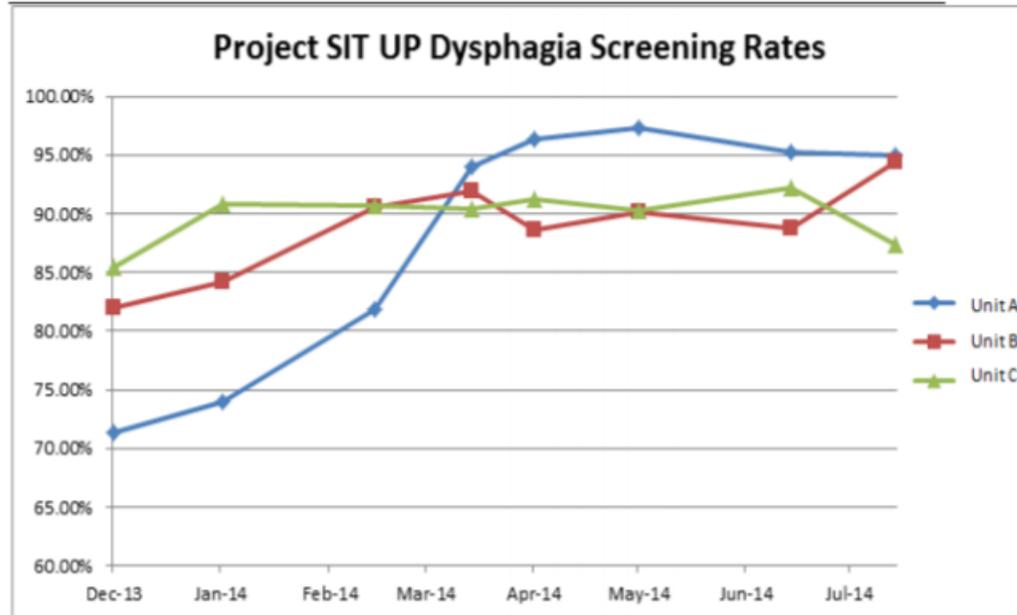
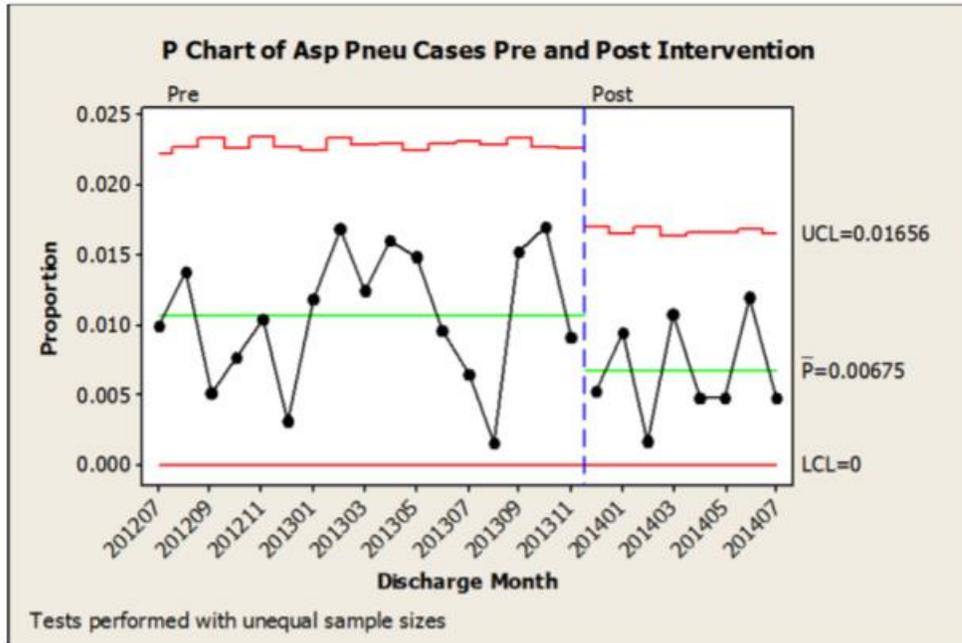


Table 5

Rates of Aspiration Cases Pre and Post Intervention



This P Chart represents the diagnosed cases of Aspiration Pneumonia pre and post intervention. The blue vertical dotted line indicates when the risk screening was implemented. Pre intervention rate is 12 cases/1000 patients and the current post intervention data is 7 cases/1000 patients. This reduction signifies a 40% reduction and is statistically significant with a p-value=0.006.