How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital

Submitted by Brianne Neelis
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How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital

Project Statement/Description

The goal of this project was to increase the oral health knowledge of the Intensive Care Unit (ICU) nursing staff at Allegiance Health Hospital, Jackson, MI and positively affect the oral care they provide for their patients. The presentation focused on common oral issues occurring with patients in the ICU, steps the nursing staff can implement to complete an oral assessment, and integration of oral hygiene care to these patients. To develop this project, scholarly articles from journals were used. The majority of the journal articles were taken from the Pub Med database. There were also some textbooks that provided information on this subject and included in the research. Pictures were supplied from Google images and textbooks. The ADA website had information on common oral diseases among geriatric patients that were used. Information about the oral health of the ICU patients was included in the presentation.

The information discovered in the online journal articles combined with textbook articles and other data gathered were presented using Power Point. The presentation stayed within the thirty minute time limit and included all the criteria described above. It was anticipated that this session will run four times during a two week period so ICU nurses on all shifts at Allegiance Health Hospital could attend. A patient oral assessment checklist was developed and distributed to the nursing staff as a component of this presentation.

This project was intended to benefit both the nursing staff and the patients in the ICU. Anne Gwozdek from the University of Michigan served as the presenters faculty advisor and Linda LaRoe, RN, BSN, CCRN, Nursing Education Director at Allegiance Health Hospital was the project advisor.
Review of the Literature

Introduction & Overview

The typical Intensive Care Unit (ICU) patient is intubated, has a nasogastric tube, may be febrile, and/or heavily sedated. Unfortunately, this usually means the patient is unable to care for themselves, including providing oral hygiene care. In this setting, it is the responsibility of the nursing staff to care for their patients’ oral health. To provide this care, the nursing staff needs to understand the rationale, current oral protocols, have appropriate training on oral health care for ICU patients, as well as incorporate the use of an oral assessment tool and specific equipment to care for the oral cavity.

Oral Health and its Relationship to Overall Health

Research is now making the connection between oral health and whole body health. Trieger discusses that pathogenic micro flora of the oropharynx and the mouth can affect the following systemic diseases: bacteremia, endocarditis, cardiovascular disease, pneumonia, chronic obstructive pulmonary disease, atherosclerosis, to name a few. When focusing on the Intensive Care Unit, the patient is at risk for the development of ventilator-associated pneumonia (VAP). As this oral systemic connection continues to be investigated, there will be increased focus on evidenced-based rationale for oral health care for ICU patients.

ICU equipment effecting Oral Health

ICU patients are commonly intubated, sedated heavily, have a nasogastric tube, and may be febrile. All of the equipment or situations listed can cause mouth breathing therefore dry mouth and dehydration. Due to the lack of salivary flow, there is an increase in pathogenic micro flora and bacterial overgrowth. Almost every ICU patient has intra-venous (IV) administered drugs. The most common IV drugs are antihypertensive (reduces blood pressure) and anticholinergic, both of which are known to cause xerostomia (dry mouth).
Ventilator-Associated Pneumonia

In critically ill patients with intubation of some form whether it be an endotracheal unit, ventilator tube, nasogastric tube, feeding tubes, etc., are at risk for VAP.\textsuperscript{1,16} VAP occurs in 9\% - 28\% of patients in the ICU on ventilators.\textsuperscript{16} Pathogens that can be manifested in the oral cavity during intubation can be inhaled into the lung and begin to colonize, resulting in the condition known as VAP.\textsuperscript{17} When the oral cavity is not cared for, dental plaque, oral microbial flora, and material alba build up in the mouth putting the patient at a higher risk for VAP. A critically ill patient’s oral flora differs greatly from that of a healthy persons and contains many of the organisms that cause pneumonia.\textsuperscript{17} When referring to nonsocomial infections in the ICU, VAP is the leading cause of death (24\% to 50\% of cases).\textsuperscript{16} Thus, it is important for oral care interventions to be delivered during a patient’s period of hospitalization.\textsuperscript{17}

Oral Care for Intensive Care Patient with Intubation

When caring for a patient with VAP, not only should oral care be implemented, but also good hand hygiene\textsuperscript{18,19} and subglottal suctioning.\textsuperscript{20-24} Berry, et al, discussed the usage of various mouth rinses and the studies associated with them. Sodium bicarbonate, Listerine, hydrogen peroxide, and salt solutions were all tested and have unresolved issues associated with them.\textsuperscript{17} Munro and Grap note in their study that the usage of hydrogen peroxide and sodium bicarbonate can cause superficial burns and put the patient in more discomfort.\textsuperscript{16} It was also noted in this same study that lemon and glycerin swabs may initially increase salivary flow, but are acidic and may cause decalcification and irritation to the teeth.\textsuperscript{16}

The only mouthwash that proved to have any effect on the dental plaque in the mouth was Chlorhexidine gluconate.\textsuperscript{16,17} Gram-positive and gram-negative bacteria are both killed by Chlorhexidine.\textsuperscript{16} It is not absorbed through the membranes, making it a suitable choice for those with
renal or hepatic issues.\textsuperscript{16} It is also very rare to see an allergic reaction to Chlorhexidine making it an ideal oral rinse.\textsuperscript{16} Unfortunately, it does cause tooth staining, but this can easily be removed by a registered dental hygienist at a dental appointment after hospital discharge.\textsuperscript{16} When 0.12% Chlorhexidine gluconate was used twice a day, the number of those patients with respiratory tract infections was lower and the nonocomial pneumonia rate was lower too.\textsuperscript{16}

Many authors recommended the use of a soft-bristled toothbrush and toothpaste for ICU patients. It is advised that that the toothbrushes be thoroughly cleaned after each usage as they can be a source of contamination and cause bacteremia.\textsuperscript{17} Swabs and foam were both proven to be ineffective in dental plaque removal for the ICU patient.\textsuperscript{17} When using a toothbrush, suctioning will be necessary as the patient should not swallow the debris or toothpaste.\textsuperscript{1}

**Oral Health Issues Related to ICU**

Beyond VAP, xerostomia is another serious problem exists in association with ICU equipment.\textsuperscript{1,16,17} When the mouth is propped open as it is with many intubated patients, the oral mucosa dries out (xerostomia).\textsuperscript{16} Research has proven that often xerostomia is enhanced by the stressed or anxious patient,\textsuperscript{16,25} which is a characteristic of many critically ill patients.\textsuperscript{16} It is a side effect of many drugs including antihypertensives and anticholinergics which are often administered through an IV in critically ill patients.\textsuperscript{1,25} It may also occur in patients with connective tissue and autoimmune diseases, radiation therapy to the head and neck, rheumatoid arthritis, lupus, sclerosis, cirrhosis, vasculitis, hepatitis, HIV, AIDS, bone marrow transplants, renal dialysis, depression, and diabetes.\textsuperscript{25}

When the mucosa dries out, it creates a home suitable for dental plaque, other microbial flora of the mouth, and even fungi.\textsuperscript{16} Gram-negative Bacteria found in patients with xerostomia, are the key pathogens found in VAP (exact names of disease causing pathogens are not listed).\textsuperscript{16} Not only has xerostomia been linked to VAP, but it has been associated with an increase in dental caries and fungal
infections (candidiasis), commonly known as thrush. Xerostomia presents as a dry mouth often recognized as cotton mouth due to a decrease in salivary flow. The tongue may be red and swollen. It is often associated with a burning sensation on the tongue and can make it difficult to talk or swallow. The best way to manage xerostomia in the ICU is frequent oral care and increased hydration. Trieger suggests providing water and ice chips to reduce dryness, as well as using humidified nasal oxygen. Saliva substitutes such as Salagen and Evoxac are recommended as well.

Candidiasis (thrush) is a fungal infection that is caused by an increase of the fungus C. Albicans. The presence of xerostomia can contribute to this condition because there is little saliva to wash away the fungus. Patients with diabetes, dentures, or those who smoke are at an increased risk for candidiasis. It presents itself as white plaques that can easily be rubbed off with a gauze pad and are usually red underneath. There may be a burning sensation associated with candidiasis as well. Martinez-Beneyto, et al, conducted a national survey study on candidiasis and suggested that the antifungal agents Miconazole or Nystatin be prescribed and applied topically to treat candidiasis.

Along with xerostomia and candidiasis, the geriatric population experience more caries (cavities), gingivitis, periodontal disease, denture stomatitis, oral cancer, and angular cheilitis. The geriatric population is one of the biggest populations seen in the ICU at Allegiance Health Hospital and they are at greatest risk.

Dental caries will present itself as brownish color on the tooth surface and is often painful for the patient. If the patient has dental caries present, the patient or the legally responsible person making decisions for the patient should be made aware, and a referral to a dentist should be made for treatment after ICU care.

Gingivitis is a sign of oral disease. It manifests as swollen, red, and sometimes bleeding gums. Good oral care in the hospital is needed as gingivitis is caused by an increased amount of dental
plaque.\textsuperscript{26} Periodontal disease is often the result of gingivitis, exhibits recession, and may cause loose or shifting teeth.\textsuperscript{33, 39-43} Good oral care in the hospital is necessary and also an oral assessment provided by nursing staff to check for missing teeth or loose teeth that may be inhaled. Periodontal disease is also associated with diabetes, aspiration pneumonia, and cardiovascular disease.\textsuperscript{33, 39-43}

Many of the geriatric population have dentures. Denture stomatitis is a condition exhibited on the palate of the mouth that appears red and may hemorrhage.\textsuperscript{44, 45} Webb, et al, states that dentures should be removed at night, should be soaked in denture cleaner, and cleaned with a toothbrush as well.\textsuperscript{44} Also, it is recommended to place topical antifungals inside the denture-fitting surface to prevent candidiasis.\textsuperscript{44}

Another common oral conditions seen in the geriatric population is angular cheilitis.\textsuperscript{41} It is characterized by fissure at the corners of the mouth, which are often red in color.\textsuperscript{41} Angular cheilitis is often found in patients with an oral candidiasis infection and/or those who may have saliva pooling at the corners of the mouth.\textsuperscript{41} This condition is treated with an antifungal and petroleum jelly may be necessary to keep the corners from cracking and soreness.\textsuperscript{41}

**Nursing Staff Oral Health Care Protocols in Hospitals**

In an article published in 2006, Gillam reviewed research related to the oral protocols of the hospitals and hospice centers and the nursing staffs’ training on oral health.\textsuperscript{48} The review concluded that there was limited evidence of oral protocols in place for hospitals and hospice services. Gillam also stated that there appeared to be a lack of nursing staff training on oral assessment and oral health care procedures for patients.\textsuperscript{48}

Brown, et al, surveyed several nursing administrators and found that nurses consistently rated the oral health of their patients to be of less concern and were undereducated about the significance of
the relationship of dental conditions to whole body health. Although published in the 1990s, it is an example of the issue of need for nursing training in oral care procedures.

In a study published in 2009, Jablonski et al, discussed the data collected from an oral care survey returned by 106 nurses and nursing assistants. The article concluded that the nurses had obtained satisfactory knowledge about oral health care, but still reported providing oral health care less frequently than is optimal for the patient. Many nurses reported challenges such as a fear of causing pain, inadequate source of supplies, and care-resistive behavior by the patients. The oral health knowledge has increased over the last decade, but still the nursing staff may not be comfortable performing oral health care and oral assessments for their patients.

**Oral Assessment for the ICU Patient**

The first step in patient care is assessment. Chalmers, et al, completed a systematic review that concluded that oral assessments need to be completed by trained nurses when a dentist is not present in order to monitor oral health, provide optimal care for the patients, and act as a means to get a dental referral when needed. In 2009, a study was completed to see if ICU nurses were practicing with current evidence-based practice when providing oral care. According to the study results 71% of ICU nurses completed an oral assessment prior to any care, but none used an assessment tool. Of these nurses only 51% provided documentation on oral care performed.

In a different article, Chambers, et al, tested the validity and reliability of oral assessment tools provided to nurses during training. This included the Brief Oral Health Status Examination (BOHSE), Index of Activities of Daily Oral Hygiene and the Mucosal Plaque Score, and the Oral Health Assessment Tool (OHAT). The OHAT includes eight categories: lips, tongue, gums and tissue, saliva, natural teeth, dentures, oral cleanliness, and dental pain. Each category has a description under the column number associated with it. The columns are labeled 0 for healthy, 1 for oral changes, and 2 for unhealthy. After
the OHAT was observed under the test-retest of the same nurses for six months, the statistics proved the OHAT to be the most valid and reliable assessment tool for patients and nurses. The OHAT was created with reference to the BOHSE. Although the BOHSE was valid, it was not deemed reliable. There was not research associated with the Index of Activities of Daily Oral Hygiene (IADOH) and the Mucosal Plaque Score (MPS) because they were created for long-term care facilities.

In addition to a written assessment tool, some equipment will need to be utilized when performing oral care for the ICU patient. Standard equipment for an oral assessment includes a pair of latex, vinyl, or nitrile gloves, a light, tongue depressor, gauze square, and a disposable mirror if available. The most commonly used equipment by ICU nurses for oral exams in 2009 was gauze pads (84%) and tongue depressors (55%).

**Conclusion & Recommendations**

Oral care is needed for patients in the ICU as they are at greater risk for VAP and other oral conditions. The ICU patients are not able to perform oral care for themselves so nursing staff needs to be responsible for providing oral care. In order for nurses to feel comfortable providing oral care, training should be increased and include evidence-based rationale for assessment and care. Lastly, an oral assessment tool should be implemented when providing ICU care for patients. It is a reliable guide for nurses to assess the oral care needed for patients and an easy guide for an oral examination. When nurses are educated on providing oral care using an oral assessment tool, they can better care for their patients as a whole and reduce the risk of other illnesses and conditions from occurring.
Project Rationale

The reason this topic was selected was to provide education to the Intensive Care Unit (ICU) nursing staff at Allegiance Health Hospital on how to care for their patients’ oral cavity. Currently, few hospitals have oral care protocols for their ICU patients. Surveys show that some of the hospitals that do have oral care protocols, more than half do not follow them. As the research presented, many nurses know how to care for the oral cavity, but do not have adequate supplies, an oral assessment tool available, and sometimes fear that they will cause their patient’s pain. This capstone project benefited the ICU nursing staff and the patients for whom they care. Professionally, the presenter would like to grow in her role as a dental hygiene educator and advocate for oral care for ICU patients. Sharing her professional knowledge to help create a multidisciplinary approach to patient care was one of the goals she hoped to achieve through this project.

Objectives

- Develop and deliver a presentation on oral care for ICU patients to the ICU nursing staff at Allegiance Health Hospital to increase knowledge of the nursing staff on providing oral care during patients’ hospitalization.

- Delivery of educational presentation on oral care for the ICU patients to 90% of the ICU nursing staff at Allegiance Hospital.

Develop an oral assessment tool to distribute to the ICU nursing staff at Allegiance Health Hospital to be used when providing oral care to their patients.

Design

This project was designed to educate the ICU nursing staff at Allegiance Health on oral care for the ICU patient. It included information on plaque accumulation and its relationship to ventilator-associated pneumonia (VAP). The presentation discussed oral conditions often associated with ICU
patients such as xerostomia, candidiasis, denture stomatitis, and angular cheilitis. It also went into detail on how to provide oral care for ICU patients. An oral assessment tool was developed and presented in the form of a laminated card.

All ICU nursing staff members were expected to attend one of the four half hour educational sessions on this topic. Pre-tests were distributed to the nursing staff the week before the sessions and post-tests were completed immediately following. The pre-test provided baseline information on the nursing staff’s general knowledge of providing oral care for their patients. The post-test assessed if there was an increase in this knowledge after the educational session. The Allegiance Hospital Nursing Education Director, Linda LaRoe, RN, BSN, CCRN, set a goal to have at least 90% of the nursing staff attend the presentation.

**Methods**

Four different times were chosen for the ICU oral care educational sessions. Linda LaRoe (project advisor) and the presenter chose two daytime shift lunch hours and two nighttime shift lunch hours to schedule the presentation. By doing two different days for each shift all of the ICU nursing staff would be reached. Through each phase of the presentation development, the presenter collaborated with Linda LaRoe to make sure the presentation addressed the needs of her ICU nursing staff.

A PowerPoint presentation on oral care for the ICU patient was developed from the research found for the literature review. The educational session that was presented to the staff was designed to fit within the time parameters of 30 minutes. During the session, an oral assessment tool (OAT) was introduced with a laminated copy of this tool provided to each staff member. The OAT that was provided is the OHAT (Oral Health Assessment Tool) by Chalmers. It served as a tool to refer to when providing an oral assessment for the ICU patients. The OHAT had
eight categories listed; lips, tongue, gums and tissues, saliva, natural teeth, dentures, oral cleanliness, and dental pain. The next three columns gave a brief description of what each of these categories looked like if they were healthy, had changes, or appeared unhealthy. If it had changes or appeared unhealthy, these were the areas that need to be cared for.

Pre and post-tests were distributed by Linda LaRoe (Project Advisor). The pre-test provided baseline information on the nursing staff’s general knowledge if providing oral care for their patients. The post-test assessed if there had been an increase in this knowledge after the educational session. The goal was to have at least 75% correct answers on the post-test after the presentation was given.

Results

The first objective was to develop and deliver a presentation on oral care for ICU patients to the ICU nursing staff at Allegiance Health Hospital to increase knowledge of the nursing staff on providing oral care during patients’ hospitalization. Three nurses attended the presentation and provided both pre-test and post-test information. The pre-test (Appendix A) and post-test (Appendix B) contained six questions for the nursing staff to complete both before and after the presentation.

Question one in both tests asked about providing oral care for ICU patients. Two of the nurses provided oral care for their patients sometimes, while one nurse always did. There was no difference between pre and post-test results (Figure 1).
Question two in both tests asked about the training on how to provide oral care. Two of the nurses have had training on how to provide oral care for their patients, but all three agreed that the training helped them to know how to provide oral care for their patients in the future (Figure 2).

![Figure 2: Question Two](image)

Pre-Test: Have you had training on how to provide oral care for your patients?
Post-Test: Did the training help you to know how to provide oral care for your patients?

Question three in both tests asked if the nurse was comfortable providing oral care for their patients. Two of the nurses felt comfortable providing oral care for their patients. Prior to seeing the presentation titled “How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital,” two nurses felt comfortable providing oral care for their patients. After seeing the presentation, all three felt comfortable providing oral care for their patients (Figure 3).

![Figure 3: Question Three](image)

Pre-Test: Do you feel comfortable providing oral care for your patients?
Post-Test: Do you now feel comfortable providing oral care for your patients after seeing the presentation?
Question four for both tests referred to the usage of an oral assessment tool. None of the nurses used an oral assessment tool prior to the presentation, but two agreed that they will always use it after seeing the presentation. One nurse said she would only sometimes use it (Figure 4).

![Figure 4: Question Four](image)

Pre-Test: When you do provide oral care for your patients, do you use an oral assessment tool?  
Post-Test: When you do provide oral care for your patients, will you use the oral assessment tool provided?

Question five in both tests refered to cleaning the oral cavity of an intubated patient. Two nurses always clean the oral cavity of an intubated patient, but all three agreed they would provide oral care to intubated patients all the time after seeing the presentation (Figure 5).

![Figure 5: Question Five](image)

Pre-Test: Do you clean the oral cavity when a patient is intubated?  
Post-Test: Will you clean the oral cavity when a patient is intubated after seeing the presentation?

Question six in both tests asked about the knowledge of oral diseases/conditions most commonly seen in the ICU patients. Two of the nurses had knowledge about oral diseases/conditions
most frequently seen in the ICU prior to the presentation, but did not know the technical terms. After seeing the presentation all three nurses said they had been provided information on oral diseases/conditions most frequently seen in ICU patients (Figure 6).

The second objective was to deliver an educational presentation on oral care for the ICU patients to 90% of the ICU nursing staff at Allegiance Hospital. Three nurses attended the presentation and provided feedback. The ICU employs a total of 12 Critical Care Registered Nurses (CCRN). This information was tracked and used to calculate the overall percentage of attendees (Appendix E). The percentage of nurses that attended this presentation was 25% (Figure 7). Therefore, this objective was not met.
The last objective was to develop an oral assessment tool (OAT) to distribute to the ICU nursing staff at Allegiance Health Hospital to be used when providing oral care to their patients. Linda LaRoe, RN, BSN, CCRN approved this OAT after reviewing it and prior to lamination. She will be distributing this to her nursing staff. The completed OAT prior to printing and lamination is located in Appendix F.

Discussion/Impact

The first objective was to develop and deliver a presentation on oral care for ICU patients to the ICU nursing staff at Allegiance Health Hospital to increase knowledge of the nursing staff on providing oral care during patients’ hospitalization. To meet this goal the results of the pre-test/post-test comparison should show a growth in knowledge. Overall, the pre-test/post-test showed an increase in knowledge for the three CCRN attendees. Therefore, the presentation did impact a few nurses which may benefit a few patients.

The second objective of this project was to present the information to at least 90% of the ICU nursing staff. However, only 25% of the nursing staff attended the presentation. Originally, four presentations were to be completed - two for the day-shift and two for the night-shift. The night shift director reported not being interested in having the presentation during work hours. Unfortunately, there was a death in the family and the first educational session was canceled by the presenter due to the funeral. So, the presentation was given on the second scheduled day, May 26, 2010.

Linda LaRoe (project advisor) asked for the presentation to be shown three times to cover all the lunch shifts. Three nurses showed in total, which is 25% of the Critical Care Registered Nursing (CCRN) staff. Before the presentations had begun, there were two patients being admitted to the step-down unit and a man that was repeatedly coding in the intensive-care unit. Due to the circumstances, the nurses that were going to attend the presentation were busy providing care for these three patients.

Due to the low number of attendees an alternative method was used to deliver the information to the nursing staff. After meeting with the faculty advisor, the idea of using a folder with the power
point presentation slides printed off and discussion in the notes section was used. The rationale behind the folder was the nurses needed something they could read when they had time and possibly provide feedback in a pre/post-test. The binder seemed to be the most effective way. Other ideas included a poster and a video. The video was not feasible for the time left to complete the project and the poster would provide only a vague amount of information. The folder allowed for a copy of the literature review to be included for referencing.

The ICU nursing staff has a small library of information in their break room in which the folder can be placed and used to reference in years to come. This makes the information readily available and a great resource for new employees. Linda LaRoe provided the ICU nursing staff with access to this resource binder to provide the presentation information to those 75% who did not attend the presentation.

The last objective of this project was to develop an oral assessment tool (OAT) for the ICU nursing staff to use when providing care for their patients. This part of the project is deemed successful because Linda LaRoe approved the OAT by Chalmers and it was provided to the nursing staff in a laminated card format. Linda completed an assessment form to show her approval of the OAT, her approval is located in Appendix D.

**Conclusions**

Although the objective of delivering the presentation titled “How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital” to 90% of the ICU nursing staff was not met, those who attended the session did demonstrate an increase in knowledge. They gained new knowledge on providing oral care for their patients as well as oral diseases/conditions that are related to the ICU patients. All ICU nurses at Allegiance Health Hospital, whether they attended the educational session or not were given the oral assessment tool to refer to when providing patient care. The ICU nursing staff was also provided with the “Oral Health Care for ICU
Patients Folder.” The folder presentation can be viewed by the ICU nurses that were unable to attend the presentation. This will allow for the information to reach all of the ICU nurses as this capstone project was intended to do.

A future presentation to the ICU staff may be given in a different format to achieve a greater number of attendees. The more attendees the more feedback will be provided. When planning for educational sessions to the ICU in the future, presenters will want to set up multiple times to present as this floor is busy and unpredictable due to the health of the patients. Perhaps asking what is the most successful way to distribute information to the ICU nursing staff would be beneficial.

In the literature review, it was noted that the nurses need training on how to provide oral care as well as oral diseases and conditions present in the mouth. This still holds true, without this training, diseases such as Ventilator Associated Pneumonia (VAP) will still be present. A reduction of VAP can be seen with proper oral care and intubation care, but cannot be achieved without education and training of nursing staffs in hospitals.

**Timeline**

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Activities</th>
<th>Start</th>
<th>Finish</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop the Capstone Project Proposal HYGDCE 489</td>
<td>Title, Statement/Description, rationale, objectives, design, methods, evaluation, timeline, and literature review</td>
<td>February 22, 2010</td>
<td>April 27, 2010</td>
<td>Capstone Textbook, Online resources,</td>
</tr>
<tr>
<td>Project Development</td>
<td>Create a Power Point presentation</td>
<td>April 27, 2010</td>
<td>May 7, 2010</td>
<td>Review of the Literature and Power Point</td>
</tr>
<tr>
<td></td>
<td>Develop OAT &amp; present to faculty advisor and project advisor for final approval</td>
<td>April 27, 2010</td>
<td>May 7, 2010</td>
<td>Money for print and lamination</td>
</tr>
<tr>
<td><strong>print and laminate an oral assessment tool</strong></td>
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<tr>
<td><strong>Present presentation to project advisor for feedback</strong></td>
<td>May 7, 2010</td>
<td>May 9, 2010</td>
<td>Power point and OAT</td>
<td></td>
</tr>
<tr>
<td><strong>Develop pre-tests and post-tests for faculty advisor to review</strong></td>
<td>April 27, 2010</td>
<td>May 10, 2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pilot testing of both tests</strong></td>
<td>May 10, 2010</td>
<td>May 12, 2010</td>
<td></td>
<td></td>
</tr>
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</table>

**Implementation**

| **Distribute Pre-Survey Presentations 11:30AM and 10:00PM** | May 12, 2010 | May 20, 2010 | Linda LaRoe |
| **Distribute Post-Survey** | May 26, 2010 | May 26, 2010 | Linda LaRoe |

**Evaluation**

| **Compare pre and post surveys and determine percentage of attendees** | May 29, 2010 | June 7, 2010 | Excel and Graphs |
| **Write Capstone Project Final Report** | June 10, 2010 | June 30, 2010 |
References

47. Neelis B. (Dental Hygiene E-Learning program, University of Michigan, Ann Arbor, MI). Conversation with Linda LaRoe, RN, BSN, CCRN. (Nursing Education, Allegiance Health Hospital, Jackson, MI). 2010 March 4.
Appendix A

Pre-Test - How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital

1. Do you provide oral care for your patients?
   Always  Sometimes  Never

2. Have you had training on how to provide oral care for your patients?
   Yes  No

3. Do you feel comfortable providing oral care for your patients?
   Yes  No

4. When you do provide oral care for your patients, do you use an oral assessment tool?
   Always  Sometimes  Never

5. Do you clean the oral cavity when a patient is intubated?
   Always  Sometimes  Never

6. Do you have knowledge about oral diseases/conditions most frequently seen in ICU patients?
   Yes  No

7. An educational session on oral care for the ICU patient will be presented later in May. What information do you feel would be helpful to include in this presentation that would assist you with providing oral care for ICU patients?

Additional comments:
Appendix B

Post-Test - How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital

1. Will you provide oral care for your patients after seeing the presentation?
   Always    Sometimes    Never

2. Did the training help you to know how to provide oral care for your patients?
   Yes     No

3. Do you now feel comfortable providing oral care for your patients after seeing the presentation?
   Yes     No

4. When you do provide oral care for your patients, will you use the oral assessment tool provided?
   Always    Sometimes    Never

5. Will you clean the oral cavity when a patient is intubated?
   Always    Sometimes    Never

6. Do you feel you have been provided information on oral diseases/conditions most frequently seen in ICU patients?
   Yes     No

7. Is there any information that was not presented that you feel you still need to provide oral care for ICU patients?

Additional comments:
Appendix C

Pilot Test Feedback Form - How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital

1. After reviewing the pre-test and post-test, are there additional questions that you would like added to gather information about the ICU nursing staff and caring for the oral health of ICU patients?

______________________________________________________________________________
______________________________________________________________________________

2. Is the format of both tests appropriate? If not, do you have any suggestions?

______________________________________________________________________________
______________________________________________________________________________

3. Does the Oral Assessment Tool (OAT) appear to be an easy to use reference tool for the ICU nursing staff?

______________________________________________________________________________
______________________________________________________________________________

4. Do you feel the OAT will be a useful assessment tool for the ICU nurses? If not, do you have suggestions for a different format and content to include?

______________________________________________________________________________
______________________________________________________________________________

5. Does the Power Point Presentation provide good oral health information? Is the format okay? Is there any information you would like changed or added?

______________________________________________________________________________
______________________________________________________________________________

Please return this form to me via email neelisbn@yahoo.com or in the envelope addressed to myself by May 10, 2010. Thank you!
Appendix D

Pilot Test Feedback Form - How to Care for the Oral Health of Intensive Care Unit Patients: A Presentation to the Nursing Staff at Allegiance Health Hospital

1. After reviewing the pre-test and post-test, are there additional questions that you would like added to gather information about the ICU nursing staff and caring for the oral health of ICU patients?

   *No, the pre-test and post-test questions are appropriate for the presentation.*

2. Is the format of both tests appropriate? If not, do you have any suggestions?

   *Yes, they are simple and quick to fill out.*

3. Does the Oral Assessment Tool (OAT) appear to be an easy to use reference tool for the ICU nursing staff?

   *Yes, I prefer this format over the other OAT I reviewed. Please be sure to make sure it will fit into the pocket of a scrub jacket.*

4. Do you feel the OAT will be a useful assessment tool for the ICU nurses? If not, do you have suggestions for a different format and content to include?

   *Again, I like the format of this OAT. I hope that our ICU nursing team will use it.*

5. Does the Power Point Presentation provide good oral health information? Is the format okay? Is there any information you would like changed or added?

   *This is a beautiful power point presentation and you have worked hard on it. I think the nurses will benefit from your presentation. Look forward to seeing you!*

Please return this form to me via email neelisbn@yahoo.com or in the envelope addressed to myself by May 10, 2010. Thank you!

Please note that these answers were provided by Linda LaRoe, RN, BSN, CCRN, Director of Nursing Education at Allegiance Health Hospital in a written format. They were copied into word format for this project proposal. There was no editing done these are her answers to the questions.
Appendix E

**Evaluation Tool to Meet Objective 2**

1. Number of nurses that work in the ICU? ________
2. How many ICU nurses attended the first educational session? ________
3. How many ICU nurses attended the second educational session? ________
4. How many ICU nurses attended the third educational session? ________
5. How many ICU nurses attended the fourth educational session? ________
6. The total number of ICU nurses that attended the educational sessions? _______ (Add 2-5)

The percentage of ICU nurses that attended the educational sessions? ______%__ (divide 1 into 6)

**Completed Evaluation Tool to Meet Objective 2**

1. Number of nurses that work in the ICU? 12
2. How many ICU nurses attended the first educational session? 0
3. How many ICU nurses attended the second educational session? 0
4. How many ICU nurses attended the third educational session? 3
5. How many ICU nurses attended the fourth educational session? 0
6. The total number of ICU nurses that attended the educational sessions? 3

The percentage of ICU nurses that attended the educational sessions? 25%
Appendix F

Oral Health Assessment Tool


<table>
<thead>
<tr>
<th>Category</th>
<th>Healthy</th>
<th>Changes</th>
<th>Unhealthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lips</td>
<td>Smooth, Pink Moist</td>
<td>Dry, Chapped, or red at corners</td>
<td>Swelling or lump, white/red/ulcerated patch; bleeding/ulcerated at corners</td>
</tr>
<tr>
<td>Tongue</td>
<td>Normal, Moist, Pink</td>
<td>Patchy, fissured, red, coated</td>
<td>Patch that is red and/or white, roughness, pink ulcerated, swollen</td>
</tr>
<tr>
<td>Gums and Tissues</td>
<td>Pink, moist, smooth, no bleeding</td>
<td>Dry, shiny, rough, red, swollen around 1 to 6 teeth, one ulcer or sore spot under denture</td>
<td>Swollen, bleeding around 7 teeth or more, loose teeth, ulcers and/or white patches, generalized redness and/or tenderness</td>
</tr>
<tr>
<td>Saliva</td>
<td>Moist tissues, watery and free flowing saliva</td>
<td>Dry, sticky tissues, little saliva present, patient feels they have dry mouth</td>
<td>Tissues parched and red, very little or no saliva present: Saliva is thick, ropey, patient complains of dry mouth</td>
</tr>
<tr>
<td>Natural Teeth</td>
<td>No decayed or broken teeth/roots</td>
<td>1 to 3 decayed or broken teeth/roots</td>
<td>4 or more decayed or broken teeth/roots, or very worn down teeth, or less than 4 teeth with no denture</td>
</tr>
<tr>
<td>Dentures</td>
<td>No broken areas/teeth, dentures worn regularly and name is on</td>
<td>1 broken area/tooth, or dentures only worn for 1 to 2 hours daily, or no name on denture(s)</td>
<td>More than 1 broken area/tooth denture missing or not worn due to poor fit, or worn only with denture adhesive</td>
</tr>
<tr>
<td>Oral Cleanliness</td>
<td>Clean and no food particles or tartar on teeth or dentures</td>
<td>Food particles/tartar/debris in 1 or 2 areas of the mouth or on small area of dentures; occasional bad breath</td>
<td>Food particles, tartar, debris in most areas of the mouth or on most areas of denture(s), or severe halitosis (bad breath)</td>
</tr>
<tr>
<td>Dental Pain</td>
<td>No behavioral, verbal, or physical signs of pain</td>
<td>Verbal and/or behavioral signs of pain such as pulling of face, chewing lips, not eating, aggression</td>
<td>Physical signs such as swelling of cheek or gums, broken teeth, ulcers, 'gum boil,' as well as verbal and/or behavioral signs of pain</td>
</tr>
</tbody>
</table>