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Feature Article

Observations of oral hygiene care interventions provided by nurses to hospitalized older people

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ABSTRACT

Dependent older hospitalized patients rely on nurses to assist them with the removal of plaque from their teeth, dentures, and oral cavities. Oral care interventions by 25 nurses on post-acute units, where patients have longer hospital stays, were observed during evening care. In addition to efforts to engage patients in oral care, nurses provided the following interventions: (a) supporting the care of persons with dentures; (b) supporting the care of natural teeth; (c) cleansing the tongue and oral cavity; and (d) moisturizing lips and oral tissues. Patients' oral hygiene care was supported in just over one-third of encounters. Denture care was inconsistently performed, and was infrequently followed by care of the oral cavity. Nurses did not encourage adequate self-care of natural teeth by patients, and infrequently moisturized tissues. Evidence-based oral hygiene care standards are required to assist nurses to support patients in achieving optimal oral hygiene outcomes.

Introduction

In older hospitalized patients, poor oral hygiene can contribute to the build up of plaque, a sticky biofilm that hosts microorganisms on teeth and dentures. More recently it has been shown (though suspected for some time) that as undisturbed plaque matures, it allows the growth of opportunistic respiratory pathogens that contribute to aspiration pneumonia and hospital-acquired pneumonia.[1] Plaque build-up can also contribute to gingivitis and periodontitis that can lead to other potentially deadly systemic diseases such as ischemic stroke, carotid atherosclerosis, and poor glycemic control in diabetes.[1,2] Plaque that has formed on the surfaces of removable dentures can have a significant impact on oral health, as it can lead to infection of mucosa (denture stomatitis), gum inflammation (gingivitis) and tooth decay.[3] Tongues are also reservoirs for bacteria (especially *Candida* sp., *Streptococci* sp., and *Staphylococci* sp.) that can cause aspiration pneumonia and halitosis.[4] By removing dental and denture plaque and tongue coat when providing oral hygiene care, nurses can contribute not only to the oral health of older hospitalized patients but to their systemic health as well.

Some evidence-based practice guidelines are silent on the recommended frequency of oral hygiene care while others recommend that it be provided at least twice each day during morning and evening care.[5,6] Bedtime oral hygiene care is important because salivary flow is reduced through the night and sugary debris should be removed. Silent aspiration of secretions that could contain pathogenic bacteria takes place during sleep.[7] Evening oral hygiene care was shown to be an important indicator of mortality in a longitudinal study.[8] Adults who brushed every day during the daytime, but not every night, had a 13–26% increased mortality risk.

Specific oral hygiene care interventions provided by nurses in hospitals, at least outside of critical care, are not well understood. Nurses document, often by way of a checkmark on a paper flow sheet or its electronic equivalent, that oral care or mouth care was completed, but such flowsheets infrequently support nurses in describing the specific elements of oral care they provided. Thus, the checkmark may refer to activities ranging from simply swabbing the mouth with water all the way to a combination of brushing with fluoride paste, flossing, and rinsing with antibacterial mouthrinse.

A few studies have investigated nurses' oral hygiene care interventions using survey methods and focus groups,[9,10] but

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self-reporting those practices is a limitation in that such methods may lead to biases associated with social desirability and recall. Observational methods, on the other hand, can be valuable approaches to address discrepancies between what nurses say when interviewed or surveyed and what they actually do.

Direct observations of oral care provided by nurses in hospital settings (outside of critical care) have not been reported in the years since the oral-systemic connection has become known. However, structured observations were used in three studies in long term care settings, mostly with nurse assistants, and the authors considered observed practices to be suboptimal and inconsistent with what was reported elsewhere in the literature.[11–13] The purpose of this paper is to report on the actual oral hygiene care interventions nurses were observed to provide to patients in post-acute hospital settings during their evening rounds.

Methods

The study was conducted on five inpatient units where patients were likely to require assistance with their oral hygiene care – one at each of five hospital sites in a large city in Southern Ontario, Canada. In those settings, older patients having an extended hospital stay (i.e., longer than a few days) were cared for on hospital-based complex continuing care or rehabilitation units, or on alternate level of care (ALC) medical units where patients were often awaiting long term care or complex continuing care.

Nurses were shadowed (one per evening) during their evening care encounters with their assigned patients. The observations were not structured using a checklist of activities; rather, they were unstructured in that the observer described the interventions that were provided and then categorized them during data analysis.

Participating nurses included a mix of Registered Practical Nurses (RPNs) and Registered Nurses (RNs). RPNs in Ontario have earned a diploma in practical nursing by completing a two-year college program, or may some time ago have earned a certificate which in the past allowed them to write the national registration examination. RNs in Ontario have completed a four-year university nursing program leading to a Bachelor of Science in Nursing, or may have earned a diploma which some time ago allowed them to write the national registration examination.[14]

Data from shadowing were grounded in actual events, not a reconstruction of events as in interviews or focus groups, and provided insight into invisible elements of the participant's work.[15,16] The main advantage of shadowing is the ability to be mobile and study participants as they move about,[17] and this allows the researcher to come to understand elements of work that may be missed through interviews or focus groups.[16] In addition to being observed, nurses were engaged in conversation during the evening, and these conversations were audiotaped with consent of the nurse participants. Patients were not interviewed, nor were their health records examined. The study received ethics approval from the Hamilton Integrated Research Ethics Board (#13-632).

Results

Twenty-five RNs and RPNs were observed as they interacted with their assigned patients – a total of 185 encounters with older patients. Table 1 illustrates nurses' efforts toward engaging patients in oral hygiene care. Their approaches ranged from offering help to not mentioning oral care to their patients at all. The patient received some type of oral hygiene intervention in 36% of encounters ($n = 66$); oral care did not take place in 26% of encounters ($n = 48$); and in 38% of encounters ($n = 71$), the nurse did not have first-hand knowledge of whether or not oral care took place. In more than one-third of encounters ($n = 70$), patients were not asked about their oral care or offered any help.

Table 1
Nurses' efforts to engage patients in oral hygiene care.

	n (%)
Patient received oral hygiene care at bedtime	
The nurse offered and the patient accepted support with oral care	64 (34.6)
The nurse knew that family had done bedtime oral care	2 (1.1)
Patient did not receive or complete oral hygiene care at bedtime	
The nurse reminded or offered to help with oral care, but patient declined	25 (13.5)
The nurse did not offer oral care to patient who appeared to be care-dependent	16 (8.6)
The nurse chose not to offer oral care to agitated patient	3 (1.6)
The nurse knew the patient refuses, so didn't ask	3 (1.6)
The nurse chose not to awaken patient for oral care	1 (0.5)
Patient may not have completed oral hygiene care at bedtime	
The nurse did not ask if patient completed oral care	47 (25.4)
The nurse offered oral care to a patient who appeared to be dependent for care, but patient said it had been done and nurse did not pursue	15 (8.1)
The nurse reminded or asked a patient who appeared to be independent for care if care had been done	9 (4.9)
Total encounters	185

Oral care was declined by the patient or said to have already been done in over 20% of patient encounters, but nurses did not pursue things further with these care-dependent patients, and took "no" for an answer. This notion of oral hygiene care as an elective intervention distinguished it from other observed nursing interventions such as wound care, turning and repositioning, medication administration, capillary blood glucose testing, and vital signs monitoring that were also observed being provided in the evening.

In the 36% of encounters where oral hygiene care actually took place, the interventions consisted of (a) supporting the care of persons with dentures; (b) supporting the brushing of natural teeth; (c) cleansing the tongue and oral cavity; and (d) moisturizing lips and oral tissues.

Denture care

Care of the person with dentures was observed in 40 encounters, and a variety of cleansing routines took place. In some of those encounters, dentures were brushed with a toothbrush by the nurse ($n = 12$), using either toothpaste ($n = 8$) or water ($n = 4$). Nurses cued the patient to brush dentures during five other encounters. Those 17 denture brushing episodes were followed by soaking the dentures in water with an effervescent denture cleansing tablet ($n = 10$) or in plain water ($n = 1$). In the remaining 6 episodes, dentures were replaced in the mouth and not soaked overnight.

Other denture care interventions included: cleaning the denture with a foam swab dipped in a brand of hospital-issued mouthrinse that had no active ingredients, i.e., no antibacterial properties ($n = 1$); and soaking unbrushed dentures in water ($n = 4$) or in water into which had been placed an effervescent denture cleansing tablet ($n = 9$). On two occasions, patients brushed their dentures in situ while being supervised by the nurse, though in one case the nurse realized what was happening and helped clean the dentures after removing them. In five encounters, dentures were left in the mouth overnight without cleaning; in three cases, denture care was mentioned in the encounter but ultimately overlooked.

Cleansing the mouths of patients with dentures took place rarely: one patient's mouth was swabbed with a foam swab dipped