



Use of restorative procedures by allied dental health professionals in Minnesota

Jennifer J. Post, RDH, MDH; Jill L. Stoltenberg, RDH, MA

Access to dental care for underserved communities has been a growing concern nationally and in Minnesota. Although the poverty rate in Minnesota (11.2 percent) is less than that of the United States (14.9 percent),¹ the effects are no less severe. Findings from the Third Grade Oral Health Basic Screening Survey conducted in 2010 indicated that 55 percent of Minnesota third-graders had a history of caries.² This is not statistically different from the U.S. baseline average (54 percent); however, both percentages fall short of the recommended Healthy People 2020 target of 49 percent.³

In 2003, the Minnesota state legislature revised the Dental Practice Act to allow allied dental personnel (registered dental assistants [RDAs] and registered dental hygienists [RDHs]) to expand their scope of practice to include placement of restorative materials (that is, amalgam, glass ionomer, resin-based composite and stainless steel crowns). Placement of resin-based composite restorations was limited to Class I and Class V restorations in the enamel.⁴ Allied dental professionals certified in restorative functions (RFs) are required to perform these functions under the direct supervision of a licensed dentist. This means that a dentist is in the office, personally diagnoses the condition to be treated and authorizes the procedure.⁵ At the time of our study, 387 allied dental personnel in Minnesota were certified to perform RFs.⁶

The concept of expanding the functions of RDAs and RDHs is not new. Studies from the 1960s and 1970s indicated that both reversible and irreversible restorative procedures could be performed by these practitioners effectively, efficiently and at a cost benefit.⁷⁻¹⁷ In the 1980s, evaluations of the expanded functions of RDAs and RDHs from two demonstration projects in private general practice confirmed there were no meaningful differences in overall dental quality of restorations when

ABSTRACT

Background. In 2003, the Minnesota legislature revised the Dental Practice Act to include restorative procedures in the scope of practice for registered dental assistants (RDAs) and registered dental hygienists (RDHs). The authors examined these practitioners' characteristics and made comparisons on the basis of their use of restorative function (RF) training and their practices' locations. They also examined practice type, models of implementation and perceived outcomes.

Methods. The authors mailed a survey to all RF-certified RDAs and RDHs in Minnesota (N = 387). They used descriptive statistics to summarize the data and *t* tests and Fisher exact tests ($P < .0001$) to make comparisons between groups.

Results. The authors received 243 surveys (63 percent). Less than one-half (38 percent) of the RF-certified practitioners performed RFs. Of these, 29 percent were RDHs and 71 percent were RDAs. These practitioners performed RFs most often by working with a dentist or when time allowed. They perceived increased access to dental care and an increase in the number of patients treated to be outcomes of performing RFs.

Conclusions. The results of this survey indicated use of restorative procedures varied greatly by practitioner type. The perceptions of those who performed RFs indicated they had a positive effect on dental practice.

Practical Implications. The addition of RF-certified personnel to the dental team has the potential to increase the number of patients seen in practice and the job satisfaction of team members.

Key Words. Access to care; productivity; dental assistants; dental auxiliaries; practice management; dental economics; rural health; dental hygienists; dental public health; dental team.

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Ms. Post is an adjunct assistant professor, Department of Primary Care, School of Dentistry, University of Minnesota, Minneapolis.

Ms. Stoltenberg is an associate professor, Department of Primary Care, School of Dentistry, University of Minnesota, 9-372 Moos HST, 515 Delaware St. S.E., Minneapolis, Minn. 55455, e-mail stol001@umn.edu. Address correspondence to Ms. Stoltenberg.

compared with those placed by dentists.¹⁸⁻²⁰ In 2012, Worley and colleagues²¹ found similar results for practitioners certified in RFs in Minnesota. A study of the delegation of procedures in dental practices in Colorado revealed that as the rate of delegation increased, dental practices had more patients and higher net incomes.^{22,23} Dentists in solo general practices realized the largest gains in productivity and revenue, with increases as great as 104 percent.²² Such findings demonstrate the potential that expanding the functions of the current dental workforce can have on the opportunity for more patients to be treated at a dental practice. Increased productivity may allow dentists to meet the growing demand for dental care due to Medicaid reform and implementation of the Affordable Care Act.

We conducted a study to examine the characteristics of practitioners certified to perform RFs and compare them on the basis of use of their RF training and practice location. We also examined practice type, models of implementation and perceived outcomes.

METHODS

We developed an 18-item survey to gather information from Minnesota RDHs and RDAs who were certified in RFs. In January 2012, we obtained a listing of all RF-certified RDAs and RDHs in Minnesota ($N = 387$) from the Minnesota Board of Dentistry. We sent a survey to the entire sample (230 RDHs and 157 RDAs with the RF credential in Minnesota) by mail the following month. After two months, we sent nonresponders a second copy of the survey.

The institutional review board at the University of Minnesota, Minneapolis, approved the study. Survey items included questions regarding practitioner demographics, current practice information, perceived patient demographic information and RF skill usage patterns. We considered completion and return of the survey to be practitioners' consenting to participate in the study.

Statistical analysis. We used descriptive statistics to summarize the data. We calculated means and standard deviations for continuous measures. We used *t* tests and Fisher exact tests to compare the characteristics of two groups of participants: those who performed RFs and those who did not. We compared participants' characteristics and perceived outcomes on the basis of practice locations for those who reported performing RFs. We considered *P* values less than .05 to be statistically significant.

RESULTS

We received 243 surveys (63 percent) and analyzed them. The mean (standard deviation [SD]) age of participants was 37 (11.9) years, with a range of 22 through 67 years. Sixty-two percent of participants were RDHs and 38 percent were RDAs. Most of the participants (52 percent) had a bachelor's degree, 37 percent had an associate

degree, and 11 percent held a graduate (master's or doctoral) degree. Overall, more participants practiced in the Minneapolis/St. Paul seven-county metropolitan area (57 percent) than in greater (out-state) Minnesota (43 percent). Sixty percent of the participants worked in dental practices with one or two dentists. Only 93 (38 percent) of the participants surveyed reported performing RFs.

Table 1 shows a comparison of participants' characteristics on the basis of whether they performed RFs. Significant differences between the two groups included education attained, primary work position and type of RF course taken ($P < .0001$). Most of those performing RFs had an associate degree (68 percent) and earned their RF credential by means of a continuing dental education course (87 percent). Seventy-one percent of those who performed RFs were RDAs, whereas only 29 percent were RDHs ($P < .0001$). The two participant groups did not differ significantly in practice location, but participants who performed RFs were older ($P = .0008$). Respondents were in early middle age and equally distributed between the Minneapolis/St. Paul seven-county metropolitan area and greater (out-state) Minnesota.

Seventy-five percent of those who performed RFs were employed in a general dentistry practice (Figure 1). Eleven percent worked in a pediatric dentistry practice, and 9 percent practiced in a community clinic setting. Fifty-nine percent of those who performed RFs worked in a solo private practice with a fee-for-service business model (data not shown).

Table 2 (page 1047) presents the baseline characteristics of participants who performed RFs, according to practice location. There were no significant differences in the ages, number of hours worked per week or primary work positions of those practicing in the Minneapolis/St. Paul seven-county metropolitan area compared with those practicing in greater (out-state) Minnesota. A larger number of respondents with an associate degree practiced in greater (out-state) Minnesota, whereas respondents with a bachelor's degree were more likely to practice in the metropolitan area ($P = .0246$).

Participants reported using various methods to implement RFs in practice (Figure 2, page 1048). RDAs and RDHs performed RFs most often by working with a dentist or when time allowed. RDHs were more likely than RDAs to perform RFs when an RF column was included in the schedule.

Table 3 (page 1049) provides a comparison of the outcome measures of RFs, according to practice location. Participants indicated that they placed all restorative materials (amalgam, glass ionomer, resin-based composite and stainless steel crowns) with similar frequency. Those practicing in greater (out-state) Minnesota reported treating a statistically higher percentage of patients

ABBREVIATION KEY. RDA: Registered dental assistant. RDH: Registered dental hygienist. RF: Restorative function.

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