Does Risk Assessment Scoring Tool for Dysphagia aid in the identification of hospitalized patients at risk for dysphagia?

**Purpose and background: May 2010- September 2010**

An article titled, “Does your admission screening adequately predict aspiration risk?” was published December 2009 in the Pennsylvania Patient Safety Advisory. This led to a conversation between the associate patient safety officer and the medical clinical nurse specialist. At that time, any patient who was suspected of having a stroke was screened for dysphagia on admission; however, no other patient population was screened and there was no policy or procedure for screening patients at-risk for dysphagia. A process was needed to recognize patients who are at-risk of aspiration due to dysphagia.

Suzan Brown, MS, RN, CCNS, CCRN led a multidisciplinary team including nursing, speech language pathology (SLP), nutrition, and the associate patient safety officer to seek new knowledge about the best ways to decrease the incidence of aspiration pneumonia in hospitalized patients. The appraisal of evidence began in May 2010 to September 2010. The group reviewed the literature using the Johns Hopkins Nursing Evidence Based Practice Model. Forty-seven articles were reviewed. Thirteen journal articles were of good quality based on the Hopkins model for synthesis of recommendations. These articles included five non-experimental studies and eight non-research articles (two based upon scientific evidence and six based on experiential evidence) and can be found in the evidence summary table.

Practice recommendations synthesized from the evidence suggested:

- High risk patients should be identified, screened routinely, and referred when appropriate.
- Nurses should be educated and trained to routinely utilize the dysphagia screen, the pathophysiology of dysphagia, and the importance of proper oral care.
- Recommendations for care should be made in collaboration with the patient’s multidisciplinary care team.

The questions of timing of dysphagia screening and when the patient should be made NPO and evaluated by SLP were unanswered by the literature. Although evidence-based risk factors were identified in the literature; there was no tool that identified and quantified these risk factors. The purpose of this evidence-based quality improvement project was to develop and implement a screening tool that would identify and quantify risk factors for dysphagia.

Pre-implementation data: In 2011, 87 patients at YH were diagnosed with aspiration pneumonia. During this time any patient who was suspected of having a stroke was screened for dysphagia on admission. No other patient population was screened.

**Method and Approach: 10/2010 to 5/2011**

The speech therapists designed a risk screening tool to assist with this process. Based on diagnoses and patient history a quick assessment could be made by the Registered Nurse (RN). Taking the main risk factors, two SLPs assigned point values to each risk factor based upon their clinical expertise. When totaled, it would give the RN direction as to whether to follow the provider diet,
complete the RN dysphagia screen, or make the patient NPO and obtain an order for SLP consult. The **Risk Assessment Scoring Tool for Dysphagia** (RASTD) would provide information that could assist healthcare providers to identify the high risk patients.

Education and training for nurses in MSICU, MTCU, and STCU on the use of the new tool, pathophysiology of dysphagia, and the importance of oral care was provided by the CNS and SLPs. The tool was piloted as a quality improvement initiative in 3 units. Nurses were asked to complete the RASTD on all admissions or with patients prior to initiating feeding post-extubation. When the patient scored 8 or more on the RASTD, the patient would be placed NPO and an order was obtained for an SLP consult. If the patient scored 4-7 on the RASTD, the RN was to complete the current dysphasia screen. If the patient scored 0-3 on the RASTD, the nurse would follow the healthcare provider diet order.

**Who was involved:**
Suzan Brown, MS, RN, CCNS, CCRN
Alison Cernik MS, CCC-SLP
Erin Schuppert MS, CCC-SLP
All nurses from the following intensive care units:
- MSICU
- MTCU
- STCU.

**Outcomes and Measurement: May 2011 to Dec 2011**
RASTD scores were assessed on 113 patients. Of the patients who were identified as high-risk using the RASTD, 73.7% (14/19) were found to have oral or pharyngeal dysphagia when a bedside evaluation was conducted by SLP. No patients had aspiration on discharge that was not identified by SLP. Fifty-nine patients had scores (4-7) that led to completion of the RN dysphagia screen. Only 13 (22.03%) of those patients failed the initial RN dysphagia screen. Five of the 13 patients (38.5%) had dysphagia present when assessed during the SLP consult; therefore, the RN dysphagia screen was not as sensitive in identifying dysphagia as the RASTD. Use of the tool on the pilot units has shown that more patients are being identified as being at high-risk and more consultation is occurring.

**RASTD Scores from Pilot**

<table>
<thead>
<tr>
<th>RASTD Score</th>
<th>Number of Patients</th>
</tr>
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<tbody>
<tr>
<td>0 to 3</td>
<td>35</td>
</tr>
<tr>
<td>4 to 7</td>
<td>59</td>
</tr>
<tr>
<td>8 or more</td>
<td>19</td>
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When an untoward patient outcome occurred due to dysphagia on the Behavioral Health unit, it provided the opportunity to expand the use of the tool and provide further testing of the RASTD. The next steps are to compare an evaluation of the RASTD to patient outcomes of a barium swallow prior to implementation on all patient care areas. Thus far in 2012, 80 patients have a documented diagnosis of aspiration pneumonia. This diagnosis maybe an admission diagnosis; therefore, further analysis of data is needed. Ongoing evaluation of the prevalence of aspiration pneumonia will help us to determine our success. These preliminary findings have been disseminated via a poster presentation at the annual Collaborative Nurses Research Day sponsored by Sigma Theta Tau, Hanover Hospital, Memorial Hospital, Wellspan Health, and York College in April 2012.

Delirium/Dementia Clinical Effectiveness Team
Identification and Pilot Implementation of the NuDesc tool for Delirium screening in the non-ICU population

Delirium occurs in many elderly patients who are hospitalized and can lead to increased mortality, morbidity, length of stay and admission to long-term care. YH staff nurses recognized inconsistent bedside care of patients exhibiting signs of delirium. At the same time, the Delirium/Dementia Clinical Effectiveness Team was organized in 2010 to identify best practices in identification and management of delirium and dementia. The Delirium/Dementia CET is a multidisciplinary team made up of physicians, nurses, pharmacists, and therapists from York Hospital and a leadership champion from WellSpan. Following review of internal data, the team determined that the initial focus was to identify evidence to improve recognition of inpatient delirium. Through careful data review regarding the incidence of delirium throughout the hospital, excluding BHS, the team identified that the diagnosis of delirium was difficult to quantify as different providers used different diagnoses. In order to determine the population to target, the team chose to include six diagnoses and to exclude delirium related to substance dependence. These diagnoses include: altered mental status, drug induced delirium, delirium due to conditions elsewhere, vascular dementia with delirium, and pre-senile dementia with delirium.

A nursing subgroup was tasked by the CET to seek new knowledge of methods to recognize delirium in the non-ICU patient. The sub-committee included clinical nurse specialists (CNS) and RNs from various departments. York Hospital ICUs were using the Confusion Assessment Method for the ICU (CAM-ICU) an algorithm for identification of delirium in the ICU population. The nursing team used the Johns Hopkins Nursing Evidence-Based Practice model to review the literature and evaluate multiple tools for non-ICU use. A Confusion Assessment Method (CAM) for medical surgical patients was identified in the literature; however, the CAM requires the patient to draw a picture which is not within the capability of our electronic healthcare record. Due to its validity, reliability, and simplicity of use, the RN sub-committee selected the Nursing Delirium Screen (NuDESC) as most appropriate for the RN workflow in the non-ICU areas. Permission was given by the author of the tool to use the tool and make modifications for future use in the electronic health record (see letter below).
Pre-implementation data:
The CET identified that compared to York Hospital overall nursing units; the 6 South nursing unit had a larger volume of patients at-risk for delirium. The data also demonstrated that 6 South had higher levels of mortality, length of stay, and re-admission rates for patients meeting the inclusion criteria for delirium as described above (see bar graph below). The O/E ratio demonstrated in this graph is the Observed value divided by the Expected value. The expected value is derived by a linear regression model of risk adjustment methodology as defined by CareScience Analytics used by the vendor Premier. The results are obtained by developing a query using the CET defined diagnoses of delirium.

![Graph showing Preliminary Outcome O/E Rates (Observed Rates Divided by Expected Rates) for 65+ CET Defined All Diagnoses Delirium Inpatients: YH (includes Behavioral Health, ICU and EXCLUDES 65) compared to 65.
1.0 = Expected Performance
< 1.0 = Better than Expected Performance
> 1.0 = Opportunity
YH FY 11 Total: 1.59, 2.36
65 FY 11 Total: 1.47, 1.90
Mortality O/E Ratio: 1.59, 1.27
Geometric LOS: 1.47, 1.50
O/E Ratio: 2.36, 1.95
Re-admission Rate O/E Ratio: 1.90, 1.95]
Method 5/2011 – ongoing

The 6 South nurses were invited to pilot the Nu-DESC and to develop a workflow for nurses that would support the use of the Nu-DESC. The 6 South unit practice committee chaired by Heather Rivera, BSN, RN embraced the project and developed an implementation plan that included the development of pre-evaluation documentation, intervention checklist, visual cue to identify at-risk patients, and staff education. The practice committee designed pre-evaluation documentation to help nurses become familiar with the normal every day behavior of the patient (pre-hospital baseline) to identify target improvement for the patient. The nurse would complete the pre-evaluation with families of patients over 65 years of age.

Heather developed an intervention checklist providing nurses with a list of nursing interventions identified in the literature to manage those patients exhibiting risk for delirium who were enrolled in the pilot. These interventions included 1) hourly rounding on the patients identified as at risk for delirium, 2) providing reorientation throughout the day, 3) maintaining the normal wake sleep cycle without the use of medications, 4) increased ambulation of the patients, and 5) use of a variety of diversional activities for the patient who is confused. The nurses were creative and experimented with many different diversional activities. The current suggested of the most effective activities include: coloring, current events, folding washcloths, games, music, playing cards, puzzles, reading materials, reminiscence, and television.

As the project was introduced to the staff, a nursing assistant Daniel Dowd, CNA welcomed the opportunity to create a visual cue for the identification of the at-risk patients who was involved in the pilot on 6S. This visual cue is placed on the door of at-risk patients (drawing to right).

Nursing staff from 6 South were required to complete education regarding delirium. This education was developed and provided by the CNSs and Heather as informal sessions including a handout that provided a description of delirium and the difference between delirium and dementia, use of the tools and intervention checklist using patient scenarios.

The pilot project on 6S began June 2011. During the first 6 months patients who were 65 and older were assessed to determine if they were at-risk for developing delirium. Those identified as at-risk were then screened using the NuDesc. Since this was a pilot, only four patients who screened positive for delirium risk were monitored at any given time. During this time, the staff was fine-tuning the documentation and the process for eventual expansion to all units at WSH. The documents were streamlined and nurses recognized the importance of pre-hospital cognition, behavior and function to differentiate the dementia baseline from new onset of delirium. Additionally, the 6S staff implemented the nursing interventions which were recommended in the evidence to prevent the onset of delirium or prevent complications from delirium.

Who was involved:

- Susan Dayhoff, MS, RN
- Nancy Mann, MS, RN, PMHCNS-BC
- Brenda Artz, MS, RN
- Amy Seitz-Cooley, MS, RN, CNS
Heather Rivera, BSN, RN
All 6 South nursing staff

Outcomes: Timeframe 7/2011 – 7/2012 (annual)
The Delirium CET reviews data regarding recognition, morbidity, mortality, and complications of patients with the principle and secondary diagnoses of delirium for WSH. The overall WSH findings were reviewed quarterly with 6 South nurses during staff meetings. The table below compares mortality, length of stay, and readmission rates for patients over 65 years of age diagnosed with delirium cared for on 6 South before and after implementation of the pre-NuDESC screening tool and delirium intervention checklist. The findings demonstrate an improvement in the rate of mortality and readmission rates for patients diagnosed with delirium on 6 South.

As of February 2012, 6S has expanded screening to all patients who are age 65 or over for delirium using the Nu-Desc. In addition, the process of using the pre-evaluation, the Nu-DESC screening, and delirium interventions has also been expanded to T3, a surgical unit at York Hospital and A2, a medical-surgical unit at Gettysburg. Behavioral Health has initiated the project on the geriatric unit as of March 2012. In addition, the team met with Sharon Muller, MS, RN, Coordinator of Nursing Informatics, to develop a strategic plan for implementation of electronic documentation of the pre-evaluation, the NuDesc tool, and interventions into the EHR to automate the process. You will be able to see this process during your site visit.

This evidence-based quality improvement project has been presented by Heather Rivera, BSN, RN; Susan Dayhoff, MS, RN, CPHQ; and Brenda Artz, MS, RN, CCRN as a poster presentation titled "Identifying delirium in elderly hospitalized patients" at the 21st annual convention for the Academy of Medical-Surgical Nurses in Salt Lake City, Utah on October 4 - 7, 2012. This was Heather's first experience presenting a poster at an external conference.