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Preventing Aspiration Pneumonia Using an Aspiration Prevention Protocol

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This is to certify that the doctoral study by

Lee James-Pettway

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
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Abstract

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MSN, South University Online, 2013

BSN, Auburn University Montgomery, 2010

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Hospital-acquired pneumonia, which includes aspiration pneumonia (AP), is a preventable condition that is costly to all healthcare institutions (more than $17,000 to $30,000 per episode), because insurance no longer covers the cost of hospital-acquired harms. Each episode in the hospital setting can lead to patient complications, increased use of antibiotics, patient mortality, as well as decreased patient survey scores. Several factors put patients at risk of developing AP, and screening for these risk factors on admission and implementing preventative nursing interventions can decrease the incidence. Based on an extensive literature review, an evidence-based, clinical practice guideline (CPG) was identified and adapted for a practice protocol on AP screening and prevention for the nursing staff of an intermediate care unit at a rural hospital. The AGREE II tool and *Clinical Practice Guideline Manual* were used to guide the evidence-based practice guideline adaptation, and the AGREE II tool was then used to evaluate the adapted CPG. Once reduction of staff due to the pandemic is over, the CPG will be presented to the quality and education departments and will be shared with administration before implementation. It is anticipated that the use of a routinized AP prevention program will improve patient outcomes as well as decrease patient mortality and complications during hospitalizations. By increasing nurses' ability to recognize those at risk for developing AP and implementing preventative interventions on admission, this nurse-driven protocol will promote positive social change by improving patient outcomes and decreasing financial loss for the facility.

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Dedication

This journey has taught me that it truly takes a village. This body of work is dedicated to all those who motivated and helped me along the way. I would like to give thanks to the ALL Mighty God for providing me immeasurable strength during this process.

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I would like to acknowledge my beautiful mother, Louise James, and my late father, Lee Earnest Young. Thanks for motivating me to go a step further and believing in me. From the cooked meals to the countless babysitting hours I never could have done this without you. Next, I would like to thank all the members of "the Jellybean Nation", Joshua, Brooklyn, Bayleigh, & the "Jamestown family" for giving me every reason to succeed. Ladybug Crew thanks for giving me positive reinforcement and respite to push through it all. I could not have accomplished any of this without any of you. Dr. Patricia Hannon and Dr. Jacqueline Sanders Moultrie thanks for being my mentors, it was truly an honor to be in the presence of your greatness. Dr. Udo and Rita Ufomadu thanks for every gesture of kindness and unending prayers for my children and me. Last, but definitely not least, Dr. Susan Hayden, thanks for believing and leading me all the way to the finish line. Numerous times I wanted to throw in the towel, but you would not let me. I am profoundly grateful for the role that you played in my success story. We did it!

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Section 1: Nature of the Project

Introduction

Aspiration pneumonia (AP) is a common diagnosis in hospitals and nursing homes that can be costly to treat at $17,517 to $30,526 per episode. The cost is absorbed by the facility because Medicare does not cover preventable hospital-acquired illnesses. AP is defined as a condition that occurs secondary to the presence of fluid, blood, saliva, or gastric contents in the airway (Sanivarapu & Grossman, 2018). It can be associated with high mortality rates, higher financial burden to the facility, longer hospital stays, use of mechanical ventilation, intensive care stays, expensive antibiotics, increased laboratory tests, as well as increased imaging studies (O'Malley et al., 2018). Expected mortality among patients with AP are higher than that of other forms of pneumonia (Mandell & Longo, 2019). AP can be prevented with patient risk assessment screening and preventative strategies; AP protocols can decrease its occurrence. The word **protocol** is used in this project to refer to interventions used to aid in the prevention of AP in the hospital setting in *Merriam Webster online dictionary* (n.d.).

The purpose of this doctoral project was to identify and adapt an AP risk assessment and prevention protocol for the nursing staff of an intermediate care unit (IMCU). An anticipated outcome of the protocol was to improve patient outcomes and quality of life for at-risk patients, thus demonstrating a positive social change. In Section 1, I explain the practice problem; the purpose; the nature of the project; and significance to the hospital, patients, and nursing staff.

Problem Statement

The hospital where this DNP project took place recognized the need for an improvement in screening to identify patients at risk for AP. The hospital quality department reported 25 cases since 2018, with the largest numbers reported in the IMCU. Vulnerable patients at this small rural hospital in the southeastern United States needed preventative measures. AP is a recognized complication for hospitalized patients, leading to sepsis, lung abscess, shock, respiratory failure, and mortality (Komiya, Ishii, & Kadota, 2015). According to the literature, AP can be the result of a central nervous system compromise, resulting in dysphagia (Cipra, 2019). If specific interventions are implemented to recognize and screen patients for the risk of dysphagia, AP can be prevented. Early screening is important for AP prevention.

Patients are at high risk for the development of AP if they have one or more of the following conditions: altered mental status, poor oral hygiene, neurologic disorders, vomiting, gastric obstruction, drug abuse, alcoholism, seizures, general anesthesia, dementia, and gastroesophageal disorders. Additionally, the elderly population is more affected by the occurrence of AP than other types of pneumonias (Garin et al., 2014). Nurses at the target hospital did not identify patients admitted to the IMCU with diagnoses, which placed the patients at risk for AP; in addition, there was no protocol to define AP risk factors and preventative measures. Failure to identify at-risk patients resulted in increased hospital days when the patient developed AP (see Cipra, 2019). An early AP risk assessment and protocol provides a tool for an initial screening and could prevent AP. Thus, nurses will be patient advocates as they prevent AP through evidence-

based practice interventions. By increasing nurses' ability to recognize those at risk for developing AP and implementing preventative interventions on admission, this nurse-driven protocol will promote positive social change by improving patient outcomes and decreasing financial loss for the facility.

Purpose Statement

Nationwide, pneumonia continues to be among the top 10 causes of death in the elderly population (Franquet, 2017). At the target intermediate intensive care unit (IMCU), AP was identified as a major issue. The gap in practice was the absence of a screening tool to identify patients at risk for AP. If at-risk patients are identified early, the incidence of AP in the unit could decrease because, upon identification, preventative measures will be implemented. The implementation of a protocol should lead to improved outcomes for patients and the hospital (Echevarria & Schwoebel, 2012). The purpose of this project was to identify and adapt an appropriate evidence-based AP screening and prevention protocol, or if none were available, to develop one.

The practice-focused question for this project was: What evidence-based clinical practice guideline (CPG) can be adapted and validated for a practice protocol on AP screening and prevention in a rural IMCU? The implementation of an AP prevention protocol (APPP) has the potential to decrease the occurrence of AP in the IMCU, improving patient outcomes and quality of life for the vulnerable patients as well as decreasing loss of revenue for the facility (see Sakashita et al., 2014). These positive changes should allow nurses to provide effective, quality health care and decrease the likelihood of AP (Davoodvand, Abbaszadeh, & Ahmadi, 2016).

Nature of the Doctoral Project

Following Walden University's *Clinical Practice Guideline Manual*, I identified the practice problem to be hospital-acquired AP (HAAP) and developed a practiced-focused question to address the problem. The next step was to conduct an in-depth literature review to identify interventions that could hinder the development of AP in the IMCU setting. The following databases were searched: MEDLINE, PubMed, Google Search, and Translating research into practice (TRIP). The following keywords were used: *aspiration, AP, aspiration prevention protocols, dysphagia, AP development in the non-ventilated patient,* and *complications of AP.* The search yielded 358 articles. I narrowed the search and reviewed six articles that spoke to elements of APPP by limiting the search to AP bundles, AP protocols, and AP prevention strategies. The number of studies that introduced CPG recommendations related to screening and prevention numbered 3670; of these, 3 protocols were chosen based on usability at the project site and were reviewed for inclusion in the CPG. I critically appraised the literature using the step-by-step appraisal tool of Fineout-Overholt, Melnyk, Stillwell and Williamson (2010) and organized the pertinent articles into a literature matrix (Appendix A). Based on the evidence from the literature, I identified and adapted an AP screening and prevention protocol. With the AGREE II tool, the content experts validated the content and ensured usability (Brouwers et al., 2017). Revisions were made as needed. Due to Covid-19, I was unable to present the protocol to administration, but I presented the APPP to the education and quality departments. These departments will present the protocol to administration when they are available. Through the APPP, I provided an evidence-based

protocol for preventing HAAP in the IMCU, thus potentially improving the quality of life for vulnerable patients and decreasing mortality. The APPP is expected to benefit the hospital by reducing resources spent on HAAP. As the project leader, I addressed a gap in practice by identifying and adapting an appropriate evidenced-based practice AP protocol at the target facility.

Significance

Identified stakeholders for the APPP included the organization, patients, and staff, It is anticipated that implementation of the APPP will decrease the incidence of AP in the hospital setting, initially benefitting the IMCU by increasing positive patient outcomes and decreasing the number of hospital days. Implementing a protocol for the prevention of HAAP will be beneficial to the organization as well as the patient. Patients will be impacted by the effects of evidenced-based care resulting in decreased complications, improved quality of care, and decreased mortality rates (Mandell & Longo, 2019). The organization will benefit from sustained revenue due to absence of hospital-acquired patient complications (Peasah et al, 2013). The APPP will benefit nursing by strengthening the advocacy role and introducing an evidence-based protocol to improve quality of care (Mandell & Longo, 2019).

Finally, transferability of the APPP to any healthcare setting is possible due to the risk of AP in all these settings, hospitals and long-term acute care facilities, because they treat patients at risk for the development of AP the elements of this protocol can be used in any facility with or without modification, based on the institutional needs and population. Modifications may include added interventions for specific patient groups,

such as for patients receiving tube feedings, may include checking residual, and repositioning schedules for patients who are bedbound or have limited mobility (Sakashita et al., 2014).

Summary

AP continues to be one of the most common forms of hospital-acquired pneumonias among adults. The elderly population is more affected by AP than other types of pneumonia. Fifty percent of those admitted with the diagnosis of AP present with signs and symptoms of dysphagia. Each episode of HAAP is estimated to cost $17,000 to over $30,000 per episode and is absorbed by the facility due to the denial of Medicare to cover preventable hospital-acquired illnesses. The gap in practice at the setting was the lack of a screening tool to identify patients at risk for AP. The purpose of this doctoral project was to identify and adapt an AP risk assessment and prevention protocol applicable for the nursing staff of the IMCU following the steps outlined in Walden's *CPG manual*. The AGREE II tool guided the evaluation of this APPP project. The next section will provide greater detail about the project and my role.

Section 2: Background and Context

Introduction

AP is a common preventable hospital illness disproportionately affecting the elderly population (Garin et al., 2014). The target hospital quality department reported that between 2018 and 2020, 25 cases of AP occurred, with the largest numbers being reported in the IMCU. The purpose of this DNP project was to identify an appropriate evidenced-based AP screening and prevention protocol based on recommended evidence-based APPPs following the steps outlined in Walden's *Clinical Practice Guideline Manual*, as well as guidelines in the AGREE II tool (see Brouwers et al., 2017), to address the practice-focused question: What evidence-based CPG can be adapted and validated for a practice protocol on AP screening and prevention in a rural IMCU? In Section 2, I will discuss the use of the AGREE II tool, target background and context, and the role of the DNP student as well as project team.

Concepts, Models, and Theories

Along with Walden University's *Clinical Practice Guideline Manual* I used the AGREE II (2017) tool as a guide for this scholarly project, an internationally validated tool used to translate evidence into practice. The tool was used to assess the quality of the developed guidelines through the evaluation of the six domains of guideline development, scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence (Vanomeslaeghe et al., 2015). Twenty-three items are addressed by the model (Brouwers et al., 2017).

The AGREE II tool has been used successfully in numerous studies. Choi et al. (2014) used the AGREE II tool to assess the quality of evidenced-based clinical practice guidelines in traditional medicine in Korea; the quality of the CPG was found to moderate. The resulting recommendations sought to incorporate standards, such as those outlined in the AGREE II tool to the process of the CPG (Choi et al., 2014). Vanomeslaeghe et al. (2015) used the AGREE II tool to evaluate the quality of existing practice guidelines for nephropathy, identifying the need for pre-hydration for patients suffering from contrast-induced acute kidney injury. Parisi et al.(2014) used the AGREE II tool to validate the effectiveness of guidelines used for pediatric headaches and identifying the need for additional research on the topic. Without the use of the AGREE II tool the need for additional research would have remained unknown (Parisi et al., 2014).

The AGREE II tool was an appropriate choice for this APPP project because it met the goal of the APPP (to translate evidence into practice) and has been internationally validated (Brouwer et al., 2017). By using the tool as a guide, the steps were clearly outlined, and the content experts had specific, consistent points to evaluate encompassing a wide range of areas. With the AGREE II tool, a quality CPG was developed that fit the target setting and addressed the problem.

Relevance to Nursing Practice

AP is one of the most common forms of hospital-acquired pneumonias among adults (O'Malley et al., 2018) and the most common type of pneumonia diagnosed in the elderly population. Nationally, between 2012 to 2017, over 406,798 patients were

hospitalized with AP (Wu, Chen, Wang, & Pinelis, 2017). AP is associated with longer hospital stays, use of mechanical ventilation, intensive care stays, expensive antibiotics, increased laboratory test, as well as increased imaging studies, higher financial burden, and high mortality rates (O'Malley et al., 2018). Risk factors for AP include altered mental status, neurologic disorders, and any condition that impairs the patient's ability to swallow. Nurses can assist in the prevention of AP by assessing patients upon admission to the hospital setting and, upon identifying those at risk, initiate routine preventive nursing/healthcare measures (Cipra, 2019). The occurrence of AP is a major medical problem that can be prevented through simple nursing interventions (Cipra, 2019), thus decreasing HAAP and the related high mortality rates. Clinical protocols are necessary to provide guidance and needed direction to health professionals providing day to day care (Barrow & Gaquoine, 2018).

AP Preventive Measures

Passaro, Harbarth, and Landelle (2016) identified preventive interventions to deter the development of hospital-acquired pneumonia to include: hand hygiene, bed elevation, oral care with an antiseptic solution, mobilization, diagnosis and treatment of dysphagia, aspiration prevention, and viral infection and stress bleeding prophylaxis. Likewise, O'Malley et al. (2018) identified techniques to assist in the prevention of AP. Oral care was identified as a key intervention in the prevention of AP in the hospital setting as it decreases the presence of bacteria in the mouth found in saliva and dental plaque (Seedat & Peng 2016). Identifying those at risk for dysphagia was found to decrease the occurrence of aspiration through diet and position modifications.

Mobilization improves the ability to clear respiratory secretions from the respiratory track (Seedat & Peng 2016). Advantages of these identified recommendations are already hardwired in most facilities as standard care. Disadvantages of the identified recommendations include the cost of nonabsorbable antibiotics and providing swabs for facilities that do not have them readily available. Limitations include minimal studies related to preventative interventions, recommending further studies to be performed (Passaro et al., 2016).

Aspiration Risk Assessment

Cipra (2019) used an aspiration risk assessment protocol to screen patients at risk for AP consisting of two consecutive steps. First, the risk assessment consisted of identifying patients with a decreased level of consciousness, altered mental status, confusion, dementia, history of stroke with residual effects, neurodegenerative disease, alcohol/substance abuse, fall history, syncopal episodes prior to admit, inability to perform self-oral care, poor oral health, those needing full assistance with meals, presence of gastric or feeding tube, current pancreatitis, cholecystitis, peptic ulcer disease, reflux, or tracheostomy. If the patient was found positive for one or more of the mentioned conditions, they were considered as high risk for dysphagia. A swallowing assessment followed the history for those at risk; specific protocol was initiated for patients who were unable to be assessed or were intubated (Cipra, 2019; Komiya et al. 2015) also recognized the need for evaluation of swallowing functions to identify those at risk for AP. Although it was difficult to predict the development of AP, screening practices would assess swallowing ability by identifying the positive diagnosis of

dysphagia, use of sedative medications, or central nervous disorders that may place one at risk. AP risk assessments include the early implementation of preventative strategies (Cipra, 2019) thus decreasing the risk of AP. The major disadvantage of the Cipra study (2019) was that only patients who had a stroke were included in the study; the limitation of the study was the lack of evidence for rigor.

The gap in practice at the target setting was the absence of a screening tool to identify patients at risk for AP; if at risk patients are identified early the cases of AP in the unit can be decreased by measures being implemented to deter the development of AP thus leading to improved patient and hospital outcomes (Echevarria & Schwoebel, 2012). Once shown effective, the protocol can be used in other acute and long-term care facilities to aid in the prevention of AP as the risk factors and care needs would be similar.

Local Background

The site for the APPP project was a rural hospital in the Southeastern United States. The facility is a 175-bed for profit, acute care facility and provides service to a 5-county area, a part of a larger cooperation which owns hospitals all over the country. The facility provides obstetrics, pediatrics, cardiac catherization, lab, medical surgical, intensive care, sleep lab, and other diagnostic radiological services along with an accredited chest pain center. The average census of the hospital ranges between 35 and 88 patients. The focus of the APPP was the 15-bed IMCU, with an average census of 5 to 11, including direct admissions and patients who transfer from the intensive care unit. Patients in the IMCU are at high risk for pneumonia due to diagnoses of altered mental

status, neurologic disorders, esophageal motility disorders, protracted vomiting, gastric

obstruction, drug overdose, alcoholism, seizures, general anesthesia, head traumas,

intracranial masses, dementia, Parkinson disease, esophageal strictures, gastroesophageal

reflux disorders, tracheostomies, nasogastric tubes, and bronchoscopies (see Sanivarapu

& Gibson, 2019). Since 2018, 25 cases of AP occurred in the hospital setting, with the

higher percentage occurring in the IMCU. In 2008, Medicare discontinued payment for

various hospital-acquired illnesses, including AP ("Provider Preventable Conditions",

2011).

The mission statement for the facility that is the focus of this APPP is to provide a

place where employees want to work, physicians want to practice, and patients choose to

come for healthcare. The vision of the facility is to create healthier communities. The

DNP APPP project supports the mission and vision by implementing a protocol that will

decrease patient harm and increase positive patient outcomes along with providing

financial stability for the hospital.

The facility serves the health care needs of five surrounding counties. Thirteen

hospitals in the state have closed due to Congress' failure of expanding Medicaid to the

state; 80% of the remaining hospitals are operating at a loss. Hospitals no longer receive

reimbursement for the development of HAIs, to include HAAP, therefore preventive

measures are necessary to prevent financial loss (Vaz et al., 2015). The employment rate

for the county is approximately 7% with most of the area's population depending on

Medicaid and the target health department for a large part of their health care needs. In

the rural parts of the state, approximately 26% of individuals are without private health

insurance (Patton, 2018). Health care administrators, state representatives, and other citizens are fighting to have the government approve the Medicaid expansion to increase health care and improve health care outcomes for the citizens of our state. Refusal of the Medicaid expansion results in the annual refusal of $14 million dollars to the state (Powell, 2019). With these economic issues, financial stability for the hospital is a necessity. By preventing AP, the hospital will be in a better financial state to continue to function, even without the Medicaid expansion (Sakashita et al., 2014).

Role of the DNP Student

Currently, I am the hospital educator for the project site; I do not directly supervise staff. This DNP project addressing AP was chosen due to my desire to reduce the occurrence of AP which causes poor patient outcomes and financial loss for the facility. Literature reviews were conducted to identify CPGs for consideration and combining and modifying a CPG that would be appropriate for the IMCU. I completed a literature search, reviewed and graded the literature, recommended the APPP based on current best practices used in identified AP prevention protocols and assessment tools, led the content experts in the process of using the AGREE II tool to evaluate the recommended APPP, reviewed the results of the AGREE II tool with the team, and made the recommended revisions. I presented the completed project to the project team and the hospital's quality department. Because of staffing changes and role expectations due to the pandemic, I was unable to present the CPG to administration, but the quality department is able to accept and implement new policies. I have no biases when it comes to the protocol or overall project. Adapting nurse driven protocol can be an effective way

to prevent the occurrence of AP in all long term and acute healthcare institutions (Passaro et al., 2016).

Role of the Project Team

The project team consisted of a member of quality department, the unit manager of IMCU, two residents (hospitalists who care for patients with an AP diagnosis), and me as project leader. The manager for the IMCU was terminated before the process could be completed. The role of the project team was to evaluate and review the APPP for relevance and effectiveness using the AGREE II tool (AGREE II, 2017). The team and I met for a total of 4 meetings. We met on a biweekly schedule for 60 minutes to discuss the items in the protocol and assessment, the purpose of the APPP, as well as the AGREE II tool evaluation performance that would take place as the last step. Meeting reminders, agendas, and minutes were shared via emails and/or texts or phone calls. Once the protocol was agreed upon, the team was given the AGREE II tool with a deadline of 2 weeks for AGREE II tool completion and return (see Appendix B).

Summary

In Section 2 I discussed the relevance of the AGREE II tool, the role of the student, as well as the project team. The gap in practice at the target setting was a lack of a screening tool to identify patients at risk for AP. The purpose of this doctoral project was to identify and adapt an AP risk assessment and prevention protocol applicable for the nursing staff of the IMCU. The development of HAAP increases hospital days, decreasing patient satisfaction and outcomes along with hospital income. It is anticipated that the implementation of the APPP will improve the quality of patient life and decrease

mortality as well as allow the hospital to save revenue (Sakashita et al., 2014). The team

used the AGREE II tool to promote a successful routinization of the proposed protocol.

In Section 3 I discuss sources of evidence, the evidence collection and tracking methods,

participants of the project, and ethical considerations taken.

Section 3: Collection and Analysis of Evidence

Introduction

AP continues to be one of the most common forms of avoidable nosocomial infections in the hospital setting (Passaro et al., 2016), affecting the elderly population more than any other type of pneumonias (Garin et al., 2014). Fifty percent of those admitted with the diagnosis of AP present with signs and symptoms of dysphagia. The occurrence of AP can be prevented through simple interdisciplinary interventions to identify dysphagia and implement prevention measures for AP (Sakashita et al., 2014)). In Section 3, I discussed sources of evidence, participants, ethical issues, procedures, and the analysis and synthesis methods that will be used during the implementation phase of the APPP.

Practiced-Focused Questions

Twenty-five cases of AP have occurred at the target practice setting since 2018. AP can be prevented through simple interdisciplinary interventions to identify dysphagia and implement prevention measures (Sakashita et al., 2014). Even though the literature supports a pneumonia prevention protocol the target hospital did not have one for AP. The gap in practice was the absence of a screening tool to identify patients at risk for AP. The practice-focused question addressed in the DNP APPP was as follows: What evidence-based CPG can be adapted and validated for a practice protocol on AP screening and prevention in a rural IMCU? The purpose of this APPP project was to identify and adapt an evidence-based APPP following the steps outlined in Walden's *Clinical Practice Guideline Manual.*

Sources of Evidence

An extensive literature search was performed to find relevant articles on the prevention of AP; 358 research studies and articles were found. I narrowed the search and reviewed 6 articles that spoke to elements of APPP through the use bundles and prevention strategies. From the 3670 articles that addressed CPG recommendations, three protocols were chosen, based on usability in the project site and considered for inclusion in the newly revised CPG. Collecting data and evidence of protocols used in other acute and long-term care settings were beneficial in revising the protocol to fit the needs of the target facility. The AGREE II results from the content experts' evaluations were a second source of evidence.

Participants

The team for the APPP consisted of two residents, who were a part of the hospitalist program, and a member of the quality department; initially, the unit manager was included but due to her termination, only the three were used. The instructions for the AGREE II tool recommends two to four appraisers (with four preferred) to increase the reliability of the assessment (Brouwers et al., 2017). The residents were chosen because they care for all patients who are admitted to the hospital, including those at risk for developing AP. A member of the quality team was appropriate due to her knowledge of disease treatment and prevention and her experience creating protocols and standards in the organization.

Procedures

After an extensive literature review, pertinent articles were appraised using

evidence-based practice guidelines by Fineout-Overholt et al. (2010) and placed in a

literature matrix (Appendix A). The recommendations for the CPG were adapted from

the literature review with the literature providing current, peer-reviewed, evidence-based

practice guidelines used to deter AP in the hospital and acute care settings. The team

evaluated the newly developed CPG using the AGREE II tool (Appendix B) and

revisions were made based on recommendations of the panel. I was not allowed to meet

with administration, as planned, due to COVID-19 restrictions. After completion of the

DNP project and the pandemic restrictions are lifted, the quality department will present

the CPG for approval by administration, and the CPG will be implemented on the unit.

The occurrence of new cases of HAAP will be monitored for 6 months to collect further

data on the efficacy of the newly developed CPG. A follow up report will be

disseminated to the quality department and administration one week after all the

information has been collected from the implementation of the CPG for consideration of

hospital wide implementation.

Protection of Human Rights

Verbal and written agreement was obtained from the site where this APPP was

carried out, as well as approval from Walden University's Institutional Review Board

(IRB Approval No. 04-29-20-0625353). As no patient data were collected there was no

ethical risk. The AGREE II tools contained no identifying data, thus the reviews were

anonymous. The paper copy of the tools will be kept in a locked drawer that only I have

access to for a period of 3 years and then shredded. Electronic copies will be maintained

in a password protected file that only I have access to for the same 3-year period and then

deleted. All mention of the target facility was general, thus keeping the actual site

anonymous as well.

Analysis & Synthesis

The literature review matrix was used to organize the collected sources of

evidence used to revise the APPP. The literature was graded using guidelines from the

evidence-base practice steps identified by Fineout-Overholt et al. (2010). After the APPP

was adapted the 3 members of the team were given a copy of the newly revised APPP

and the AGREE II tool to evaluate the APPP. Once returned, I reviewed the results of the

AGREE II tool, complied the results, and revised the APPP, as necessary.

Summary

In Section 3, I identified sources of evidence for the literature review to support

the gap in practice at the target setting which was the absence of a screening tool to

identify patients at risk for AP. Search engines were used to identify the most recent

evidence-based guidelines for the prevention of AP, found to decrease the occurrence of

AP through standardized practices. There was a relationship between AP prevention and

basic nursing interventions to include oral hygiene, dietary interventions, swallowing

therapy, treatment of reflux, improvement of nutrition, and enteral tube feeding as well as

pharmacological. The tool was identified and adapted from an evidence-based literature

review following the *Clinical Practice Guideline Manual* and the AGREE II tool. After I

adapted the evidence-based CPG for APP, the team evaluated it for relevance and quality

using the AGREE II tool. In Section 4, I discuss the outcomes of the project including the

findings, recommendations, strengths and limitations, and a self-assessment.

Section 4: Findings and Recommendations

Introduction

With 25 cases of AP and no AP screening tool or protocol, the target hospital had less than ideal patient outcomes and the facility was losing income because there is no reimbursement for hospital-acquired diagnoses. The gap in practice was the absence of a screening tool to identify patients at risk for AP. The purpose of the DNP APPP project was to identify an AP risk assessment and protocol that the IMCU nursing staff could use to answer the practice-focused question: What evidence-based CPG can be adapted and validated for a practice protocol on AP screening and prevention in a rural IMCU?

An exhaustive literature search was completed to support the need for a CPG to address AP and to provide effective evidence-based practices. A literature matrix (Appendix A) was completed to organize the evidence and to rate its strength for the implementation of an APPP (Appendix C) to deter the occurrence of AP in the hospital setting. The AGREE II tool (2017) was used by a team of content experts to evaluate the DNP APPP and screening tool. In Section 4, I address the findings and implications for practice along with recommendations. Finally, I discuss the contribution of the team and the strengths and limitations of the project.

Findings and Implication

Through the literature review, I found three CPGs for consideration, and by combining and adapting the recommendations, I developed a CPG that would be appropriate for the facility. Then, the team of three content experts, two residents and a member of the quality department, evaluated the revised CPG for relevance and quality

using the AGREE II tool (Brouwer et al., 2017). Each item of the six domains were graded using a 7-point scale. A score of 7 represented strongly agree while a score of 1 represented strongly disagree. The panel was given 14 days to complete and return the AGREE II tool, however, each member of the panel missed the deadline by one day. The 23 criteria of the Agree II tool were grouped in 6 domains with each domain representing a different area of the guideline.

Domain 1 represented scope and purpose which represents the intent of the CPG, the expected benefit, and the target population (Brouwers et al., 2017). The content experts gave Domain 1 a score of 100% agreeing that the APPP was written clearly. The experts commented: "The overall objective is clearly and precisely stated." The content experts commented: The age group is stated at 65 years of age and those who have previous and or current diagnosis that place patients at risk.

Domain 2 addressed stakeholder involvement and focused on guideline development, views, and preferences of the target population (Brouwers et al., 2017). The content experts scored Domain 2 at 96%. The experts had no written comments in this area.

Domain 3: focused on methods used for finding evidence, criteria for selecting evidence, strengths and limitations of evidence, recommendations for additions or deletions to the CPG, health benefits, link between recommendations and supporting evidence, review of guidelines, and a procedure for updating guideline. The content experts scored domain 3 at 88%.The content experts' answers were more diverse for this section, however, no questions or comments were noted from the team. The content

experts gave low scores to the following items: item 7, systematic methods were used to search for evidence, and item10, the methods for formulating the recommendations are clearly described. When asked the reason for the low scores the content experts stated that they did not understand the content of the items asked. Once the content was explained the content experts agreed that all information was included in the APPP.

Domain 4 addressed the clarity of the presentation which included recommendations, options for management, and key recommendations (Brouwers et al., 2017). The content experts scored Domain 4 at 94%.

Domain 5 addressed the guideline facilitators and barriers, advice for dissemination, resource implications, and the guideline for monitoring or auditing criterial. The experts scored Domain 5 at 84%. The experts had no questions or comments for this section. The following items received low scores, 18. The guideline describes facilitators and barriers to its application; 19. The guideline provides advice and/or tools on how the recommendations can be put into practice; 20. The potential resource implications of applying the recommendations have been considered; and 21. The guideline presents monitoring and/or auditing criteria. When I asked the reason for the low scores, the content experts stated once more that they did not understand the content of the items. Once the content was explained the content experts agreed that all information was included in the APPP.

Domain 6 addressed editorial independence by identifying the views of the

funding body as well as the guideline development. The domain received a combined

score of 100% (see Table 1).

Table 1

AGREE II Clinical Guideline Evaluation Tool Scores

Domains	Minimum-Maximum score possible	Appraiser 1	Appraiser 2	Appraiser 3	Total Score
Domain 1 Scope and practice	1/7	21/21	21/21	21/21	100%
Domain 2 Stakeholder involvement	1/7	20/21	20/21	21/21	96%
Domain3 Rigour of development	1/7	41/56	53/56	55/56	88%
Domain 4 Clarity of presentation	1/7	21/21	20/21	19/21	94%
Domain 5 applicability	1/7	18/28	26/28	28/28	84%
Domain 6 Editorial independence	1/7	14/24	14/14	14/14	100%
Overall assessment	1/7	7/7	7/7	7/7	100%

Note. Threshold for guideline quality is 70% or greater.

The last section of the tool provided the team of experts an opportunity to

evaluate whether or not the guideline should be introduced into practice and they agreed

100% that the APPP CPG should be used in the IMCU setting, and eventually the entire

hospital. The experts stated that the APPP was nicely written, well organized, and much needed within the practice setting. The team agreed that the protocol will improve patient outcomes and hospital revenue status by preventing the occurrence of AP. No additional questions or suggestions were made at the time of appraisal.

Recommendations

The expert panel recommended the APPP be implemented for use by adding the assessment and protocol to the admission assessment packet for all IMCU patients, thus implementing the APPP assessment upon admission of all patients. If patients are found to be at risk for AP, the APPP should be implemented in its entirety until discharge. Once refined and mastered in the IMCU, the assessment and APPP can be added to the admission assessment of all nursing units, with the IMCU nurses as the super users and mentors for the other nurses. For future CPG projects, I would include a member of informatics to assist with including the tool in the EMR and help identify the impact related to nursing documentation.

Contribution of the Project Team

I met via Zoom with the content experts every 2 weeks for 60 minutes over a 6-week period to discuss their role in the CPG process and the completion of the AGREE II tool as the last task after the CPG was revised. Once completed, the CPG (see Appendix C) was emailed to the experts, along with the AGREE II tool and instructions for its completion. Also included was the meeting agenda (see Appendix D). The experts were provided 14 days to complete and return the AGREE tool, however, each member of the panel missed the deadline by one day. After reviewing the protocol, the team of experts

agreed 100% that the APPP was needed in the organization. As mentioned above, once the APPP will be introduced in the IMCU after approval from administration, and adjustments will be made as needed, which can only be identified with use. After IMCU has refined the CPG, it will be introduced for hospital wide adoption.

<div align="center">**Strengths and Limitations of the Project**</div>

Strengths of the project included the ability to find a team of experts qualified and willing to participate, and a site in which to carry out the project. The hospital frequently cares for patients who have AP on or during their admission to the hospital and the residents often care for these patients. An additional strength was the ability to find current, peer reviewed information to use in the process of adapting an APPP that is appropriate for the target setting.

Limitations of the project included the pandemic affecting the ability to carry out the last step of the project. I was unable to present to administration; however, the quality department will make the presentation and implement the APPP in the facility. Due to the lack of a clinical manager for the IMCU, I was unable to have a manager from the unit on the expert panel, however, she was only invited to join due to her managing the floor, her absence did not affect the completion of the project. Future projects to be considered include the development of CPG to address other chronic illnesses like diabetes or hospital-acquired harms like pressure ulcers. The process would be the same as used in this project, but the literature search would need to be carried out specific to the issue being addressed. Any hospital-acquired conditions that can be minimized would improve patient outcomes and hospital finances.

Summary

In this Section I discussed findings and implications in regard to the APPP. The expert panel recommended the CPG be implemented throughout the facility after it has been refined and mastered in the IMCU. Though the restrictions due to the pandemic and the loss of the unit manager were limitations, the strength of the evidence-based literature and quality of the experts aided me in adapting a CPG to meet the needs of the facility. Recommendations of the experts were identified according to results received from the completion of the AGREE II tool by the doctoral team along with the strengths and limitations of the project. In Section 5, I discuss the plan for dissemination as well as an analysis of myself.

Section 5: Dissemination Plan

The target hospital quality department reported that since 2018, 25 cases of AP occurred, with the largest numbers being reported in the IMCU. The gap in practice was the lack of a screening tool to identify patients at risk for AP; if at risk patients are identified early, the cases of AP in the unit can be decreased. The APPP project answered the question: What evidence-based CPG can be adapted and validated for a practice protocol on AP screening and prevention in a rural IMCU? By modifying a CPG for AP appropriate for the target setting. The final CPG was presented to the quality and education departments and will be shared with administration before implementation once reduction of staff due to the pandemic is over. The quality department will introduce the process to staff and unit leaders in the facility, beginning with the IMCU. The implementation of the protocol should lead to improved patient and hospital outcomes (Echevarria & Schwoebel, 2012).

Once implemented in the IMCU, the APPP will be implemented on the remaining nursing units, intensive care and the second medical-surgical unit. Next, the project will be published in ProQuest and my future plan is to have this APPP published in *Medical Surgical Nursing Journal* or *The American Journal of Nursing,* which have robust platforms with a diverse population of professional nurses, some of whom work in hospital settings where AP is common. I will submit a presentation of this work for the annual Alabama State Nurses Association FACES conference, a forum to present the APPP to other acute care facility staff where AP is likely to be a problem to nursing students from entry level to DNP. Educating nurses on the issue and ways to prevent AP

will better prepare them to provide quality care and help the facilities they will work save money.

<div align="center">**Analysis of Self**</div>

My time as a DNP student has provided me the opportunity to grow as a professional nurse. As a practitioner, my ability to analyze information has greatly evolved. As a scholar, I was forced to work on my ability to write scholarly and with purpose. Before beginning the CPG project, I was not well versed in the levels of evidence and how they pertain to research. As a result of this journey, I feel more comfortable with the process of implementing evidence-based research. Serving as project manager for the APPP, I spent uncountable hours identifying protocols that could be adapted to meet the needs of the IMCU, strengthening my practice of finding and evaluating evidence-based literature to apply to the practice setting. The frequent development of AP in the IMCU caused me to find measures to prevent the occurrence in the hospital setting. It is my ultimate goal to use these newly developed skills to become a change agent in my community and any organization that I choose to become a part of. I plan to serve as a preceptor and mentor to others seeking to increase their knowledge base in nursing practice, sharing my challenges and newfound skills.

There were many challenges during the process of the APPP. Initially, it was the absence of an IMCU manager, over the course of the APPP the role was filled by three different managers. Even though the unit manager was not a vital part of the project, her input on how the interventions could be implemented on the unit would have been useful. The second challenge was the development of COVID-19 which prevented me from

presenting to administration, forcing me to change the process of dissemination. The team member who was from the quality department will present the information to administration once the pandemic is resolved, or at least lessened.

The third challenge was the limited number of protocols that addressed AP. Although AP protocols were available, very few included the elements that were appropriate for the target facility, like tube feeding interventions, performance of oral care, and the use of an incentive spirometer. By combining parts of the various CPGs, I was able to develop an appropriate CPG to meet the needs of the setting. The final challenge was the failure of the content experts to return the AGREE II tool results to me in a timely manner. The team was asked to return the results in 14 days; however, the results were not received until Day 15. I addressed the issue on Day 14 by emailing and texting the team asking them to submit the results as soon as possible. The team responding by stating that they would have them to me by noon the next day. It might have been more appropriate to send reminders throughout the 14 days. A 1-day delay was a minor inconvenience with minor delays for me analyzing the results. Insights included my ability to identify a problem in the target facility and perform the necessary literature search to address it. I feel that by addressing this problem I will be able to implement interventions to prevent the occurrence of AP at the current IMCU site and more prepared to recognize, develop, and introduce needed changes in the facility.

Summary

AP is a common diagnosis seen in hospitals and nursing homes that is preventable and can be costly to treat, at over $17,000 to $30,000 per episode. This cost is absorbed by the facility due to the denial of Medicare to cover preventable hospital-acquired illnesses. With the numerous occurrences of AP in the IMCU at a hospital in the Southeastern United States, I made the decision to address the issue in the organization. Preventing the occurrence of AP is vital to the cost-effective operation of the IMCU. I reviewed methods that would deter the occurrence of AP in acute and long-term health care facilities and adapted a CPG appropriate for the facility where this project was carried out. The implementation of the APPP in the facility should improve quality healthcare and decrease the likelihood of AP, as well as allow positive patient and hospital outcomes.

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Appendix A: Literature Review Matrix

Reference	Theoretical/ conceptual framework	Research question(s)/ hypotheses or purpose	Research methodology	Analysis & results	Conclusions	Grading the Evidence
Cipra, E. (2019). Implementation of a risk assessment to reduce aspiration in non-stroke patients. *Clinical Nurse Specialist, 6*, 279. doi:10.1097/NUR.0000000000000484	N/A	Purpose: There was no process in place to identify at risk of aspiration who did not present with stroke symptoms.	Descriptive	An aspiration risk assessment tool and aspiration precaution tool were initiated.	With performance of the screening tool the rate of hospital acquired risk assessment decreased.	Level I
Davoodvand, S., Abbaszadeh, A., & Ahmadi, F. (2016). Patient advocacy from the clinical nurses' viewpoint: A qualitative study. *Journal of Medical Ethics and History of Medicine. 9*(5), 1-8	N/A	Purpose: examine the viewpoint of nurses as patient advocates.	Qualitative study that examined the viewpoint of clinical nurses as patient advocates.	Results reviewed the closeness and sympathy that nurses feel for their patients.	Nurses develop close relationships with their patients.	Level VI
Echevarria, I. M. & Schwoebel, A. (2012). Development of an intervention model for the prevention of aspiration pneumonia in high-risk patients on a medical-surgical unit. *Medical Surgical Nurse, 21*(5), 303-308.	The Quality Health Outcomes Model (QHOM)	Purpose: To describe an intervention model for the prevention of aspiration pneumonia at an urban teaching hospital in the northern eastern United States.	Tool development	Preventive measures should be put in place to aid in aspiration pneumonia prevention.	Prevention is an effective practice to disease prevention.	N/A
Garin, N., DePoureq, J., Martin-Venegas, R., Cardona, D., Gich, I., & Mangues, M. (2014). Viscosity differences between thickened beverages suitable for elderly patients with dysphagia. *Springer Science Media, 29*, 483-488. doi: 10.1007/s00455-014-95-33x	N/A	The study was performed to examine the viscosity of 11 different thickened liquids.	Descriptive Study	Differences were noted between sample groups with the use of two commercial thickeners.	Thickened fluids have been identified as a safer alternative however, further studies are needed to identify why the method is effective	Level VI

Komiya, K., Ishii, H., & Kadota, J. (2015). Healthcare-associated pneumonia and AP. *Aging and Disease, 6*(1), 7-37. doi:10.14336/AD.2014.0127	N/A	Purpose: to focus on the definition of, prevalence and the role of aspiration pneumonia as well as methods to identify problems associated with the development of aspiration pneumonia.	Systematic review	Study reveals a decrease in the occurrence of post-extubation pneumonia.	A nurse performed screening is better and safer than not screening patients.	Level V
Mandell, L. A., & Longo, D. L. (2019). AP. The *New England Journal of Medicine, 380*, 651-663. doi:10.1056/NEJMra1714562	N/A	The focus of this review was to examine the clinical features, diagnosis, treatment, and prevention of both aspiration pneumonia and chemical pneumonitis, as well risk factors. The review also focused on aspiration including the lung parenchyma, aspiration, and chemical pneumonia.	A review	The occurrence of aspiration pneumonia often goes unnoticed.	Aspiration is extremely hard to diagnose.	Level IV
O'Malley, M. B., Trotta, R., Rohrbach, J., Ahya, V., & Bradway, C. (2018). Project SITUP an interdisciplinary quality improvement initiative to reduce AP. *Journal of Nursing Care Quality, 33*(2), 116-122. doi:10.1097/NCQ.0000000000000285	Plan Do Study Act	Purpose: to improve dysphagia screening and decrease aspiration pneumonia in the hospital setting.	Quality Improvement Project	The project was successful in decreasing cases of aspiration pneumonia.	The project was successful, resulting in the process becoming routinized in the hospital setting.	N/A

Passaro, L., Harbarth, S., & Landelle, C. (2016). Prevention of hospital-acquired pneumonia in non-ventilated adults: A narrative review. *Antimicrobial Resistance and Infection Control, 2016*(5), 43. doi:10.1186/s13756-016-0150-3	N/A	Overview of standards for the prevention of aspiration pneumonia.	A literature review	Bed positioning, mobilization, and preventive measures must all be addressed in an effort to prevent aspiration pneumonia.	Further studies are needed to identify the best treatment practice for dysphagia1	Level V
Peasah, S., McKay, N., Harman, J., Al-Amin, M., & Cook, R. (2013). Medicare non-payment of hospital acquired infections: Infections rates there years post implementation. *Medicare & Medicaid Research Review, 3*(3), 1-12. doi.org/10.5600/mmrr.003.03. a08	Trend Analysis	Hypothesis that both individual risks and rates of hospital acquired catheter associated urinary tract infections and vascular catheter associated infections will be lower after a policy is put into place.	This retrospective study	Both hospitals acquired catheter associated urinary infections and vascular catheter associated infections decreased after the policy initiation.	Initiation of a policy was successful; however, more studies are needed due to the limitations of the study.	Level IV
Sakashita, R., Takami, M., Ono, H., Nishihira, T., Sato, T., & Hamada, M. (2014). Preventing AP among the elderly: A review focused on the impact of the consistency of food substances. *Interface Oral Health Science,* 335-351. doi: org/10.1007/978-4-431-55192-8_29	N/A	Impact of food consistency with the elderly population.	Systemic Review	Interventions have been shown to decrease the incidence of aspiration pneumonia among those suffering from stoke and other neurological deficits.	High quality randomized control trails are needed to identify interventions needed for the prevention of aspiration pneumonia and prevention.	Level III

Sanivarapu, R. R., & Gossman, W. G. (2018). *Pneumonia, Aspiration. StatPearls*, 1-3.	N/A	N/A	Retrospective Study	Aspiration pneumonia accounts for 5-15% of all types of community acquired pneumonia.	It is difficult to determine the true incidence of aspiration pneumonia due to the most cases being unwitnessed.	Level IV
See, C.K., Peng, S., Phua, J., Sum, C., & Concepcion, J. (2016). Nurse-performed screening for postintubation dysphagia: A retrospective cohort study in critically ill medical patients. *Critical Care, 2016*(20), 326. doi: org/10.4102/sajcd. v63i1.102	N/A	Purpose: to identify if nurse performed screening (NPS) performed at the bedside after extubation are safe or effective.	Retrospective cohort study of extubated patients.	It was determined that the performance of NPS identified patients who were unable to eat safely after extubation.	Nurse performed screenings are effective and are more reliable than the absence of screening. NPS are more cost effective than other methods.	Level IV
Wu, C. P., Chen, Y. U., Wang, M. J., & Pinelis, E. (2017). National trends in admission for AP in the United States, 2002-2012. Annals of the American Thoracic Society, 14(6), 874-879. doi.org/10.513/AnnalsATS.201611-86700	N/A	Identify the incidence and mortality rate of aspiration pneumonia in the United States.	U.S. National (Nationwide) Inpatient Sample database was used to identify patients at admitted with aspiration pneumonia between 2002 and 2012. Multivariable logistic was used to identify independent predictors for hospital mortality.	Although the cases of AP in the elderly population decreased between 2002 to 2012 the cost of AP hospitalizations have increased.	Elderly patients who are diagnosed with AP have a greater mortality rate than the younger population.	N/A

Note. Evidence graded using the hierarchy of evidence model from "Evidence-based Practice Step by Step: Critical appraisal of the evidence: Part I," by E. Fineout-Overholt [1], B. M. Melnyk, S. B Stillwell, and K. M Williamson, 2010, *American Journal of Nursing, 110*(7), p.47-60.

Appendix B: AGREE II Tool

DOMAIN 1. SCOPE AND PURPOSE

1. The overall objective(s) of the guideline is (are) specifically described. (p.7)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

2. The health question(s) covered by the guideline is (are) specifically described. (p.8)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specific described. (p. 28)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

DOMAIN 2. STAKEHOLDER INVOLVEMENT

4. The guideline development group includes individuals from all relevant professional groups. (

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

5. The views and preferences of the target population (patients, public, etc.) have been sought. (

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

6. The target users of the guideline are clearly defined. (p.40)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

7. Systematic methods were used to search for evidence. (p.37)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

8. The criteria for selecting the evidence are clearly described. (p. 42-43)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

9. The strength and limitations of the body of evidence are clearly described. (p. 40)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

10. The methods for formulating the recommendations are clearly described. (p. 47)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

11.   The health benefits, side effects, and risks have been considered in formulating the recommendations. (p. 48)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

12.   There is an explicit link between the recommendations and the supporting evidence. (p.5

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

13.   The guideline has been externally reviewed by experts prior to its publication. (p. 11)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

14.   A procedure for updating the guideline is provided. (p 56)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

15. The recommendations are specific and unambiguous. (p. 54)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

16. The different options for management of the condition or health issue are clearly presented.

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

17. Key recommendations are easily identifiable. (p.54)

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

DOMAIN 6. EDITORIAL INDEPENDENCE

22. The views of the funding body have not influenced the content of the guideline.

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

23. Competing interests of guideline development group members have been recorded and add

1 Strongly Disagree	2	3	4	5	6	7 Strongly A

Comments

OVERALL GUIDELINE ASSESSMENT

For each question, please choose the response which best characterizes the guideline assessed:

1. Rate the overall quality of this guideline.

1 Lowest possible quality	2	3	4	5	6	7 Highest possi quality

2. I would recommend this guideline for use.

YES	
YES, With modifications	
NO	

NOTES

Appendix C: Clinical Practice Guideline - APPP

Procedure

- The aspiration risk assessment will be performed at the bedside upon admission by the admitting nurse.
- If the patient answers yes to any of the risk assessment questions the APPP will be initiated addressing all the identified interventions.
- The AP risk assessment will be repeated if the patient has a change in status during their hospitalization.
  - Change in patient's status refers to the following: cerebrovascular accident, altered mental status, extubation, and or any condition that was not present on admission.
- The nurse will follow the instructions of the risk assessment and APPP.

Question

- What interventions can be performed by the nurse at the bedside to best prevent the occurrence of AP?

Population

- The risk assessment and APPP will be performed on
  - Patients who are 65 years of age as well those who have a previous and/or current diagnosis that places them at risk for AP.
    - These risks include:
      - decreased level of consciousness,
      - altered mental status,
      - confusion,
      - dementia,
      - history of stroke with residual effects,
      - neurodegenerative disease,
      - alcohol/substance abuse,
      - Fall history,
      - syncopal episodes during or prior to admit,
      - inability to perform self-oral care,
      - poor oral health,
      - those needing full assistance with meals,
      - presence of gastric or feeding tube,
      - current pancreatitis,
      - cholecystitis,
      - peptic ulcer disease,
      - reflux,
      - or tracheostomy (Cipra, 2019).

Recommendations

There is no protocol in place for AP pneumonia although literature shows the use of preventive interventions in the deterrence of AP (O'Malley et al., 2018).

- AP is associated with longer hospital stays, use of mechanical ventilation, intensive care stays, expensive antibiotics, increased laboratory test as well as increased imaging studies, higher financial burden, and high mortality rates (O'Malley et al., 2018).
- Nurses can assist in the prevention of AP by assessing patients upon admission to the hospital setting and, upon identifying those at risk, initiate preventive nursing/healthcare measures (Cipra, 2019).
- Twenty-five cases of AP have occurred at the hospital since 2018.
- The occurrence of AP can be prevented through simple interdisciplinary interventions (Sakashita et al., 2014) beginning with screening for dysphagia.
- The APPP will assist nurses at the bedside in beginning preventive interventions to deter the development of hospital acquired pneumonia.

Key Evidence

- Oral care has been identified as a key intervention in the prevention of AP in the hospital setting as it decreases the presence of bacteria in the mouth found in salvia and dental plaque (Seedat & Peng 2016).
- Identifying those at risk for dysphagia has been found to decrease the occurrence of aspiration through diet and position modifications (Seedat & Peng, 2016).
- Clinical protocols are necessary to provide guidance and needed direction to health professionals providing day to day care (Barrow & Gaquoine, 2018).
- Advantages of AP risk assessments include the early implementation of prevention strategies thus decreasing the risk of AP (Cipra, 2019).

Guideline Monitoring

- The guideline should be reviewed every 3 years or whenever new guidelines are identified. .
- Barriers to the application of this guideline should be addressed as they arise by the practitioner and before implementation.

Aspiration Risk Assessment
- **(Please answer yes or no in regard to the patients current and past conditions.)**
    - **If one or more of the answers to the questions is yes, initiate the APPP.**

	Decreased Level of Consciousness
	Altered Mental Status, Confusion, Dementia
	History of Stroke with Residual effects (facial dropping or paralysis)
	Neurodegenerative Disease (to include ALS, Parkinson's)
	ETOH/Substance Abuse (Past or Current)
	Fall Immediately Prior to Admit
	Syncopal Episode/Loss of Consciousness Immediately 7 days/one week Prior to Admit
	Unable to Perform Self Oral Hygiene
	Poor Dentition/ Poor Oral Health
	Requires Help with all Meals (Other than set up)
	Presence of Gastric or Feeding Tube
	Current Pancreatitis, Cholecystitis, PUD and/or Reflux
	Tracheostomy
	None

Note. Adapted from" Implementation of a risk assessment to reduce aspiration in non-stroke patients," by E. Cipra, 2019, *Clinical Nurse Specialist, 6*, p. 279.

Aspiration Pneumonia Preventive Protocol

(Use this protocol if one or more of the questions to the aspiration assessment is "yes".)

Place signage over the head of bed identifying patient as high risk
Elevate the HOB 30-45 degrees and have patient sit up for all meals (remaining sitting up for 1 hour after meals)
Assist with eating drinking, taking meds as needed
Assess for gag reflex
Monitor the reflux and gastric residuals (NG tube) before all feedings. If residual is greater than 60cc's hold the scheduled feeding and notify the physician.
Early mobilization
Cough and deep breath or incentive spirometry every four hours daily while awake
Oral Care x4 daily (before meals and bedtime)
Suction set up at the bedside on admission

Note. Adapted from "Lower Respiratory Problems" by Harding, Kwong, Roberts, Hagler & Reinisch, as cited in Mondor (2019), *Lewis's medical-surgical nursing: Assessment and management of clinical problems*. p.509.

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Cipra, E. (2019). Implementation of a risk assessment to reduce aspiration in non-stroke patients.

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Appendix D: Team of Expert Meeting Invitation

CPG·Agenda·5/13/2020·¶
Meeting·via·Zoom·conferencing·¶

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- → Purpose·of·Meeting/Goals¶
- → Your·goal·as·my·project·team·is·to·evaluate·and·review·the·APPP·for·relevance·and·
  effectiveness.¶
- → Next·meeting·goals:·introduce·the·adapted·protocol·and·provide·copy·of·the·AGREE·II·Tool
  be·provided·at·the·next·meeting·5/22·or·5/29¶