

Safety Net Care and Midlevel Dental Practitioners: A Case Study of the Portion of Care That Might Be Performed Under Various Setting and Scope-of-Practice Assumptions

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It is well understood that a lack of access to dental care in the United States has serious implications, not just for individuals but for society as a whole. More than one third of US households report skipping needed dental care in the prior year because of cost—a higher percentage than skipped or postponed medical care or filling a prescription.¹ Many others live in geographically remote areas or in areas where it is difficult to find a dentist who will accept public insurance. Indeed, the United States has nearly 5000 federally designated dental health professional shortage areas,² and although more than one third of the nation's children are covered by public health insurance,³ estimates suggest that fewer than half of practicing dentists treat any such patients.⁴ The current inability of the dental workforce to meet existing needs will likely worsen over time, as high numbers of older dentists retire, more women (who are more likely to work part-time) enter the profession, and the Affordable Care Act is fully implemented.⁵⁻⁸

Oral health plays an important role with respect to both overall health and quality of life. Poor oral hygiene and untreated dental disease have been linked to pneumonia,⁹ stroke,¹⁰ heart disease,¹¹ diabetes,¹² and other serious conditions.^{13,14} Nontraumatic oral health issues are also an increasing reason for hospital emergency department visits.¹⁵⁻¹⁷ Those with private insurance are less likely to use emergency departments (EDs) for dental problems than are the uninsured or publicly insured,¹⁸⁻²⁰ and the elimination of Medicaid adult dental benefits in many states has resulted in an increased use of the ED for dental problems.²¹ The ED is not a satisfactory source for safety net care; it is expensive, and the underlying dental problem is often left unaddressed.^{18,20}

Poor oral health can also have serious cognitive, psychosocial, and other quality-of-

Objectives. We sought to determine the proportion of dental care provided at safety net-type clinics that might be performed by midlevel practitioners.

Methods. Data were obtained on 157 328 procedures performed in 2012 at the clinics associated with a Midwestern dental school. Based on procedure codes, we determined the overall proportion, as well as the proportion of visits and patients' care, that could have been performed by 3 types of practitioners.

Results. Overall, 48% to 66% of all procedures could have been performed by a midlevel dental practitioner. Nearly half of all visits, and roughly a third of all patients, could have been entirely cared for by a practitioner trained in prophylaxis and with evaluation capabilities. Such practitioners could handle roughly 80% of the visits at the community-based clinic and more than half of the visits at the hospital-based clinic.

Conclusions. A midlevel practitioner with training in prophylaxis has the potential to alleviate much of the burden on the dental safety net because much of the need among vulnerable populations falls well within their scope of practice. (*Am J Public Health.* 2015;105:1770-1776. doi:10.2105/AJPH.2015.302715)

life consequences.²²⁻²⁴ Children with poor oral health are significantly more likely to miss school and have lower academic performance than their peers,^{22,25,26} and adults with poor oral health face diminished job prospects.^{27,28} Missed days of work as a result of dental issues (either one's own or one's children's) and reduced concentration because of dental pain result in lost wages and productivity.^{29,30}

Many who are publically insured, uninsured, or otherwise underserved, turn to safety net clinics for dental care, yet nationally the dental safety net can serve only a fraction of those in need.³¹⁻³³ Such clinics have trouble recruiting dentists because of limited budgets, low salaries, and frequent rural settings.³³ Indeed, just 12% of graduating dental students report they "definitely" plan to work in an underserved area.³⁴ Clearly, policy changes are needed. Dentists frequently call for raising Medicaid reimbursement rates to encourage participation, but even in states where reimbursement has been raised, it has not necessarily translated into large levels of participation.³² Other

proposals seek to encourage dentists to practice in underserved areas by offering scholarships and loan forgiveness, expanding dental residency programs, or expanding the duties of current dental auxiliaries.³⁵

Another increasingly discussed idea is the introduction of midlevel dental practitioners, often referred to as dental therapists. Although common in many other countries, currently such practitioners work in just 2 US states: Alaska, where they have served indigenous communities since 2005 as a result of the Indian Health Services Act, and Minnesota, where they began working in underserved settings in 2011 after the passage of state legislation. Maine approved midlevel dental practitioners in spring 2014, and enabling legislation has been proposed in several other states. Dental therapists perform a limited set of "irreversible" procedures traditionally performed only by dentists, such as preparing and placing fillings and performing routine extractions. They also provide preventive services and are frequently (although not always) dually

licensed as dental hygienists. The intent behind the introduction of dental therapists is to increase access, lower costs, and improve efficiency. Such providers typically work in safety net or public settings under the general supervision of, or in collaborative agreements with, dentists.

There are subtle differences in the training and scope of practice of these practitioners, and this was particularly true among the US-based practitioners considered in this study. In Alaska, dental health aide therapists (DHATs) complete a 2-year post-high school training program, whereas in Minnesota, advanced dental therapists (ADTs) must obtain master's degrees. Dually licensed advanced dental therapist–registered dental hygienists (ADT-RDHs) are ADTs who also have dental hygiene licenses.

The 3 main arguments for adding midlevel practitioners to the dental team are as follows: (1) it will increase the overall number of oral health professionals, (2) the lower salaries of such practitioners will allow more underserved patients to be seen, and (3) their introduction will free up dentists for complex cases. Despite widespread acceptance elsewhere, in this country debate continues over the merits of midlevel dental practitioners. Research indicates that they provide safe care and that their clinical competence is, within their scope of practice, comparable to that of dentists.³⁶ However, US dentists sometimes argue that the needs of vulnerable populations are too complex to be treated by anybody less skilled than a licensed dentist, suggesting that the addition of midlevel practitioners might not have a large impact on access.^{35,37} Assessing the potential for impact is crucial for policymakers weighing the merits of such a workforce innovation.

Some estimates exist regarding the reach of a dental therapist–type practitioner. A study of general dental practices in Wales estimated that dental therapists and hygienists there could provide 35% of care measured by visits, and if their scope of practice were to include diagnosis and treatment planning, potentially 69%.³⁸ Another study that reviewed the empirical literature on dental therapist–hygienists working in remote and rural areas around the globe reported they could “purportedly manage almost half of the treatment and care demands facing remote-rural dental

teams.”^{39(p110–111)} Finally, using American Dental Association (ADA) data, Edelstein⁴⁰ estimated that 75% of the procedures currently delivered by general dentists in this country could potentially be delegated to dental therapists, as could 79% of the procedures delivered by pediatric dentists. Although these figures are informative, a more useful estimate, given the current US policy debate, would be the percentage of procedures a US midlevel practitioner might be able to provide to underserved patients in safety net settings. Several recent reports analyzed the workloads of DHATs working in Alaska and ADTs working in Minnesota,^{41,42} but such figures simply tell us how these early therapists' time was allocated—not their full potential for provision of care.

To our knowledge, this study was the first to consider how much of the burden midlevel dental practitioners might assume at safety net clinics that serve vulnerable US populations. If the needs of most underserved patients are too complex to be met by midlevel practitioners, adding these providers to the dental team may have little impact on either access or cost savings. However, if a relatively large proportion of such patients could have their treatment needs met by midlevel practitioners, then adding them to the dental workforce, particularly in public health and safety net settings, would be well worth considering.

METHODS

De-identified data were obtained on every treatment procedure provided during 2012 at the clinics associated with a Midwestern school of dentistry. The data set included procedure received, visit (i.e., at which visit the procedure occurred), clinic, patient age and gender, and insurance billed.

Clinics

The clinics in the study were a dental university's predoctoral and graduate clinics, a hospital dentistry service, and an affiliated off-site community clinic. At the predoctoral and graduate clinics, treatment was provided by dental and dental hygiene students under direct faculty supervision (predoctoral) or by residents training for graduate degrees or board certification in various specialties (graduate).

The hospital dentistry service provides care primarily to patients admitted for oral and maxillofacial treatment or for medical services but who require concurrent oral health care. Many of these patients are medically complex, are mentally or physically disabled, or have needs not amenable to treatment in other settings. Treatment is provided both by staff dentists and dental and dental hygiene students. The off-site center is a nonprofit dental clinic that provides comprehensive care to the local community. Treatment is provided both by staff dentists and dental and dental hygiene students. Together, these clinics provide care primarily to low-income or uninsured individuals.

Procedures

Of the procedures performed in 2012, 33% were billed to Medicaid and 37% were self-pay (uninsured), whereas 30% were billed to private insurance. Although not necessarily representative of safety net clinics nationally (no such data set exists), the clinics in this study serve a large number of patients, with a range of treatment needs, in a variety of safety net–type settings.

Excluded from the data set were any procedures associated with research or licensing examinations, that had a medical rather than dental procedure code, or that did not have a procedure code (primarily student encounters with patients where no treatment was provided). The final data set consisted of 157 328 observations (procedures) received by 29 314 patients over 77 162 visits.

Analysis

There are several ways to conceptualize the portion of care that might be provided by midlevel dental practitioners. Based on the procedure codes that fall within the scopes of practice of Alaska's DHATs and Minnesota's ADTs and dually licensed ADT-RDHs, we determined the proportion of procedures performed during 2012 at the clinics in our study that could, theoretically, have been performed by each of these practitioners. (For a list of the procedures that fall within the scopes of practice of each, see Appendix Table A, available as a supplement to the online version of this article at <http://www.ajph.org>.)

TABLE 1—Type of Procedures Performed, Top 5 Categories: Clinics Associated With a Midwestern Dental School, United States, 2012

Procedure	All Clinics, No. (%)	Predoctoral and Graduate, No. (%)	Hospital, No. (%)	Off-site, No. (%)
Diagnostic	59 431 (37.8)	51 550 (38.1)	4 526 (30.9)	3 355 (45.3)
Restorative	23 196 (14.7)	19 684 (14.6)	2 512 (17.1)	1 000 (13.5)
Preventive	22 664 (14.4)	19 273 (14.3)	1 380 (9.4)	2 011 (27.1)
Oral surgery	17 318 (11.0)	11 991 (8.9)	4 719 (32.2)	608 (8.2)
Adjunctive	13 628 (8.7)	12 573 (9.3)	982 (6.7)	73 (1.0)
Total top 5	136 237 (86.6)	115 071 (85.1)	14 119 (96.3)	7 047 (95.1)
All procedures	157 328 (100)	135 254 (100)	14 664 (100)	7 410 (100)

Note. There are 12 total American Dental Association–designated procedure categories. Together, the 5 categories shown in this table account for 86.6% of all procedures performed; none of the other 7 categories constitutes more than 5.5% of the total.

Two procedures that fall within the scope of practice of ADTs (and hence ADT-RDHs) are restricted to certain teeth or conditions. With our data we were able to determine the tooth, but no more than that. Thus, with respect to procedure D7140, which ADTs may only perform on primary teeth or permanent teeth that are periodontally involved (i.e., where there is loss of bone or other tooth supporting structures), we considered only those procedures carried out on primary teeth as falling within the scope of the ADTs. This resulted in a conservative estimate of the proportion of these procedures that such practitioners might have performed, because oral surgery faculty associated with the clinics in our study estimated that in fact approximately 40% of such procedures would have been periodontally involved.

Next we calculated the proportion of visits and patients' care (all treatments received by a given patient) that could have been completely or partially performed by midlevel practitioners. In addition, we also looked at the breakdown of these figures by patient age and insurance status, dental procedure category, and clinical setting.

RESULTS

Of the 157 328 procedures performed in 2012, more than 85% fell into just 5 categories: diagnostic, restorative, preventive, oral surgery, and adjunctive (based on ADA nomenclature). Table 1 describes this breakdown, as well as the treatment setting. The majority of these procedures (86%) were performed at one

of the predoctoral or graduate clinics, whereas 9% took place in the hospital and approximately 5% at the off-site clinic. A list of the 3 most frequently performed procedures that fall within each of these 5 categories can be found in Appendix Table B (available as a supplement to the online version of this article at <http://www.ajph.org>). Of the 29 314 patients seen during 2012, a little more than half (54%) were female, and a majority (58%) were of working age, with youths and seniors each making up about 20%. Patient age ranged from 0 to 103 years. Overall, there were 77 162 unique visits; the mean number of visits per patient was 2.6 (39% had just 1 visit, whereas 10% had more than 5). At their first visit, 40% did not have insurance coverage, whereas 30% were covered by Medicaid and 30% by private insurance.

Table 2 presents our findings with respect to the portion of care provided at the safety net-type settings in our study that could have been performed by a midlevel dental practitioner under 3 scope-of-practice scenarios: that of the dually licensed Minnesotan ADT-RDH, the Minnesotan ADT, and the Alaskan DHAT. We also present, as a point of comparison, the portion that could have been performed by a typical RDH. A striking feature is the high percentage of total procedures—roughly one half to two thirds, depending on scope—that could have been performed by a midlevel dental practitioner. Some of the observable differences across practitioner scope are also worth noting. A DHAT would not have been able to provide quite as many restorative

procedures as an ADT or ADT-RDH but could have provided a higher percentage of diagnostic and oral surgery procedures.

Particularly striking is the very high percentage of procedures at the off-site clinic that could have been performed by a DHAT (90%) or an ADT-RDH (84%), and, equally noteworthy, the high percentage of dental procedures performed at the hospital (at least half) that fell within the scope of a midlevel practitioner. With respect to the insurance status of the procedure, whereas publicly covered procedures were somewhat more likely to fall within the scope of a midlevel practitioner, those that were self-pay were somewhat less likely. With respect to patient age, a midlevel practitioner could perform 65% to 77% of the procedures received by youths and 38% to 60% of those received by seniors.

Table 3 presents our findings when portion of care is measured in terms of the percentage of visits or patients that could have been handled by a midlevel practitioner and, for comparison, by an RDH. Overall, nearly half of all visits could have been handled by an ADT-RDH or DHAT, whereas an ADT could have handled a fourth of all visits. Regardless of scope, in more than half of the visits a midlevel practitioner could have performed at least 1 of the treatments received. Especially noteworthy is the fact that not only could a midlevel practitioner (capable of providing prophylaxis) handle roughly 80% of the visits at the off-site clinic but also more than half of the dental procedures performed at hospital visits as well. In terms of the total number of patients whose care could have been provided by a midlevel practitioner, roughly one third of the patients seen could have had their entire treatment provided by a DHAT or ADT-RDH, and at least 80% could have had at least 1 treatment provided by a midlevel practitioner (with or without training in prophylaxis). In the predoctoral and graduate clinics, more than one fourth of the patients could have had their entire treatment needs met by a midlevel practitioner capable of performing prophylaxis, as well as roughly half of those seen at the hospital and two thirds at the off-site clinic. In every setting, a midlevel practitioner could have provided at least 1 procedure needed by nearly every patient. By point of comparison, an RDH would only be able to entirely cover at

TABLE 2—Percentage of Procedures That Could Have Been Performed by 3 Types of Midlevel Practitioners: Clinics Associated With a Midwestern Dental School, United States, 2012

Procedures Performed	ADT-RDH, %	ADT, %	DHAT, %	RDH, %
Overall ^a	63.2	47.9	66.1	38.4
By procedure type				
Diagnostic	77.9	76.9	90.1	50.6
Preventive	99.9	26.2	97.1	98.7
Restorative	85.2	85.2	50.0	0.0
Oral surgery	... ^b	... ^b	78.0	0.0
Adjunctive	11.6	11.6	1.1	9.2
By clinic				
Predoctoral and graduate	62.5	46.9	63.9	39.3
Hospital	59.2	52.6	74.2	23.2
Off-site	84.4	57.3	89.8	53.3
By procedure insurance status				
None	57.6	42.7	60.6	36.4
Medicaid	66.7	55.3	74.7	38.4
Private	66.4	46.5	63.6	41.0
By age (y) of patient ^c				
≤ 18	77.0	64.8	69.5	46.9
19–64	60.0	45.0	66.8	36.2
≥ 65	57.3	37.8	60.2	35.5

Note. ADT = advanced dental therapist; ADT-RDH = advanced dental therapist-registered dental hygienist; DHAT = dental health aide therapist.

^aBased on full sample of 157 328 observations (procedures).

^bBecause of data limitations, these figures cannot be precisely calculated. The correct percentage probably falls between 8.6% and roughly 36%. To be conservative, the lower-bound figure was used when calculating the overall percentage of procedures that ADTs and ADT-RDHs could perform, as well as their percentages by clinic, insurance status, and patient age. The lower-bound figure was also used in the figures reported in Table 3.

^cAge taken at time of procedure. Overall, 22.1% were aged ≤ 18 years, 57.8% were between 19 and 64 years, and 20.1% were ≥ 65 years.

most one fourth of the visits (at the off-site clinic) and fewer than 10% of patients' entire treatment needs.

DISCUSSION

That the current dental safety net cannot meet the needs of the 108 million Americans who lack regular access to oral health care⁴³ is not in question. Whether the licensing of midlevel dental practitioners would have a significant impact on the problem is less clear. To begin to answer this question, data on all 157 328 procedures performed over 1 year (2012) at the clinics associated with a Midwestern dental school were analyzed. The results of this analysis were consistent with those of Edelstein, who, using ADA data, reported that up to 75% of procedures

provided by general dentists could possibly be done by dental therapists.⁴⁰ Likewise, in a similar although more limited study conducted in the United Kingdom, Evans et al. found that 35% of office visits could have been covered by dental therapists (that figure rose to 69% if the therapists could also diagnose and plan treatment).³⁸

Based on the dental procedure codes that fall within their scopes of practice, this study assessed the potential for 3 types of midlevel practitioners to provide procedures performed at various safety net-type settings. An important difference between ADTs and both DHATs and dually licensed ADT-RDHs is that ADTs may not provide prophylaxis. Not surprisingly, the proportion of procedures, visits, and patients they might have handled is thus often lower than what the other 2 practitioners

might have provided. ADTs (and hence ADT-RDHs) have a slightly broader scope than DHATs with respect to certain fillings, however, whereas DHATs are allowed to carry out comprehensive oral examinations and extract nonperiodontally involved permanent teeth, which ADTs (and ADT-RDHs) cannot. This explains the ability of ADTs to provide a somewhat higher proportion of procedures overall, as well as in many of the subcategories presented.

At the clinics in this study, a DHAT or dually licensed ADT-RDH could have potentially provided more than 60% of the procedures performed overall and nearly all of the procedures performed at the off-site community clinic, the setting perhaps closest to a "traditional" safety net clinic. In terms of overall patient visits, 25% might have been entirely handled by an ADT, and ADT-RDHs and DHATs could have covered almost half of all visits (and approximately 80% at the off-site clinic). Even at the hospital-based clinic, where some of the most challenging patients are treated, a DHAT or dually licensed ADT-RDH could potentially perform the majority of all dental procedures provided and all of the dental procedures at more than half of the visits. Although hospital-based patients are likely to be more complicated than those in other settings, once stabilized, there is no inherent reason to assume a midlevel practitioner could not perform a procedure falling within his or her scope.

In terms of patient age, it is perhaps not surprising that the needs of children are most likely to fall within the purview of a midlevel practitioner. Indeed, the original role of dental therapists was pediatric care in school-based clinics. Nevertheless, more than half the procedures provided to seniors, a group often characterized as too complex for midlevel practitioners, could also have been handled by an ADT-RDH or DHAT. Similarly, midlevel practitioners could have provided between half and three fourths of all treatments that were covered by Medicaid. This finding has important implications, given that most dentists do not accept publicly insured patients.⁴ That self-pay procedures were somewhat more likely to fall outside the purview of a midlevel practitioner is not surprising, because even those patients with private dental insurance

TABLE 3—Percentage of Visits and Patients Whose Care Could Have Been Completed by a Midlevel Practitioner: Clinics Associated With a Midwestern Dental School, United States, 2012

Procedures Performed	ADT-RDH, %	ADT, %	DHAT, %	RDH, %
By visit^a				
At least 1 procedure	67.2	52.7	66.4	48.8
All procedures	46.8	24.9	47.3	14.5
Visits at predoctoral and graduate clinics				
At least 1 procedure	65.6	50.7	64.2	47.6
All procedures	44.6	23.7	44.4	14.5
Visits at hospital				
At least 1 procedure	76.0	73.4	83.9	49.1
All procedures	57.2	42.3	65.4	5.5
Visits at off-site clinic				
At least 1 procedure	88.9	67.2	88.2	72.3
All procedures	77.8	26.1	82.2	24.9
By patient^b				
At least 1 procedure	87.2	79.8	87.8	80.2
All procedures	30.8	9.9	33.7	6.1
Patients at predoctoral and graduate clinics				
At least 1 procedure	86.5	78.6	86.9	80.7
All procedures	27.2	8.4	29.1	6.2
Patients at hospital				
At least 1 procedure	87.1	85.6	91.5	65.1
All procedures	46.1	28.3	55.9	3.7
Patients at off-site clinic				
At least 1 procedure	97.6	90.6	97.3	94.5
All procedures	64.0	7.9	72.3	7.7

Note. ADT = advanced dental therapist; ADT-RDH = advanced dental therapist-registered dental hygienist; DHAT = dental health aide therapist.

^aOverall there were 77 162 distinct visits: 69 376 at the predoctoral and graduate clinics, 4311 at the hospital, and 3475 at an off-site clinic.

^bOverall there were 29 314 unique patients: 25 317 were seen at the predoctoral and graduate clinics, 2354 at the hospital, and 1643 at an off-site clinic.

may find that although cleanings and examinations are covered, more complex procedures are not. Patients who need to pay for such procedures out of pocket may thus seek safety net solutions.

The finding that much of the need among vulnerable populations is well within the purview of midlevel practitioners suggests that their needs are not too complicated for such practitioners. At the same time, there are still large numbers of visits and sophisticated procedures that require the skill of a dentist. This fact highlights not only the continued importance of team-based care but also the potential gains in efficiency that might be realized by allowing midlevel practitioners to focus on

routine procedures while dentists focus on those requiring their unique expertise.

The numbers presented here represented a theoretical max, albeit a conservative one, based on the procedures performed at the clinics in our study and the scopes of practice of 3 different midlevel practitioners. Based on procedure code alone, it is impossible to know whether a particular procedure may have become too complex for a therapist, although evidence suggests that midlevel practitioners are at least as competent as dentists in the procedures that fall within their purview.³⁶ In reality, it is the level of supervision mandated, and the physical space and equipment available, that are more likely to limit midlevel

practitioners' potential for improving access to care. In their study of dental safety net clinics in Illinois, Byck et al.³³ found that just two thirds employed a full-time dentist. This fact alone implies limited operating hours for many clinics, and if direct supervision of midlevel practitioners is required (as is the case in Maine), the ability of midlevel practitioners to improve access will be constrained. DHATs and ADT-RDHs are allowed to work under general supervision after completing the requisite number of hours under direct supervision. The implications of this scenario are profound, given that nearly half the visits to the clinics in our study could have been fully handled by ADT-RDHs or DHATs. Clinics without full-time dentists might expand their hours and capacity, and public health settings that do not offer dental services might begin to do so—and in so doing meet the needs of significant portions of underserved patients. Clinics could also take more advantage of the services of volunteer dentists, who might not have time to provide care on a regular basis but might be available to consult. When dentists are on-site, much more of their time could be devoted to complex treatments. Indeed, early evidence from Minnesota supports this conjecture.⁴²

Other early evidence from Minnesota suggests that a main factor that limited the ability of safety net directors to hire dental therapists was lack of space (operatories) or equipment.^{42,44} This was also a common reason for not hiring dental therapists as voiced by dentists in other countries.^{45,46} Indeed, Byck et al. found that on average safety net clinics in Illinois have fewer than 3 operatories.³³ If direct supervision is required, then space will indeed become an issue, because with fewer than 3 chairs there is no room to add a midlevel practitioner to a clinic already staffed by a dentist and hygienist. Byck et al. also found, however, that most safety net clinics did not have a dental hygienist on staff; whether this was a result of finances or space is unclear, although those clinics with hygienists did have 1 to 2 more operatories than those without them. Although funding is always a challenge, under general supervision, space becomes less of an issue because hours can be expanded or schedules staggered.

Most safety net clinics operate under tight budgetary constraints. Data from Minnesota

indicate that the salary of a dental therapist is roughly half that of a dentist.⁴² The fact that a midlevel practitioner's education is less expensive suggests that working in a safety net setting will be more financially viable for midlevel practitioners than it is for dentists. It also means that safety net clinics might be able to expand capacity by hiring midlevel practitioners. Safety net clinics are likely to realize cost savings by employing midlevel practitioners; however, whether or not this leads to overall cost savings is less clear. Medicaid expenditures might well go up in the short run as more people gain access. Then again, those without access tend to postpone preventive and basic restorative care until a more serious problem arises. Davis et al. found that most ED dental visits occurred during regular business hours (when dental offices were open) and were for conditions that could have been prevented or treated more effectively by a dentist.¹⁸ Most of these visits were charged to Medicaid. To the extent improved early access to preventive care and timely restorations reduces future ED visits or leads to fewer associated, and costly, dental or medical conditions later, Medicaid expenditures may well be reduced over time. To the extent improved dental access reduces related psychosocial problems, other societal costs related to diminished educational and workplace opportunities may also be lowered.

In its 2011 report *Improving Access to Oral Health Care for Vulnerable and Underserved Populations*, the Institute of Medicine⁴⁷ recommended that states allow allied dental professionals to practice to the full extent of their education and training and in a variety of settings under evidence-based supervision levels. It was noted that restrictive licensure laws in oral health are neither tied to better health outcomes nor supported by scientific evidence—although they may well drive up costs for patients. At least 59% of the procedures performed at each of the clinics in our study could have been provided by a DHAT or dually licensed midlevel practitioner with the scope of practice of a Minnesota ADT-RDH. Nearly half of all visits (and more than three fourths at the community-based clinic) could have been entirely covered by such a practitioner, as could between 27% and 64% of all patients seen over the course of a year,

depending on the setting. Physical space and funding limitations aside, these findings strongly suggested that adding this type of midlevel dental practitioner to the dental team does indeed have the potential to alleviate much of the large and growing burden currently placed on the dental safety net. ■

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Contributors

A. E. Gwozdek was instrumental in obtaining the data and ensuring its accuracy. E. Phillips conducted the analysis and took the lead on writing, and H. L. Shaefer obtained funding and first conceptualized the study. All 3 authors contributed to the study design, analyzed and interpreted the data, and contributed to revising the final version of the article.

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Human Participant Protection

This study was determined to be "not regulated" by the University of Michigan institutional review board.

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