**Background**  Oral care plays a clear and important role in the prevention of ventilator-associated pneumonia. However, few studies have explored the actual work of oral care by nurses in the intensive care unit.

**Objective**  To explore intensive care nurses’ knowledge of and experiences with the delivery of oral care to reveal less visible aspects of this work.

**Methods**  In an institutional ethnography, go-along and semistructured interview methods were used to explore the oral care practices and perspectives of 12 bedside nurses and 12 interprofessional (intensivist, allied health, and management) participants in an intensive care unit at a large urban teaching hospital in Ontario, Canada.

**Results**  Nurses described how obstacles frequently inhibited the delivery of oral care. Technical barriers included oral crowding with tubes and aversive responses by patients, such as biting. Contextual impediments to oral care included time constraints, lack of training, and limited opportunities for interprofessional collaboration. A key discovery was the presence of an informal unit-based nursing curriculum, whereby nurses acquired strategies to overcome barriers to oral care. Although the nurses did extensive problem solving in providing oral care, the interprofessional participants had limited knowledge of how oral care was accomplished.

**Conclusion**  These data suggest the complexity of performing oral care in intensive care is underestimated and perhaps undervalued. Future research is needed to address technical and contextual barriers to optimize current guideline expectations for the provision of regular and effective oral care.  *(American Journal of Critical Care. 2016;25:249-256)*
The accumulation of bacteria-rich oral biofilms in intensive care unit (ICU) patients who are intubated and receiving mechanical ventilation is associated with ventilator-associated pneumonia (VAP).1,2 Defined as pneumonia that occurs 48 hours or more after endotracheal intubation, VAP is estimated to occur in 9% to 27% of all patients treated with mechanical ventilation and is associated with an extended hospitalization and added treatment costs.3,4 To mitigate VAP, the US Centers for Disease Control and Prevention recommends a comprehensive program of oral hygiene,5 and written unit protocols are advised.6,7 Unfortunately, nurses report challenges in delivering oral care. Patient, clinician, and contextual barriers can inhibit preventive oral care.8-10 Despite expectations that effective therapies are used,11,12 no detailed accounts of nurses’ experiences and challenges in providing oral care are available.13,14

Institutional ethnography (IE) provides a reflexive-materialist framework for thinking more purposefully about institutional practices, in this instance, oral care. Reflexively bypassing assumptions that oral care is a “basic” task, we used IE to consider how nurses negotiate the competing priorities and material conditions associated with oral care. Paying close attention to texts (paper and electronic), we examined how important oral care accountabilities are organized via documents (eg, protocols, medical orders, nursing flow sheets) and what ICU nurses know about fulfilling the responsibilities of oral care. Because prominent ways of addressing oral care may emphasize some issues (eg, VAP) and delimit others (eg, challenges of oral care) we endeavored to remain attentive to assumptions and language that might obscure important knowledge of oral care.

With a primary focus on nursing perspectives, our goal was to explore ICU nurses’ knowledge of and experiences with the delivery of oral care to reveal less visible aspects of this care.

Methods
In line with materialist interests of IE,15 the study began with direct clinical observation to understand the rationales and challenges of oral care from “inside” nursing experience.16 In addition to observation and interviews, work documents were collected to create an empirical bridge between oral care, interprofessional work sequences, and larger institutional expectations for patient care.

Participants and Setting
Study participants included bedside ICU nurses and interprofessional members (intensivists, allied health and management personnel) of the ICU team. Purposive sampling was used to achieve variation in ICU nurses’ years of experience and interprofessional roles. Participants were recruited through posters in the ICU, e-mail, and point-of-care in-service education. Fieldwork was conducted during an 18-month period (June 2011-September 2012) in a 20-bed, adult level 3 (invasive ventilatory and multiple organ system support) medical-surgical ICU at an urban academic hospital in Ontario, Canada. In accordance with recommendations17,18 to prevent VAP, care providers on the unit used an oral care protocol that included an oral chlorhexidine gluconate rinse.19-21 Hospital and university institutional review boards approved the study.

Data Collection and Analysis
Two levels of interviews were used. First-level processes entailed 4-hour go-along interviews with each nurse to observe and learn about oral care for intubated adults. During go-along interviews, the principal investigator (C.D.) accompanied nursing participants during patient assignments to observe, listen, and ask questions in real time. During these

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mobile sessions, nurses acted as expert navigators by explaining and providing context for oral care at the bedside. Within 1 month, second-level semistructured interviews with the same nurses were completed to clarify and expand on the events and documentary practices observed. Semistructured interviews with other members of the interprofessional team were conducted to better understand interprofessionals’ knowledge of and linkages to oral care provided by bedside nurses (Table 1).

Researchers’ field notes, verbatim interview transcripts, and clinical work documents were uploaded to NVivo 9 software (QRS International) for storage and organization. Preliminary analysis involved reading data passages again to identify extended sequences of work activity that connected participants across time. Instances in which nurses demonstrated or spoke concretely about oral care problems were written up and circulated to the study team. Then important gaps between standardized ways of speaking or documenting oral care and the unscripted problems encountered by nurses were analyzed. The final analysis involved identifying technical issues and contextual work-arounds to consider opportunities for innovation.

Results

A total of 12 frontline nurses (8 women and 4 men) with 1 to 30 years of clinical experience and 12 interprofessional team members (9 women and 3 men) participated. Interprofessional participants included 3 intensivists, 4 nursing management personnel, and 5 allied health professionals (respiratory therapist, physiotherapist, speech language pathologist, infection-control specialist, and hospital dentist).

The main findings were assembled into 3 spheres of nursing knowledge and activity: standardized care routines, technical barriers to oral care, and contextual work-arounds. In general, bedside nurses identified how oral care was fraught with technical and contextual barriers that had to be overcome. Whereas nurses identified the need to work around these obstacles to provide recommended VAP therapies and oral hygiene, nonnurse participants had limited knowledge of how oral care was accomplished.

Standardized Care Routines

During go-along interviews, nurses disclosed how attention to oral care was organized through standardized medical orders and documentation. Institutional expectations for VAP prevention required the addition of oral chlorhexidine to medical order forms and in preformatted nursing documentation that served as reminders to apply this antiseptic. However, nurses explained how this standardized approach obscured important facets of oral care.

<table>
<thead>
<tr>
<th>Category</th>
<th>Questions</th>
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<tbody>
<tr>
<td>Go-along nursing interview questions</td>
<td>1. Can you tell me what you are doing (in the mouth) now? 2. What needs to happen next? 3. How do you know to do that? 4. Can you show me how you document this work?</td>
</tr>
<tr>
<td>Semistructured nursing and interdisciplinary interview questions</td>
<td>1. What are mouths like in the ICU? 2. Can you tell me about your work related to mouth care in the ICU? 3. Where did you learn to do this care? Tell me more about that. 4. Can you walk me through the forms you use in practice? Where does oral care fit?</td>
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</table>

(Notes: All names inside parentheses are participant pseudonyms.) One nurse (Frank) remarked, “The chlorhexidine mouthwashes are ordered QID and...” so then we usually do administer them at those specific times. But that doesn’t mean that mouth care only happens at those times. It’s just the chlorhexidine washes or rinses that happen at that time.”

This quote is illustrative of several nurses’ concerns that actual oral care (ie, care beyond the application of chlorhexidine) was not fully disclosed in the patient care record. For example, nurses demonstrated oral care requirements in addition to VAP. These needs included dry mouth, thirst, hypersalivation, pressure ulcers, and “neurobreath” (halitosis associated with neurological illness). Nurses explained that addressing and communicating these issues were important to patients’ comfort and dignity, in addition to prevention of infection. However, preset documentation fields for these issues were not provided in standardized charting accessed by all members of the ICU interprofessional team.

Despite the increased time nurses spent in narrative charting to document an array of oral problems and interventions, intensivists and allied health team members reported insufficient time to review narrative nursing notes. One intensivist (John) commented, “The narrative component of care is clearly really important. [But] it’s just hard for people to kind of pick out the details that are important, and I think a lot of the docs probably don’t ever look at the narrative part of the flow sheet.”

Whereas all interprofessional participants noted that oral care had a clear and important role in...
Nurses emphasized strategies and efficiencies that highlighted a commitment to oral care. safeguarding patients from adverse outcomes, these participants had limited awareness of how and when nurses provided this care. In contrast, nurses identified explicit strategies for the accomplishment of oral care in the unpredictable ICU. As one nurse (Bill) noted, “When you do your assessment, say your neuro exam, you have to check for a gag. And you have to report a cough. So, I suction and I do mouth care. That’s one of the things that I do. I kind of intertwine it in my assessment.”

Another nurse (Nicky) added, “When I repos-ition a patient, which we do every 2 hours, I’m usually assessing their oral care anyway because sometimes, as you turn them, you know they created secretions. So you’re having to do some sort of oral care at that point.”

In describing the incorporation of oral care across different domains of practice, nurses emphasized strategies and efficiencies that highlighted a commitment to oral care (Table 2).

Ongoing appraisal of a patient’s mouth by bedside nurses was included with the expectations for surveillance, triage, and medical diagnostics. For example, a patient’s ability to follow commands could be assessed by asking the patient to open the mouth, which could then be inspected. Similarly, coughing and gagging during oral care provided information on airway reflexes that allowed for assessment of aspiration risk and secretion management. A nurse (Pat) noted, “It’s important to keep the patient clean, it’s less risk for infection and um, sometimes you can visualize, the more you can visualize things in a neat and tidy way, the easier it is to pick up on something that’s abnormal.”

In addition to being facets of oral care, nursing activities involving the oral space produced essential clinical data, which informed medical diagnosis and care planning. Therein, nurses elucidated the complexity and importance of oral care to the patient and the interdisciplinary team. However, documentary analysis revealed limitations in the way oral care could be readily recorded and described, thus concealing the full scope of practices and benefits attributed to oral care.

**Technical Barriers**

While demonstrating oral care, nurses revealed how oral tubes and securement devices often acted as physical barriers to access to the mouth, increasing both the technical difficulty and the time required for care. Devices in the mouth often impaired visual assessment and limited access for oral care tools. In extreme instances, oral care was described as next to impossible. One nurse (Frank) remarked, “A lot of time you’re almost going [in] blind when you’re doing mouth care. The sicker patients, I think they become very difficult to do because not only do you have an ETT but you’ll have an OG [orogastric tube], you’ll have an oral temperature probe in there. So, you get limited space inside there. So, I think from that standpoint it gets really hard.”

During their attempts to enter the mouth with oral suctioning tubes, toothbrushes, and sponge swabs, nurses described how patients could resist oral interventions, further exacerbating procedural difficulty. One participating nurse (Sally) said, “He definitely was doing a lot of biting down on the tube, and so it was hard even to get access to his mouth. So, that’s definitely a barrier for a lot of nurses. If you can’t get into the mouth, then how are you to perform mouth care?”

Whereas some nonnurse participants were uncertain about patients’ responses to hygiene, nurses clarified that patients can experience oral care as discomforting and even painful (Table 3). One nurse (Lucy) drew upon her collective

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**Table 2**

<table>
<thead>
<tr>
<th>Routine</th>
<th>Nursing examplea</th>
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<tr>
<td><strong>Neurological assessments</strong></td>
<td>I do [oral care] first thing in the morning. As I said its, part of my neuro assessment, every time I suction. (Bill, RN)</td>
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<tr>
<td><strong>Airway reflex assessment</strong></td>
<td>Part of my assessment in the beginning is determining if they’ve got a gag. So I tend to do that by doing oral care and that’s the way to do it. (Nicky, RN)</td>
</tr>
<tr>
<td><strong>ETT repositioning</strong></td>
<td>It’s actually more advantageous to do it when the [ETT securement] tapes are being changed and do a really thorough mouth clean. (Beatrice, RN)</td>
</tr>
<tr>
<td><strong>Bodily repositioning</strong></td>
<td>I tend to like do [oral care] first and then turn them because they usually start coughing in the middle of the turn. I just like to make sure they don’t have any secretions. (Pat, RN)</td>
</tr>
<tr>
<td><strong>Clinical documentation</strong></td>
<td>Yeah, sometimes that’s what drives me to do my [mouth care]. . . . I like to fill it out and I like to see that I have done regular care. (Amy, RN)</td>
</tr>
</tbody>
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Abbreviation: ETT, endotracheal tube; RN, registered nurse.

a Names in parentheses after quotes are participant pseudonyms.
experience to explain patients’ aversive responses: “I think for some patients it’s probably like a primitive reflex. I think for other patients it’s a discomfort thing and they just don’t like anybody in there. There might be some pain associated with, you know, rubbing the tongue, brushing the teeth, even going, even entering it at all. And, there’s just a lot of sensitivity in the mucosal area. And so, they really absolutely cringe when you even go in to touch their mouth.”

Oral interventions elicited certain patients to “bite,” “thrash about,” or “pull at the tube,” making self-extubation a possibility. These behaviors generated additional technical barriers and sometimes required the interruption or termination of oral care.

**Contextual Work-arounds**

Limitations in nurses’ control over their time in the unpredictable ICU made it expedient to incorporate oral care into other routines as described earlier. However, nurse participants identified how this strategy was vulnerable to patient acuity. One nurse (Aly) explained, “If you have a really, really busy patient who’s really, really sick and um, you’re having hard times managing their blood pressure or their ventilation or there’s just one thing after another happening, mouth care kind of slides to the bottom of the list.”

Nurses emphasized the importance of proficiency and speed in navigating the needs of any patient whose clinical status was unstable. However, they also reported limited opportunities to acquire efficient and effective oral care skills within formal educational curricula. Lack of academic preparation in oral care delivery made it especially important for new nurses to spend time learning the “tricks of the trade” from senior nurses. As one nurse (Lucy) put it, “I have not really been, you know, taught it formally, you know, in a classroom or anything like that. But just at the bedside observing other nurses, . . . I definitely learned from experienced staff.”

An informal unit-based nursing curriculum overcame this knowledge gap by transmitting essential oral care skills, including advanced patient communication strategies. For example, lip reading was taught to facilitate nurse-patient communication and cooperation during oral care activity. One nurse (Bill) said, “I try to talk them through it; explain what’s happening. You know, give them a timeline of how long is this going to be. ‘Okay, one more second.’ So that they understand, it’s not going to be forever. . . . I read their lips to understand what they need.” Another nurse (Nicky) said, “I had a patient who had his jaws wired. . . . I just had to negotiate with him so that we could get in there.”

Additional strategies included in the informal curriculum to overcome technical and time-related barriers to mouth care were having 2 people provide oral care; inserting bite-blocking devices; cleaning during repositioning of endotracheal tubes, and

### Table 3

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Nursing example</th>
<th>Interdisciplinary example</th>
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<tr>
<td>Limited oral access</td>
<td>Sometimes you barely can stick the Yankauer inside the patient’s mouth, just for basic oral suction. Technically . . . it’s a very difficult thing. (Bob, RN)</td>
<td>Sometimes you can’t get to the mouth as much, right, because the Yankauers are pretty big. (Michelle, RT)</td>
</tr>
<tr>
<td>Aversive responses of patient</td>
<td>When you have to do mouth care and the patient may be biting on their tube, they don’t want anything foreign introduced into their mouth for fear or a natural reflex. So, um, in the ICU it, it becomes a little bit more complicated. (Bill, RN)</td>
<td>Well around intubation time [patient cooperation is] less of an issue because most of our patients are sedated if not anesthetized and paralyzed. (Danielle, intensivist)</td>
</tr>
<tr>
<td></td>
<td>You can tell by their facial expression that [the oral chlorhexidine gluconate] is stinging or the taste just isn’t right or it’s burning a little bit. (Nicky, RN)</td>
<td>I guess sometimes it is a bit uncomfortable? (John, intensivist)</td>
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<tr>
<td></td>
<td>I think the actual swab in their mouth is not comfortable when you do mouth care. Just even washing the back of, the roof of their mouth; you know it could make them gag. (Sally, RN)</td>
<td>In specialized dental practices, there’s 2 approaches. One is the human approach in which you try to get cooperation and trust, and, you know, the other is the pharmacological approach: sedate them. (Mary, hospital dentist)</td>
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Abbreviation: ICU, intensive care unit; RN, registered nurse; RT, respiratory therapist.

Names in parentheses after quotes are participant pseudonyms.

Oral suctioning device.

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using on-the-spot innovation to modify tools for oral access and comfort.

Despite these complex problem-solving activities, intensivists and unit leaders reported limited awareness of oral care problems or related nursing activities. An intensivist (Danielle) remarked, “I don’t know what [oral care] the nurses do on a regular . . . on a routine basis.” An ICU administrator (Carrie) commented, “I would hope, and gee I haven’t asked the question, that they are teaching [mouth care] in the critical care curriculum.”

In reflecting on these knowledge gaps, all participants identified insufficient time for team-based collaboration in preventive oral care. Because of this lack of time, opportunities to discuss oral health problems in relation to other care priorities were limited. Thus, widespread interprofessional recognition of oral care as a complex nursing practice was limited.

**Discussion**

Our results have improved our understanding of ICU nurses’ knowledge of and experience with delivery of preventive oral care by revealing the less visible aspects of this care. Nurses’ ability to anticipate and resolve hygiene barriers are critically important; increasing numbers of patients worldwide require acute and prolonged mechanical ventilation.24-27 A comparison of our data with published oral care guidelines and clinical documentation indicated that the complexity of preventive oral care is taken for granted. Key findings include frequent barriers to oral care, including oral crowding and aversive responses,28 and nursing work-arounds to meet these challenges.29 In allowing nurses to reveal hitherto nonvisible aspects of oral care, we discovered a disconnect between guideline recommendations and the problems nurses encounter.

Although oral care guidelines recommend standardized practices,3 the data suggest that the guidelines do not acknowledge important nursing challenges, including methods to overcome barriers to oral access.30 ICU physician orders and flow sheets may similarly not include the practical aspects of oral care, thereby perpetuating assumptions that oral care is a basic task. Other research31 has indicated that nurses often accomplish more than clinical records reveal, and so the realities of nursing work are not apparent. Likewise, we have distinguished limits to the fidelity of clinical documentation that most likely are due to time pressures and the shortcomings of existing documentation.32 Although nurses are accountable to provide both oral care and ongoing clinical documentation, standardized records may obscure actual events.

The nurse participants in this study were concerned about patients’ discomfort during oral care. This finding aligns with the results of other research, indicating that routine ICU activities (eg, repositioning and suctioning) are a source of patients’ distress33-35 and that corresponding assessment and management of pain, agitation, and delirium are needed.36 Although patients’ discomfort during oral procedures has been examined in other populations of patients,37-39 this issue in ICU patients has received limited attention.40,41 Our findings suggest this gap in procedural knowledge may have serious implications for the effective application of oral chlorhexidine and selective oral decontamination with antibiotic pastes to prevent VAP.28

**Implications for Practice**

We found that key ICU personnel such as intensivists and unit leaders had limited knowledge of the difficulties nurses experienced and the extensive work-arounds used in oral care. Although teamwork and effective communication are essential for safe patient care,42 our data suggest important dimensions of oral care, such as the time and skill required, go unrecognized by ICU team members. This finding negates recommendations for enhanced patient safety through interprofessional communication and collaboration.42,43 Limited opportunities to discuss oral problems and the prevention of these problems may constrain efforts to enhance the quality and safety of patient care.

On the basis of our findings, we recommend that nurses consider critical social theories of textual organization whereby clinical documentary practices are understood to make certain elements of nursing visible whereas other elements are taken for granted.30,44,45 Therefore, standardized documentation of oral care could be amended to include the behavioral and technical components of this care. In line with recommendations of previous studies46-49 that reported limited procedural preparation for oral care, professional development could include formal instruction in methods to mitigate limited oral access, such as advanced patient communication skills,50 and work-arounds that include modification of tools or procedures.51,52 To further enrich the evidence base for application of oral care, ICU researchers could investigate prevalence and predictors of barriers to oral care, oral pain, theories of aversive oral behaviors, and patients’ recollections.

Strengths of our study include use of rigorous data collection methods to address a key, difficult-to-study aspect of oral care. By using multiple forms of data collection, we addressed some of
the contextual limitations of surveys, which have been the primary method of investigating nurses’ knowledge and practices of oral health to date.13 Furthermore, we included diverse ICU personnel. Nevertheless, our study has limitations. Data were collected in a single academic ICU, a step that limits insights relevant to other populations of patients and care settings. The presence of the researcher in go-along interviews may have influenced the sequence of care and the events observed. Finally, the design of the study excluded the perspectives of patients and patients’ family member, data that might have offered important insights.

Conclusion
Oural care conducted in the ICU by bedside nurses remains fraught with challenges. Our results provide new insights to technical and contextual barriers and suggest that the complexity of performing oral care in the ICU is underestimated and perhaps undervalued. Effective management of oral care barriers is not addressed in current practice guidelines and may affect optimal delivery of VAP-preventive strategies such as application of topical oral chlorhexidine and selective oral decontamination. Further inquiry is required to better understand barriers to oral care and possible solutions to those problems.

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Notice to CE enrollees:
This article has been designated for CE contact hour(s). The evaluation tests your knowledge of the following objectives:

1. Identify the potential barriers to oral care delivery for intubated intensive care unit patients.
2. Discuss the implications to practice as a result of this study.
3. Identify additional research needed to expand the evidence base for oral care delivery.

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