

Care plan to meet the
specific needs of
mechanically
ventilated patients
nursing ...



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4. 0 Rationale

The initial inspiration for this proposal was a conversation with colleagues which then progressed into an observational survey over a period of eight hours. Ten staff nurses and one sister then took part in answering a questionnaire. (See appendix 1 1a for results) The hospital where I work does have a care plan for oral hygiene (see appendix 2) but it was designed for ' general use' rather than to meet the specific needs of mechanically ventilated patients (MVP). It soon became apparent from the results and the conversations that there was a need for an assessment tool and guidelines as to what was considered to be best practice to meet the individual needs of MVP. This is when and why my project began.

4. 2 Important

DNA studies have confirmed that up to 90% of Ventilator Associated Pneumonia (VAP) is caused by pathogens colonising the mouth. Within hours of admission into the Intensive Care Unit (ICU), the oral physiology of the patient begins changing. (Nieuw Amerongen 2007) A Study by Schleder, Stott & Lloyd (2002) has associated chest infection and pneumonia with poor oral hygiene. Ventilator associated pneumonia (VAP) is the leading cause of death among hospital-acquired infections. (Bercault and Boulain, 2001. Claridge, Edwards, Swanson, Fabian, et al 2007. Kollef 2004). After several days in the ICU, the intubated patient's oral pathogen population rises to a higher percentage of organisms increasing the risk of VAP, their length of stay and mortality. VAP costs generally range from \$12, 000 to \$40, 000 per patient. Crude mortality rates range from 27%-76%.(Jones, Newton, and Bower 2004)

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4. 3 Policy Drivers

The triggers for improved mouth care have come from Department of Health (DoH) booklet entitled ' Delivering Better Oral Health'. An evidence-based toolkit for prevention was published in September 2007. Older people are at considerable risk of oral infection, with infection identified in 80% of one study population (DoH, 2007). There are indications that 69% of adults may have periodontal disease. With current regional dental attendance ranging from 40% in southern areas to 60% in the North East (DoH, 2007), it is reasonable to assume that many patients might have pre-existing poor oral health before contact with national health services(NHS) (Nicol et al, 2005). (Xavier, 2000).

For the ICU the High Impact Intervention No 5 Care bundle for ventilated patients (DoH 2006) simply advises ' that routine oral hygiene as per local policy' is recommended. National Institute for Health and Clinical Excellence (NICE) in their pamphlet on technical patient safety solutions for ventilator-associated pneumonia in adults recommends Chlorhexidine mouth rinse or gel to be used on MVP.

4. 3 Evidence to support proposal.

The revised Essence of Care (DoH, 2010) has proved to be an important starting point for providing evidence for the need to develop an oral hygiene package for MVPs. The booklet sets out the standard by which best practice and care is currently assessed or measured in order to assist practitioners to develop a patient-focused and structured approach to sharing and comparing practice. It has enabled health care personnel to work with

patients, or in some cases their relatives, to identify best practice and to <https://assignbuster.com/care-plan-to-meet-the-specific-needs-of-mechanically-ventilated-patients-nursing-essay/>

develop action plans to improve care. The Essence of Care has twelve benchmarks, one being personal hygiene that consists of six factors. (See appendix 3 for a details.) This benchmark highlights mouth hygiene as a priority. Therefore an assessment must be done, the staff must be capable of performing the tasks, their knowledge must be appropriate, functional written records must be kept for auditing and individual oral cavity cleaning equipment should be provided for each patient.

The Centres for Disease Control (CDC) specifically advises that each ICU patient should be part of an oral hygiene program with frequent gentle brushing of the teeth and gingiva, mouth swabbing with an antiseptic agent, and in the endotracheally intubated and mechanically ventilated (EIMV) patient, frequent suctioning of the mouth and subglottic areas. A comprehensive review is to be found in Appendix 6 and is also further considered in the section Literature Review (5. 4)

5. 1 Aim

The aim of this project is to introduce an oral assessment tool and a mouth hygiene cleaning protocol for ICU. It will be specifically used with patients who are mechanically ventilated and will be supplemented with an educational package.

5. 2 Purpose of Project

The overall purpose of my project is to keep patients safe and reduce the risk of VAP. The oral cavity has been identified as a possible threat. Nurses Code number 35 *** reference ' states we must deliver care based on the best available evidence or best practice'

To do this a systematic process is required. Current practice has too many weaknesses. The current practice is a simple tick box on the ICU chart merely recording that mouth care has been performed. At present, mouth care in many cases, simply consists of a pink sponge and sterile water to moisten the mouth, petroleum lip balm to stop the lips from cracking and if the anaesthetists remember, chlorhexidine gel prescribed four times a day. From my discussion with colleagues, evidenced by the questionnaire (Appendix 1), an oral assessment is rarely done on patients with EIMV. Using a toothbrush, with fluoride toothpaste, is only usually performed on patients who are not sedated, which could be forty eight hours or longer after they were first intubated. Within forty-eight hours, the bacteria in the mouth shifts from the normal inhabitants to those that are the usual suspects for causing pneumonia: *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Pseudomonas*. These pathogens exude substances in order to form a biofilm matrix, or plaque. Within these protective shelters, bacteria rapidly multiply and spread throughout the oral cavity.

ICU nurses play a critical role in providing effective oral care and promoting oral hygiene. However, oral hygiene by health care workers has often been overlooked or performed on an ad hoc basis. In some instances, it has become a ritualistic and banal activity. The research is sporadic resulting in conflicting advice to practitioners. An example of this erratic advice is the introduction of hydrogen peroxide and sodium bicarbonate being recommended as a mouthwash which if not diluted carefully will cause superficial burns. It is still currently in use in some ICUs. (Fischman, Truelove, Hart, Cancro, 1992. Passos & Brand, 1966. Kite & Pearson, 1995. Miller &

Kearney, 2001) This project aims to remedy this inconsistency and give guidance and the tool for best practices.

5.3 Accomplish and Achieve.

Ongoing oral assessment should be performed daily to prevent oral complications such as VAP and to ensure optimal oral health (Kollef, 2004). The assessment tool that I want to introduce on my ICU is based on the 'BRUSHED' assessment tool developed by Hayes and Jones. (See appendix 4) It has previously been adapted to be used by ICU nurses to assess the degree of severity of the problems occurring in the patient's oral cavity (Abidia 2007). Using this tool, the ICU nurse could assess the gingiva for signs of disease. This inspection should include colour, size, shape, consistency and surface texture. Other signs to look for would be ulcerations or sores on the oral mucosa. After the assessment the nurse will record in detail, in the patient notes, their observations. Any other appropriate action can then be taken before administering oral hygiene. (Hayes & Jones 1995) This tool was made to prompt nurses to check for particular clinical signs during oral assessment. (Hayes & Jones 1995) Oral hygiene in the ICU is a commonly performed nursing procedure in which the aim is to ensure that patients' mouths are cared for (Kite,& Pearson1995.) Pritchard and David (1988) indicate that mouth care is required to:

Achieve and maintain oral cleanliness.

Prevent infection/stomatitis.

Keep the oral mucosa moist.

Promote patient comfort.

5. 4 Literature Review

To identify potentially relevant evidence, I searched The Cochrane Library, Cochrane Database of Systematic Reviews, Cumulative Index to Nursing and Allied Health (CINAHL), and Medline (restricted to 1990-2009, English language, and human research), including the related links option and journal cross referencing for papers not previously identified. The search produced a number of articles on oral hygiene and VAP in adult ICU.

The Iowa Model encourages the use of case reports, expert opinion, and theories to inform practice when research findings are not available (Titler et al., 2001), allowing protocols to be developed based on “ best available evidence.” The Iowa Model begins by encouraging staff nurses to identify practice questions, triggered either through identification of a problem or through new knowledge. The practice question aligned with organizational priorities is best positioned for allocation of supporting resources. Fourteen articles were identified as relevant to adult oral care in the ICU setting and were subsequently appraised (See appendix 5). They included two systematic reviews, two randomized controlled trials (with adequate sample size), four non-randomized trials (or randomized with small sample sizes), one comparative trial and five expert opinions. Only 10 of the 14 articles were specific to the adult population.

Using definitions developed by Stetler, Brunell, Giuliano et al (1998), levels were assigned that rated the quality or strength of evidence of the 14 studies. Levels ranged from Level I (meta-analysis of multiple controlled

studies) to Level VI (opinions of respected authorities, or the opinions of an expert committee, including their interpretation of non-research-based information) (Stetler et al., 1998). The more rigorous level of evidence, Level I reports, evaluated the effectiveness of pharmacological interventions included in oral rinses and toothpastes in reducing oral bacterial flora, dental plaque, and dental caries. The lack of robust research evidence related to direct nursing practice of oral care in the ICU setting is significant for future research. A number of articles highlighted the importance of regular oral assessment to guide good oral care (Hayes & Jones, 1995; McNeill, 2000; O'Reilly, 2002).

A meta-analysis performed by Chan and colleagues showed a significant reduction in VAP with the use of anti-septic mouthwash. The study, however, was unable to demonstrate any differences in other endpoints such as mortality, duration of mechanical ventilation and length of ICU stay. (Chan, Ruest, Meade & Cook 2007). The published NICE guidelines, as discussed earlier in section 4. 2, recommend chlorhexidine on all MVP

5. 5 Method

The assessment tool that I want introduce to my ICU, is based on the BRUSHED assessment tool developed by Hayes and Jones (1995) which been adapted by Abidia (2007) with permission, to be used by ICU nurses to assess the degree of severity of the problems in the patient's oral cavity. (See appendix 6)

5. 6. 1 Innovation: How it would be implemented. Education and Training

This assessment tool should be used as outlined in 5. 3 above. It is to be supplemented with a detailed education package to facilitate training. (See appendix 7) It is currently designated as a ' draft' as it has yet to be ratified and approved. This aspect of the proposal would be coordinated with the unit's educator. It is proposed that initially, a power point presentation, with some time for questions, lasting approximately thirty minutes, would be used. This would be accompanied by a written pamphlet to enable staff to reflect upon the procedure and also be the first point of reference should any difficulty occur. A ' link nurse' would be allocated to take the lead with the educator. Link nurses are described as " Identified nurses within a team who have expressed interest in a specialist area and become a formal link for the team." McKeeney(2003). Nurses often take upon themselves these roles as part of their Knowledge and Skills Framework as it provides evidence of their continued professional development.

Ideally the power point presentation would be attended by staff at the start or finish of a shift as there is a $\frac{3}{4}$ of an hour overlap that has previously been used for training purposes. It is envisaged that all staff will have completed their initial training within two months. The educator would keep a signed register of attendees as part of the unit auditing. After this initial training a questionnaire would be used to ascertain the effectiveness of the training, to elicit any further or future problems and to assess the quality of the procedures that are now in place. The results of the questionnaire would also determine such issues as to whether the risk factor has been risk assessed

correctly, whether further education/training is necessary or whether any modifications to the new procedure are needed. It could also form part of auditing the unit which is needed as part of Clinical Governance.

5. 6. 2 Innovation: How it would be implemented. Administratively and Procedurally

Oral assessment and care (OAC) are essential for the improvement of overall health and for the progression towards recovery and wellbeing of the ICU patients. Without OAC the patient could experience serious infections which would lead to prolongation of ICU stay, increased morbidity, significantly increased costs of care, and possible mortality. (Jones Newton Bower 2004. Abidia 2007 Gillam & Gillam 2006. Koeman, van der Ven, Hak 2006) the oral guidelines (draft copy see appendix 8) are based upon a thorough literature search. The draft, at present, is not in compliance with the trust format. The guidelines are outlined in ' Policy Corp. 60' which is available on the intranet of the Southport and Ormskirk trust.

The procedure to follow in order to ensure smooth implementation of the proposed new procedure is firstly to arrange a meeting with my peers and the clinical lead for sanction of the proposal. It would then be forwarded to the Policy Coordinator for checking and agreement prior to presentation to the Evidence Based Practice Committee. The committee are responsible for the final approval. When this has been achieved, the guidelines will be forwarded to the Business Unit Lead for publishing on the trusts intranet. All trust employees would then have access to the draft guidelines.

The time frame for the implementation is difficult to accurately assess but a period three months before initial education commences would be a reasonable estimate. The paper work would be checked by the new matrons as part of their role in our trust is to check documentation

5. 6. 3 Innovation: How it would be implemented. Costings.

In order to implement this new procedure in its entirety, from academic exercise into practice, it is not expected that a heavy financial burden to the trust will occur. The logistics for implementing change are already in place so no new levels of bureaucracy are envisaged. The costings would be as simple as copying paper at £3. 00 per ream. The time allocation for the educator needed for planning and implementing training for approximately ninety five staff who work in ICU, High Dependence and Coronary Care Units, noting that the needs of the night shift may necessitate some out of normal contacted hours, are the only other expense.

Once adopted the procedure would cost a maximum of £5. 00 per patient per week. Of course the current costs for oral hygiene should be deducted from this sum as they become redundant. New equipment as listed in detail in Appendix 8 has also to be taken into account.

5. 7 What are the perceived /anticipated barriers to change?

Experience dictates that during the busy daily activities of patient care in the ICU it can be incredibly difficult to consistently perform such a simple task as routine oral hygiene. There are so many urgent, life-threatening events, which take priority over everything else. Ensuring that mouth cleaning is completed shades into insignificance, even appearing to be regarded as an

optional task. This is further downgraded as it is recorded merely by a tick in a box that can be thoughtlessly given. Hence, in practice the prevailing attitude, the ward culture that now exists is that; ' It can't be that important!' What was once good practice has over the years become corrupted. This is in essence why my proposal to introduce a new procedure for the oral care of ventilated patients is important. It is vital that in order to achieve optimum performance such professional practices are reviewed and revised. The barriers to be overcome are apathy and complacency!

The oral cavity is known to be a reservoir for pathogens to grow and thrive. Poor oral hygiene can lead to complications such as gingivitis, halitosis, xerostomia, plaque formation, dental cavities and others that have been previously mentioned. There are many factors that may preclude the ICU nurse from performing necessary OAC (see appendix 8) (Jones, Newton & Bower 2004. Gillam & Gillam 2006. Koeman Ven & Hak 2006. Furr, Binkley & McCurren 2004)

Roberts (2001) reported that the delivery of oral care within institutional settings is fragmented. A review by Chan (2005) states nurse's descriptions of their oral care practices covered oral health assessment, cleansing the oral cavity and care of the surrounding areas. Chan (2005) findings revealed the following significant factors that influenced ICU nurses in providing oral care:

Their understanding of the purpose of oral care.

Their fears about providing it.

The precedence of oral care.

Insufficient support for oral care.

Rello, Koulenti Blot et al (2007) and Chan (2005) also concluded that their findings indicated that nurses oral care practices were not evidence based. Munro & Grap (2004) also indicated that present oral care training should be revised. Their findings also highlighted the influence of ward culture on nurses' priorities in providing oral care. Appropriate materials, adequate staffing levels and the establishment of an evidence-based oral care protocol may in future facilitate the provision of oral care in the intensive care unit. (Chan 2005. Munro & Grap 2004. Rello, Koulenti Blot et al 2007) Oral assessment is an integral part of oral care and should take place upon admission. Evidence has suggested that early assessment can reduce both the incidence and severity of oral complications.(Xavier, 2000)Once an oral assessment has been carried out it is important to give appropriate oral care interventions based upon the individual patient's needs.

6. 0 Evaluation

When reflecting upon the proposal it is important that the following criteria are considered:

ICU patient's individual requirements for oral care should be part of the admission assessment.

Education of nurses to provide skills in oral assessment and oral care is essential. The unit educator (having had training themselves) can train

nurses to improve the oral assessment and enhancement of oral care for ICU patients.

The use of an assessment model such as the “ BRUSHED” Assessment tool is recommended for the immediate identification of oral problems for every patient and should be carried out daily.

The use of a comprehensive protocol such as the Mouth Care Protocol presented in appendix 8 a draft that will have to go to the evidence based committee be for recommended. Appendixes 9 show the evidence and the rational.

The frequency of oral care is an area of controversy and may depend more on the patient’s condition. However, brushing every 12 hours and oral moistening at least every two hours while the patient remains intubated is recommended until further research is done in this area.

Some solutions and types of equipment used by nurses for oral care are not optimal and, therefore, caution must be applied if they are used. Examples include hydrogen peroxide and sodium bicarbonate, if not diluted carefully, may cause superficial burns. Lemons Glycerine Swabs can cause irritation and decalcification of teeth. Instead, chlorhexidine is recommended.

(Warner. 1986. Pearson Hutton & Luise. 2002) Foam swabs are ineffective in removing plaque, whereas the use of a soft small head toothbrush is recommended instead.

Further research is needed to determine the most effective way to perform oral hygiene care in critically ill patients as well as deciding on the most

appropriate frequency of oral care. Research is also needed to determine the impact of oral health and improved oral health status on patients' outcome.

Governance/ethical issues.

Recommended evaluation measures for this project would include a post implementation audit of the nurse's knowledge pertaining to oral hygiene. An evaluation on the amount and cost of oral hygiene products ordered for the ICU, and an audit of nursing documentation of oral care, this would be done twice a year in the first year and then yearly afterwards.

8. 0 Patient/ clients

Frequent mouth care is required to prevent induced infections. Johnson & Chalmers, (2002). This would also reduce the use of antibiotics, which in turn would reduce the risk of antibiotic resistance.

Decreasing the occurrence of VAP leads to a decrease in mortality rate, length of stay, patient costs, and hospital costs.

Service provision/delivery/organisation

Critical care nurses frequently perform oral hygiene according to their individual rationales (Moss, 2004). This preference is commonly based on a combination of availability of one product over another and the nurse's experience and knowledge underpinning this practice. Therefore, if a change in practice, supported by best evidence, is to be accomplished it is important to have a clear understanding of what is meant by evidence based practice. According to Courtney (2005) evidence based practice is the " conscientious, explicit and judicious use of current best evidence in making decisions about

the care of individual patients. It involves the integration of " clinical expertise with the best available clinical evidence from systematic research and patient values to ensure the delivery of the most appropriate and cost effective care." (Courtney 2005)

Evidence indicates that oral care provision for mechanically ventilated patients can be improved by providing oral care education, providing nursing staff with adequate time, reducing the perception that oral care is unpleasant and making oral care a priority in ICUs.

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