

Interventions for ventilator associated pneumonia



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Ventilator associated pneumonia is defined as pneumonia developing in persons who have received mechanical ventilation for at least 48 hours (Shi et al., 2010). It is a major threat to critically ill patients receiving mechanical ventilation (Feider, Mitchell, & Bridges, 2010) and it is the most common complication of patients in Intensive Care Units (Soh et al., 2011).

Nosocomial pneumonia is caused by bacteria that colonize within the oral cavity of patients in the ICUs (Ewig et al., 1998). Bad oral health is pivotal in the pathogenesis of this harmful complication (Blot, Vandijck & Labeau, 2008). Thus, good oral hygiene measure has a critical role in preventing the spread of these bacteria from the oral cavity to the lower respiratory tract thereby reducing the chances of nosocomial pneumonia (McNeill, 2000 cited in Abidia, 2007).

There are a couple of interventions which are recommended to prevent Ventilator - Associated Pneumonia. The Institute of Healthcare Improvement suggested the VAP bundle of interventions in preventing Ventilator Associated Pneumonia. (Fields, 2008) In addition to these interventions, oral hygiene care is a nursing intervention that may also help prevent ventilator-associated pneumonia (Feider, Mitchell & Bridges, 2010). Evidence shows that comprehensive oral care is an effective preventive strategy to reduce the risk of ventilator-associated pneumonia in patients receiving mechanical ventilation (Cutler & Davis, 2005). There are a lot of research studies supporting oral hygiene care in reducing VAP cases among mechanically ventilated patients. In the study of Mori et al., (2006), the incidence of VAP was significantly lower in patients who received oral care than the patients who did not. Similarly, Fields' (2008) study showed that VAP rate dropped to

zero within a week of beginning the every hours tooth brushing regimen in the intervention group. Another study shows that pneumonia, febrile days, and death from pneumonia decreased significantly in patients with oral care (Yoneyama et al., 2002). Various methods and equipment in providing oral care for intubated patients were also studied. Toothbrushes and topical antimicrobials (Binkley, Furr, Carrico & McCurren, 2004; Grap, Munro, Ashtiani & Bryant, 2003), oral decontamination (Bergmans et al., 2001) and oropharyngeal decontamination with 0. 12% Chlorhexidine Gluconate oral rinse (Shi et al., 2010; Tantipong, Morkchareonpong, Jaiyindee & Thamlikitkul, 2008; Koeman et al., 2006; Houston et al., 2002; Genuit, Bochicchio, Napolitano, McCarter & Roghman, 2001; DeRiso, Ladowski, Dillon, Justice & Peterson, 1996) were found to be effective in reducing the bacteria in the mouth and in reducing the incidence of VAP.

The AACN (2010) came up with a comprehensive oral hygiene program for patients in critical care and acute care settings who are at high risk for ventilator-associated pneumonia. This includes brushing teeth, gums and tongue at least twice a day using a soft pediatric or adult toothbrush; providing oral moisturizing to oral mucosa and lips every 2 to 4 hours; and using an oral chlorhexidine gluconate (0. 12%) rinse twice a day during the perioperative period for adult patients who undergo cardiac surgery. The routine use of oral chlorhexidine gluconate (0. 12%) in other populations is not recommended at this time. These interventions are supported by the existing evidence of oral hygiene.

Past research studies have focused on assessing the oral care knowledge, attitude and practices among ICU nurses. Studies had shown that ICU nurses

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lack sufficient knowledge on oral care (Jordan, Badovinac, Špalj, Par, Šlaj & PlanĀtak, 2014; Chan & Hui-Ling Ng, 2012). The methods used to provide oral care were also found to be varied between nurses in the same unit (Soh et al., 2011; Chan & Hui-Ling Ng, 2012). Moreover, the oral care currently provided in ICUs may be ineffective in eradicating dental plaque and respiratory pathogens that may cause VAP to ventilated patients (Binkley, Furr, Carrico, & McCurren, 2004). There was also existing discrepancies between reported practices and policies on oral care provided to intubated patients (Feider, Mitchell & Bridges, 2010). Though oral care is perceived to be high priority in mechanically ventilated patients, difficulties, problems and barriers still exist in providing the care (Rello et al., 2007; Feider, Mitchell & Bridges, 2010; Soh, Soh, Japar, Raman & Davidson, 2011). These challenges include mechanical barriers and equipment issues, perception on the importance of oral care and empathy to patients' discomfort by nurses, altered patient sensory perception and discomfort, and communication problems. (Berry & Davidson, 2006) The existence of variation in oral care practices, the ineffective provision of oral care and the lack of sufficient knowledge of ICU nurses warrants a standardized protocol or guideline that is based on existing evidence. (Soh et al., 2011; Lin, Chang, Chang & Lou, 2011)

In the past years, Evidence - Based Practice (EBP) is gaining its momentum in the healthcare sector. It has been the focus of discussions and research in the medical field. Its importance to the medical practice has been evident and thus encouraged to be integrated in the practice. However, translating evidence into clinical practice remains a big challenge at the moment.

Significant gaps between what is known to improve health, and what is done to improve health is evident (Holmes, Scarrow & Schellenberg, 2012). These gaps maybe caused by unawareness or unfamiliarity of clinicians to EBP guidelines or recommendations; or the clinician's disbelief towards the EBP recommendations; or the clinician's personal opinion on the recommended management; or the clinicians' perception that the guideline is too complicated or difficult to use in their own practices; patient-related factors; and the mentality that altering established practice is often difficult. (Pierson, 2009) Evidence - based guidelines for providing oral care to patients in mechanical ventilators were formulated by international organizations, but, not all intensive care unit nurses are knowledgeable about it. Past study indicated that nurses lacked the evidence-based knowledge to deliver proper care (Chan, Lee, Poh, Ng & Prabhakaran, 2011). In addition, a study also showed that ICU nurses did not follow procedures and steps recommended by current evidence-based practice (Lin, Chang, Chang & Lou, 2009). Various knowledge translation strategies such as opinion leaders, audits and feedback, small group consensus, provider reminder systems, incentives, clinical information systems, and computer decision support systems can be utilized to integrate EBP into the clinical world. These knowledge translation strategies should be attempted and researched in clinical setting and should be used to further improve clinical practice. (Ganz et al, 2013)

Therefore, the focus of this current research is to translate knowledge of Evidence based oral care practice guideline for mechanically ventilated adult ICU patients to clinical practice using a provider reminder system strategy. Further, it will determine the effect of the provider reminded system strategy

in improving the Evidence - Based oral care practices for mechanically ventilated patients among ICU nurses. Provider reminder system is one of the Quality Improvement (QI) strategies. Example of provider reminder system includes reminders in charts for providers, computer - based reminders for providers, and computer - based decision support. (Hughes & Hughes, 2008)