# Delegation, Documentation, and Knowledge of Evidence-Based Practice for Oral Hygiene

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*To improve oral hygiene practice for patients on medical-surgical units, authors examined knowledge, practice, documentation, and delegation of oral hygiene among registered nurses and certified nursing assistants.*

Oral care is a primary component in the prevention of hospital-acquired infection (Hanne, Ingelise, Linda, & Ulrich, 2012). Evidence-based protocols have been established for the management of patients in the intensive care unit (ICU) and are deemed effective in reducing the incidence of ventilator-associated pneumonia (Munro, 2014). However, previous research found many nurses fail to integrate current evidence into practice (Chan & Ng, 2012). Research on the topic of oral health has been focused primarily on patients in the ICU, with variations in oral care protocols (Parsons, Lee, Strickert, & Trumpp, 2013). Munro (2014) strongly recommended further research outside the ICU to improve quality of care in other settings.

Multiple factors may contribute to the delivery or omission of oral care for medical-surgical patients. For example, Chipps and colleagues (2014) suggested oral care may not be considered a high priority. In addition, efforts to provide efficient, cost-effective care include use of registered nurses (RNs) and nursing assistants to deliver hospital-based care, resulting in a potential for role blurring and conflict (Kalisch, 2015). Hill, Tuck, Ranner, Davies, and Bolieiro-Amaral (2014) stressed the importance of the RN's role in completion of oral care assessment and his or her accountability for delegation to the nursing assistant. Because patient care outcomes are influenced by the skill mix of care providers, research should address not only the hospital unit but also the staff member providing oral care for medical-surgical patients (Kalisch, 2015).

## Research Questions

The following research questions were used for this study:

1. What is the current level of knowledge regarding evidence-based oral hygiene among nurses and certified nursing assistants (CNAs)?
2. Does the completion of an evidence-based program improve the frequency of oral assessments, oral hygiene care, and documentation by nurses and CNAs?
3. How does delegation of oral hygiene affect the frequency and documentation of patient oral care?

## Review of Literature

A lack of research exists for adult medical-surgical patients and oral care. An extensive literature search (2009-2015) was conducted before and after study completion in CINAHL, Ovid MEDLINE, and Evidence-based Medicine, including the Cochrane Library, for English-language literature. The following key words were used: *oral hygiene, dental hygiene, dental care, oral care, oral health promotion,* and *inpatients*.

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Prior research predominantly included specialized patient groups and nurses (Chan & Ng, 2012; Chipps et al., 2014; Perry, Hiroko, & Patton, 2015). Although the few existing studies are not considered recent publications, their inclusion here is relevant to discussion of oral health in hospitalized patients.

Chan and Ng (2012) used a 31-item questionnaire to assess attitudes, knowledge, and oral care practices of nurses caring for critically ill patients. A response rate of 97% ($n$=244) was reported. Key findings indicated nurses' oral care knowledge varied with education ($p$=0.019). The clear majority of nurses (80.2%, $n$=194) agreed or strongly agreed with the need for more research-proven oral care standards. Researchers noted the limited generalizability of the findings beyond the ICU setting.

Pai and Ongole (2015) used a cross-sectional survey design to assess the knowledge of 158 oncology nurses with at least 1 year of oncology experience working in four hospitals in India. The study was conducted over 4 months. Most nurses (51.3%, $n$=81) had poor knowledge of oral care in patients with cancer. When questioned, 115 nurses (72.8%) reported lacking basic education for oral care specific to patients with cancer. Authors suggested the need for assessment of existing practices, development of training modules specific to management of patients with cancer, and use of evidence-based protocols for oral care.

Gravlin and Bittner (2010) investigated frequency of and reasons for missed nursing care using a survey and questionnaire in a quantitative, descriptive, exploratory study. Mouth care was one of the most frequently reported missed nursing care items by RNs and nursing assistants, with 84% of RNs ($n$=241) and 44% of nursing assistants ($n$=99) reporting this finding. Communication, competence, and knowledge of the assistant were factors affecting the success of delegation.

Kessler, Heron, Dopson, Magee, and Swain (2010) completed a three-phase mixed-methods study to investigate the nature and consequences of nursing assistants in a hospital setting. Observational data ($n$=275) indicated nursing assistants spend more time providing direct personal care to patients than nurses do. Former patient survey findings for overall ratings of oral care ($n$=1,651) noted a positive and significant relationship ($F$=52.20, $p$=0.000) between patients' knowledge of nursing role differences between RNs and nursing assistants, and quality of care. Recommendations included better role preparation for different aspects of the nursing assistant role and greater clarity on delegation of appropriate nursing tasks to nursing assistants.

Gibney, Wright, Sharma, and Naganathan (2015) surveyed 94 RNs and 37 nursing assistants on two aged care wards in different Australian hospitals. Their purpose was to identify current practice and barriers to oral care delivery. Patient care-resistive behaviors were designated by 57.4% of the nurses ($n$=54) and 41.7% ($n$=39) indicated no mouth care protocol existed. Recommendations were like those of Pai and Ongole (2015), but with a focus on older adult patients.

Kalisch, McLaughlin, and Dabney (2012) captured the patient perspective using semi-structured, face-to-face interviews. On seven patient care units in an acute care hospital, 38 inpatients described mouth care as one of the fully reportable missed items of nursing care. The nurses' role involved offering oral care supplies upon patient admission to the unit; however, this did not occur for a few patients. Patients in the ICU and rehabilitation unit reported more assistance with mouth care. Limitations of the study were not reported, but results supported the value placed on patients' perception of quality of care.

Prior investigators identified the need for additional research that considers use of delegation and effective methods for preparing unlicensed staff (Kalisch, 2015; Kessler et al., 2010). Development of optimal oral care interventions is needed in settings beyond ICU. This study adds new knowledge regarding delegation practices, role responsibilities, and appropriate educational methods for nursing assistants. Additionally, support for use of an oral care standard for medical-surgical patients is described.

## Ethics

Approval was obtained from the Institutional Review Board (IRB) at the study site before research began. The study was introduced in staff meetings with an explanation of voluntary participation. To protect anonymity, researchers provided respondents with a survey invitation letter; a separate signed informed consent was not required. In consultation with the IRB, a waiver for documentation of consent by patients was obtained because the study was guided by the evidence-based protocol and translational research for oral hygiene completed by Johnson and Chalmers (2011).

## Sample Selection

Patients admitted to the medical telemetry, stroke-designated unit (intervention), and two medical-surgical telemetry units (control) were engaged in the study. Standardized acuity tools and the Braden Scale were used to ensure patients with similar dependency needs were selected for enrollment. Although the proportion of patients who met the criteria for inclusion was different across the three units, enrolled patients were evaluated statistically and confirmed to be comparable by use of chi-square (acuity measures) and analysis of variance (Braden Scale). Nursing staff participants were drawn from approximately 316 nurses and 144 CNAs from all inpatient adult care areas.

Patient enrollment was completed November 8, 2010-March 31, 2011. Patients were selected from Monday-Friday admissions. Approximately nine patients were selected each week using census and acuity tools from each unit. Newly admit-

ted patients who met the following criteria were considered for inclusion in the study: dependent patients requiring assistance with feeding or having swallowing problems, having cognitive or functional impairment, or requiring assistance with oral hygiene or dependent on a caregiver for daily care (Johnson, 2012). The treatment group included 133 patients; 113 patients met inclusion criteria from the control units. Study inclusion criteria and unit-based acuity tools were used to designate patients from 1 (*highest acuity*) to 4 (*lowest acuity*). This standardization allowed researchers to classify patients' likelihood for needing assistance and helped assure complete random selection of patients for inclusion.

## Design and Methods

This study was conducted at a 250-bed Level 1 trauma center in the midwestern United States. A quasi-experimental, nonrandomized prospective design with a nonequivalent comparison group of patients was used. Based on an intent-to-treat analysis, researchers determined all patients would receive oral care as a routine, expected part of nursing care at the study site. A pre-posttest design was used to determine the impact of an educational intervention on nurses and CNAs. The study was completed in four phases:

1. Assessment of knowledge of RNs and CNAs through use of a pretest before a formal education session; baseline audit of electronic medical records (EMR) for frequency of oral assessment
2. Education of staff using a newly developed evidence-based oral care protocol (intervention)
3. Assessment of knowledge following completion of the education session (post-test)
4. Implementation of the oral care protocol and alignment of nursing practice across medical-surgical units
    a. Standardized oral care management, including assessment, frequency, indications for product use, delegation, and documentation requirements for CNAs and RNs
    b. For treatment groups, a prepackaged oral care kit with six individually wrapped options for oral care before and after meals available to nursing staff in patient rooms; for comparison control group, standard products (swabs, toothbrushes, mouth-moisturizer) available on the unit in clean supply areas.

After collection of baseline data, all nurses and CNAs on participating units received mandatory education in late October before the implementation of the oral care protocol. Nurses and CNAs from the internal float pool (supplemental staff) were partnered with treatment unit staff because of likely assignment. Separate educational sessions were scripted and delivered by two researchers to ensure all participants received the same information. Educational programs encompassed evidence-based recommendations for oral care, delegation, and frequency and documentation of oral care and product use. Researchers reviewed and approved an additional 10-minute education segment provided to treatment unit staff by a representative from Sage Products, Inc. (Cary, IL). Nurses were instructed to use nursing judgment, the evidence-based protocol, and autonomy for selection of products used in the care of patients. A voluntary post-test using the same pre-test questions (reordered) was provided to all staff.

Data collection began within 1 week after completion of education on participating units. During the 3-month data collection period, nurses on the treatment unit were given the option of using a prepackaged oral care kit to deliver oral hygiene. A paper audit tool was used to document staff members' role for oral care completion and product usage. This tool validated the accuracy of electronic oral care documentation through weekly comparison by the researchers.

## Instrument – Questionnaire

Questions regarding evidence-based oral care were developed using previous studies and guidelines (Johnson & Chalmers, 2011). The pre-survey contained three sections: oral care practices, evidence-based knowledge, and delegation. Separate surveys for RNs and CNAs were used as different questions were needed to assess delegation and documentation from role perspective. Ten evidence-based knowledge questions were used in various formats (e.g., true-false, multiple choice, multiple response). Current position, years of nursing experience, highest nursing degree, years of ICU experience, and designated unit also were obtained. The frequency of performing certain actions, including documentation, delegation, and communication, was obtained from RNs and CNAs.

## Findings

To assure comparability of the participating units, researchers used one-way analysis of variance (ANOVA) to test for differences before units were combined for analysis. Pre- and post-knowledge tests were analyzed using *t*-tests for independent samples. Rates were examined using nonparametric statistics. Data were analyzed using IBM Statistical Package for Social Sciences (SPSS) version 19.0 (IBM SPSS Inc.; Armonk, NY).

The pre-survey response rate for nurses was 33.5% ($n$=106) and 38.9% for CNAs ($n$=56). In the second phase of the study, 105 nurses (33.2%) and 68 CNAs (47.2%) from treatment and control units as well as the supplemental staff attended the education program. The post-test was optional following the education program.

### Question One

No significant differences were found across units for nurses or CNAs. However, pre-survey results demonstrated significant difference between the knowledge level of nurses versus CNAs ($p$<0.01). Nurses

**TABLE 1.**
**Participant Survey: Comparison of Percentage Correct Answers, RNs, and CNAs**

| Question | RN | | CNA | |
|---|---|---|---|---|
| | *N*=106 | *N*=105 | *N*=56 | *N*=68 |
| | Pre-Test | Post-Test | Pre-Test | Post-Test |
| 1. Research has shown that foam swabs (toothettes) are more effective than tooth brushing for plaque removal. (T/F) | 80.2 | 96.2 | 73.2 | 92.6 |
| 2. If the patient has an oral infection, protocol recommends oral care be completed... (M/C) | 70.1 | 83.8 | 55.4 | 72.1 |
| 3. Standardized oral care practice increases the risk of aspiration pneumonia to susceptible patients by introducing more microorganisms into the oral cavity. (T/F) | 81.3* | 82.9** | 53.6 | 60.3 |
| 4. Xerostomia is... (M/C) | 59.8 | 92.4** | 51.8 | 69.1 |
| 5. Dental plaque is capable of becoming colonized with MRSA. (T/F) | 83.2 | 96.2** | 73.2 | 85.3 |
| 6. Which statement about denture care is false? (M/C) | 79.4* | 90.5** | 57.1 | 69.1 |
| 7. Lemon glycerin swabs are useful in moisturizing the oral mucosa. (T/F) | 22.4 | 89.5 | 12.5 | 85.3 |
| 8. Those at increased risk for oral diseases include: (M/C) | 97.2* | 91.4 | 82.1 | 83.8 |
| 9. Low levels of saliva influence the development of dental caries by causing the oral environment to become more alkaline. (T/F) | 15.9 | 67.6** | 14.3 | 38.2 |
| 10. Which of the following factors influence the need for an oral assessment to be completed every shift? (M/R) | | | | |
| a. Age | 87.9 | 85.7** | 80.4 | 73.5 |
| b. Cognitive level | 92.5 | 91.4** | 83.9 | 79.4 |
| c. Prescribed medications | 91.6* | 79.0 | 69.6 | 67.6 |
| d. Diet modifications | 90.7* | 86.7** | 75.0 | 67.6 |
| Total Score: # ^ | 73.1 ± 16.9*** | 87.2 ± 17.3**** | 60.2 ± 16.0 | 72.6 ± 22.2 |

M/C = multiple choice; M/R = multiple response; T/F = true/false; questions 1, 4, 6-10 referenced by Johnson & Chalmers, 2011
* Contingency coefficient significant ($p$<0.05) indicating percentage correct different at pre-test on these items.
** Contingency coefficient significant ($p$<0.05) indicating percentage correct different at post-test on these items.
*** RN and CNA total scores significantly different at pre-test ($t$=4.716, $df$=160, $p$<0. 01)
**** RN and CNA total scores significantly different at post-test ($t$=4.585, $df$=118.321, $p$<0.01)
#RNs' total score significantly higher at post-test ($t$= -5.998, $df$=209, $p$<0.01)
^ CNAs' total score significantly higher at post-test ($t$= -3.626, $df$=120.06, $p$<0.01)

scored significantly higher, but both groups demonstrated learning needs regarding current evidence for oral care management. At the post-test, a significant difference in knowledge existed between nurses and CNAs, with both groups making substantial gains in knowledge scores ($p$<0.01) (see Table 1).

A higher level of evidence-based knowledge was noted among the RNs on question-by-question analyses. The contingency coefficient was significant ($p$<0.05) for more than half the questions, indicating RNs had a higher percentage of correct answers compared to CNAs. An 80% cut-point was determined as an acceptable passing score for both groups. The topics that failed to reach the target included saliva levels and prescribed medications (RNs and CNAs), and age, aspiration, cognitive level, denture care, diet, protocol recommendations, and xerostomia (CNAs only).

## Question Two

Randomized chart audits were completed on inpatient units on five dates. Pre-study chart audits revealed minimal documentation; only 22% of the selected records contained a documented oral assessment and 18% included a reference to oral hygiene. After the education session, control and treatment units were reassessed. Information on documentation of oral assessment was collected only if it was noted in

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the EMR restricted to RN documentation area (CPM Resource Center, 2012). Interventions were considered if they were selected from the available choices or specific comments were documented about oral care interventions. A two-way contingency table analysis revealed significant differences in the frequency of assessment among the nurses on the treatment unit compared to the control unit (Pearson $\chi^2$ = 47.28, *df*=4, *p*=0.000). Nurses on the treatment unit documented an oral assessment at least every 8 hours for 72% of patient days (*n*=282) compared to the control units, where 50.7% of patient days (*n*=144) had a nurse assessment every 8 hours or more often. No assessment was noted in the EMR for 16.1% of patient days (*n*=63) on the treatment unit compared to 36.6% of patient days (*n*=104) on the control unit. Documentation for all study units improved from the pre-study audit.

### Question Three

RNs and CNAs received education on delegation responsibilities, with requirement of RN assessment once per shift. For challenging patients, RNs were given the option to provide oral care rather than delegate the task to CNAs. If problems were noted, RNs were expected to reassess the situation and provide oral care if a higher level of skill/knowledge was needed.

A significant difference was found between treatment and control units on the amount of care provided by the RNs (Pearson $\chi^2$ =70.147, *df*=2, *p*=0.000). On the treatment units, no oral care was provided by RNs on 68.4% of the patient days (*n*=270); however, for 12.4% of patient days (*n*=49), oral care was provided at least once by RNs. Oral care by RNs was provided almost exclusively to patients categorized as the highest acuity. On the control units, oral care was not documented by RNs on 85.2% of patient days (*n*=281).

For frequency of oral care provided by CNAs, significant differences were found between treatment and control units (Pearson $\chi^2$ =174.09, *p*=0.000). Oral care was performed one to five times on the majority of patient days (67.2%, *n*=266), with the most frequent report being at least once daily (18.9%, *n*=75) on the treatment unit. On the control unit, CNAs reported providing oral care one to two times per patient day (49.1%, *n*=162). Documentation was absent on 12.9% of patient days (*n*=51) on the treatment unit compared to 34.2% of patient days (*n*=113) on control units.

## Discussion

Results of this study supported other findings of a lack of knowledge regarding evidence-based practices for oral care (Chan & Ng, 2012; Pai & Ongole, 2015). Despite designation of oral care as basic care, education specific to each caregiver may result in better knowledge retention (Kessler et al., 2010). The CNA curriculum should emphasize skills, task importance, and symptom reporting. CNAs can be instructed to report complaints of dry mouth, visible symptoms such as dry lips, and requests for additional fluids. Approximately 40% of RNs (*n*=103) reported they frequently perform an oral assessment before oral care is completed by CNAs. Interestingly, only 21.7% of CNAs (*n*=56) in the pre-survey questionnaire indicated they frequently reported an abnormal finding to an RN. These results confirmed previous findings of communication breakdown with delegation; huddles and debriefings may be effective strategies to improve RN/CNA communication and avoid care omissions (Gravlin & Bittner, 2010).

A need exists for a standardized evidence-based protocol. For example, the frequency of missed oral care by CNAs on the control units was slightly less (34.2%, *n*=113) than reported by Gravlin and Bittner (2010). In that study, 44% of mouth care (*n*=99) was reported as missed by nursing assistants. Findings of the current study supported the frequency of documentation and provision of oral care by CNAs. More CNAs were likely to document oral care on the treatment unit.

Oral assessment and its importance were noted by nurses, but not all nurses indicated they complete an assessment even during patient admission; these findings are significantly different than those reported more recently by Gibney and colleagues (2015), who noted nurses did not complete an oral assessment as it was not required. On the treatment unit, oral assessment was documented more frequently (commonly every 8 hours). Because patient acuity was higher on the treatment unit, oral assessment may have been viewed by nurses as more important.

Although oral care was primarily a delegated task, RNs on the treatment unit performed oral care for patients. Electronic and paper documentation indicated CNAs assume the primary responsibility for documentation and completion of oral care. This study supports the need for increased education for CNAs regarding frequency, process, and associated risks in providing oral hygiene in the hospital setting. Gibney and co-authors (2015) acknowledged the need to expand nurses' education beyond basic education, confirming the knowledge deficits reported here.

## Limitations

Study findings are from one hospital and thus do not reflect nursing management of patients on medical-surgical units in other hospitals. Survey questions, although drawn from the literature, were not used in prior studies. Educational preparation of RNs and CNAs may

have impacted the results, as well as differences between treatment and control settings. Potential bias in the results may exist because units to which supplemental staff were assigned could not be controlled by researchers.

## Recommendations for Future Research

Further research focused on older adults on medical-surgical units could advance oral care practice recommendations for this complex patient group. Delegation practices that include oral care, more specifically between RNs and nursing assistants during handoffs, should be studied. With the mandate for EMRs in health care, the presence or lack of documentation fields for oral care assessment and management may impact oral care practices. A retrospective chart review could be performed as a multi-site study. Common data elements for oral care documentation also should be studied. Standardized protocols and educational programs for healthcare workers related to oral care could be compared for simplicity and effectiveness.

## Nursing Implications

Evidence from this study indicated a lack of knowledge concerning delegation practices. Role delineation and appropriate delegation provide a means for evaluation of accountability within the unit. Prevention of higher mortality rates, increased lengths of stay associated with complications, better patient satisfaction, and higher costs are important reasons for designing education programs for basic nursing care by CNAs (Fernández & Clavé, 2013; Kessler et al., 2010).

Accountability for the completion of oral care rests with nurses (Kalisch, 2015). Nurses can help create succinct guidelines that include expectations for documentation and delegation, and reporting of suspicious findings and patient complaints. Increased awareness of delegation principles may contribute to improved reassessment and evaluation of completed tasks. Given typically reported time constraints, an expectation of at least twice-daily oral care may be more achievable for medical-surgical patients. Nurses can determine when the need for more frequent oral care exists. Open communication between nursing assistants and RNs is vital to providing basic care.

## Conclusion

Elevating oral care as a priority in the eyes of nurses and CNAs is essential to the provision of quality care within medical-surgical units (Chipps et al., 2014). Patients will benefit in multiple ways from a focus on consistent delivery of oral care by nursing personnel. This study, which provides a perspective that was missing from the literature, will help to inform the standardization of practice for oral care within the medical-surgical setting. MSN


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