Hand hygiene among general practice dentists

A survey of knowledge, attitudes and practices

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For more than a century, health care providers' hands have been recognized as major reservoirs of pathogens that may cause clinical infections. Washing hands with soap and water has been the primary method of hand cleansing. In 2002, however, the Centers for Disease Control and Prevention (CDC) published Guideline for Hand Hygiene in Health-Care Settings, which included several new evidence-based practices such as an alcohol-based hand sanitizer to replace traditional hand washing for all patient contacts except if hands are visibly soiled.[1] Although the CDC hand hygiene (HH) guideline was published more than five years ago, the extent to which dental practitioners are aware of it and the extent to which alcohol-based hand sanitizers are used by general practice dentists (GPDs) in the practice setting are unknown. While we have been able to find data on GPDs' knowledge, attitudes and practices regarding HH in Iran, Brazil and Canada,[2-5] we have been unable to find data from the United States. Hence, we conducted a study to examine the

ABSTRACT

Background. Hand hygiene (HH) is a primary practice used to reduce the risk and spread of infection. The authors conducted a study to examine the self-reported knowledge, attitudes and practices of general practice dentists (GPDs) regarding HH and factors associated with HH and skin condition.

Methods. The authors mailed a four-page closed-ended questionnaire to a random sample of active GPDs drawn from a list supplied by the New York State Dental Association. The authors classified eight GPDs as ineligible, leaving a net sample of 352. They received 234 responses, for a response rate of 66 percent.

Results. At the start of the practice day, 71 percent of GPDs often/almost always/always washed with soap but never/almost never disinfected with an alcohol-based hand sanitizer. Twenty-two percent often/almost always/always washed with soap and disinfected with alcohol-based hand sanitizers. GPDs with good/excellent knowledge of the Centers for Disease Control and Prevention (CDC) Guideline for Hand Hygiene in Health-Care Settings were more likely to report acceptable HH behavior. Approximately one-third of GPDs had limited/moderate knowledge of the CDC HH guideline.

Conclusions. Most GPDs use soap and water for HH frequently, and a smaller number of GPDs use alcohol-based hand sanitizers for HH frequently. Results show that 25 percent of GPDs or fewer maintain inadequate HH. Knowledge of the CDC HH guideline needs to be heightened.

Practice Implications. Further education of the dental community is warranted to improve HH compliance, efficacy of HH practices and skin health.

Key Words. Practice guidelines; professional practice; dentists; hand washing; infection control.

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self-reported knowledge, attitudes and practices of GPDs with regard to HH and to identify factors associated with their HH practices and the condition of their hands.

SUBJECTS, MATERIALS AND METHODS

Sample. We collected data by using a mail survey of active GPDs in New York state. We drew a random sample (n = 360) from a list of GPDs supplied by the New York State Dental Association (NYSDA). NYSDA has a membership of 14,000 dentists, which is 76 percent of the practicing dentists in New York state. The sampling frame included members of NYSDA who were listed as nonretired GPDs. Of the initial total sample, we excluded eight potential subjects who were ill, deceased, retired or did not self-identify their primary professional activity as the practice of dentistry and themselves as GPDs, leaving a net sample of 352 GPDs. We received 234 responses, resulting in a response rate of 66 percent.

Instrument. Using a four-page closed-ended questionnaire, we asked subjects to describe the basic characteristics of their practice settings, their HH practices, the HH products they use, the condition of the skin on their hands, their attitudes toward HH practices and their adherence to HH guidelines. We also asked subjects to assess their knowledge in this area.

We modeled the attitudinal measurement portion of the four-page instrument after tools originally developed by Cabana and colleagues.[6-8] In a systematic literature review, Cabana and colleagues[8] identified six categories of barriers to physicians' adherence to practice guidelines: lack of familiarity or awareness, lack of agreement with guidelines in general or with specific guideline recommendations, lack of outcome expectancy, lack of self-efficacy, lack of motivation, or external barriers such as patient or environmental factors. We based the tool used in our study on this empirical evidence and used it to measure GPDs' attitudes toward a variety of barriers to complying with HH guidelines. Subjects rated their attitudes by using a four-point Likert scale, on which 1 was equated with "strongly agree" and 4 equated with "strongly disagree." The items were reverse scored where necessary, so that a higher score represented more a negative attitude. Larson[9] reported the initial psychometric evaluation of the attitude instrument previously.

Procedures. The institutional review board at Columbia University Medical Center, New York City, reviewed and approved the study's protocol and materials. We mailed questionnaires in October and November 2006. The first mailing included a personalized cover letter addressed to each prospective subject, a self-addressed stamped envelope for subjects to use to return the completed questionnaire, a copy of the questionnaire and a $5 honorarium. A personalized reminder letter was sent approximately six weeks later to prospective subjects who had not yet responded to the first mailing. We determined who these people were by means of anonymous numbering of surveys. We sent all mailings by first-class mail.

Data analysis. We used frequencies to describe the basic characteristics of the sample: the character of their practices, their demographics, their HH practices, the condition of the skin on their hands, their attitudes toward HH, and their familiarity with HH guidelines. We developed composite measures of hand condition, HH behavior and attitude toward HH practices. We determined that GPDs had good skin condition if they reported little or no redness, blotching, rash, abrasions or fissures, dryness, itching, burning or soreness on both sides of their dominant hands. We categorized them as having acceptable behavior if they reported often/almost always/always using either soap with at least 15 seconds of washing time or an alcohol-based hand sanitizer before beginning to provide care, between patients and after removing their gloves. We rated GPDs as having a positive attitude toward HH if their average score for each item (after reversing the coding of some of the items) was less than or equal to 1.79, the overall median.

We examined associations between GPDs' HH behavior and their knowledge of the CDC HH guideline and between HH behavior and their attitude toward HH by using two-way tables and χ^2 tests. We also assessed associations between GPDs' skin condition and their behavior in dental practice, their knowledge of the CDC HH guideline (dichotomized as good/excellent versus limited/moderate), their length of time in dental practice (26 years or more versus less than 26 years), their affiliation status (affiliated with

ABBREVIATION KEY. CDC: Centers for Disease Control and Prevention. **GPD:** General practice dentist. **HH:** Hand hygiene. **NYSDA:** New York State Dental Association.