The dental safety net, its workforce, and policy recommendations for its enhancement

Burton Edelstein, DDS, MPH

Columbia University College of Dental Medicine and Children's Dental Health Project

Keywords
dental care; dental clinics; dental facilities; dental health services; dentist's practice patterns; dental education; dental insurance; dental Medicaid programs; vulnerable populations; health services accessibility.

Correspondence
Dr. Burton Edelstein, Columbia University College of Dental Medicine, Dental Medicine-SSBS, 601W 168th Street Suite 32, New York, NY 10032. Tel.: 212-342-3550; Fax: 212-342-8558; e-mail: ble22@columbia.edu. Burton Edelstein is a professor at Columbia University and president of the Children's Dental Health Project.

Received: 1/19/2010; accepted: 3/19/2010.

doi: 10.1111/j.1752-7325.2010.00176.x

Abstract

Objective: The dental safety net includes the facilities, providers, and payment programs that support dental care for underserved populations including those individuals disadvantaged by a variety of social, economic, and health conditions. Its components-health centers, dental schools, clinics, Medicaid-oriented dental practices, free-care programs, hospital emergency rooms, and others-vary in availability, comprehensiveness, continuity, and quality. The objective of this overview is to identify options and opportunities for policy changes to enhance oral health professional workforce in the safety net.
Methods: Characteristics of the dental safety net and its components are reviewed and compared.
Results: Professionals who now staff the dental safety net are a small subset of US dental providers and few current trainees anticipate practicing in these programs. Therefore, the safety net will continue to confront workforce challenges.
Conclusions: Multifactorial policy alternatives to increase the availability of dental professionals who care of the underserved include proposed changes in dental education, licensure, scope of practice for allied dental personnel, and federal and state financing of public insurance. Also needed are local efforts to establish social norms and activities among private dentists that engage more private practitioners in care of the underserved.

The Dental Safety Net

The dental "safety net" is variously defined as the facilities (1,2), providers (3), and payment programs (4) that support dental care specifically for "underserved populations." These various definitions distinguish the "safety net" from the delivery of dental care by dentists in private practice. The safety net portion of care delivery in the United States that exclusively focuses on caring for the underserved has very limited capacity compared to the cumulative capacity of private dentistry. As a result, most care received by the underserved is today provided by private dentists.

Although a variety of social and demographic characteristics correlate with use of dental services, underserved populations are typically defined by their low incomes (5). For example, Bailit *et al.* characterize the dentally underserved as individuals with incomes less than twice the federal poverty level (82 million Americans or 27 percent of the US population) because these individuals utilize dental services at about half the rate of higher-income groups and are described as "unable to purchase private sector care" (1). "Effective demand" for dental care by the underserved, defined as having both motive and financial means to obtain care, has been considered to be modest (5). Yet, each year a substantial portion of the US population – estimates range as high as 26 percent (6,7) – self-identifies a need for dental care (i.e., expresses a motive), but does not seek care because of cost (i.e., has insufficient financial means). In addition to those disadvantaged by income, the underserved also includes those whose age, physical, health, behavioral, social, language (8), or geographical (9) conditions render them vulnerable and limit their access to, or acceptance by, many of the 92 percent (10, p. 39) of all US dentists who are in private practice. In short, the dental safety net is the composite of all places, providers, and programs that deliver dental services to people disenfranchised from the predominant private dental delivery system.

The dental safety net is highly variable in availability, comprehensiveness, continuity, and quality. It is comprised of federally qualified health centers (FQHCs) and other health centers, including those that target migrants, homeless, residents of public housing, children, and adolescents, as well as dental schools, hygiene programs, public school clinics, and mobile dental programs. The most substantial and widespread of these are the FQHCs which provide a range of medical services to 16 million people and offer preventive dental care in over 70 percent of sites (10, pp. 44-5). In 2008, the 1,080 federal health center grantees provided oral examinations and preventive services to 2.3 million people, dental reparative services to 1.2 million people, and emergency and oral surgical services to nearly 800,000 people (11).

The nation's long-established and new dental schools increasingly view themselves as having a primary responsibility to care of the underserved while balancing their educational and research missions (12,13). Many of the newest dental schools explicitly reference responsibility to care for the underserved in their mission statements and incorporate community-based learning as core elements of their curricular design. For example, Western University of Health Sciences College of Dental Medicine describes its mission as training dentists "who will fulfill their professional obligation to improve the oral health of all members of society, especially those most in need" (14). The foundation-sponsored *Pipeline, Profession & Practice: Community-Based Dental Education* program reports that it successfully "demonstrated that the 15-funded dental schools could improve access to care through its education program and address the dearth of minorities entering the dental profession through recruitment efforts to interest students of color and students from disadvantaged backgrounds into the profession" (15).

The dental safety net also extends to free care programs (16) (including Donated Dental Services, Give Kids a Smile, Missions of Mercy, and Remote Area Medical), nonprofit agency clinics, nursing home programs (17), and home visitation services. Each may provide varying levels of care in some locales. Additional default resources used by some vulnerable individuals, particularly when confronting dental pain, include physicians (18), hospital emergency departments (19-21), pharmacists (22), and illegal dentists (23). Some Americans opt for international "dental tourism" to meet their treatment needs at low cost, particularly if they lack dental coverage (24), while some immigrant populations return to their home countries to obtain needed care (25) and others try home remedies to manage their own symptoms (26).

Many of the underserved, particularly children, are insured by Medicaid and the Child Health Insurance Program, but are unable to obtain care primarily because of the lack of private dentists who participate in these programs (27). When seeking care, adults insured by Medicaid fare worse than children as the majority of states provide inadequate or no dental coverage. Medicaid as the financial safety net for dental care is weak as 19 states provide limited dental benefits to adults, 16 provide for only emergency services, and seven have no adult benefit at all (28). While approximately 15 percent of the entire US population (calculated using data from Kaiser Commission on Medicaid and the Uninsured at http://www.kff.org/medicaid/7606.cfm; accessed January 2, 2010) and more than one-quarter of US children (29) are covered by public insurance, only 6.3 percent of patients cared for by general dentists and 6.8 percent of patients cared for by specialist dentists are publicly insured (30).

Over the period 1999 through 2008, national utilization of dental services by children in Medicaid increased from 25 to 38 percent (author's calculations from federal Medicaid 416 performance reports). While these changes may be accountable in part to improvements in state measurement and reporting, additional reasons for this increase may include Medicaid and CHIP enhancements in some states, increased professional awareness of and attention to the underserved, improvements in the safety net, increased extramural dental training, improved contracting for program management, dentists' response to the recession, and increased volunteerism by dentists. Concurrent with these increases is the rapid growth of for-profit general dentistry group practices that treat only patients covered by Medicaid and CHIP, and are affiliated with national management companies. The largest such company, FORBA with its affiliated "Small Smiles" clinics in 22 states alone provided care to nearly one million poor and low-income children in 2009. Many others of various sizes similarly provide care in urban areas characterized by large, poor, minority populations.

Table 1 provides a conceptual "SWOT" analysis, characterizing the internal strengths and weaknesses of seven primary components of the dental safety net along with external opportunities and threats that impact their performance. The information contained in the table is based on the literature cited and by key informants from safety net programs. While the information provided glosses nuances that are specific to individual safety net programs and sites, it elicits some observations that can inform safety net improvements. For example, the chart reveals that only hospital emergency departments have a sufficient number of sites in underserved areas to potentially meet demand for dental care, yet they rarely are responsive to dental needs, are not designed to provide comprehensive care, and have insufficiently trained personnel to deal with even acute dental problems. Policies therefore could be developed to establish at least a minimum standard of emergency dental care in these sites. The table also reveals that all safety net providers could benefit from health information technology, enhanced cultural appropriateness, expanded dental workforce size, and increased delegation through allied dental professionals. Considering

Table 1 Conceptual Overview of Various Dental Safety Net Components' Internal Strengths and Weaknesses and External Opportunities and Threats as Assessed from the Dental Literature and Key Informants Acknowledged in the Postscript

	Federally qualified health centers	Health centers	Dental schools	Medicaid dental practices	Corporate Medicaid practices	Volunteer free care programs	Hospital ER
Internal strengths							
Location among underserved	Yes	Yes	Generally yes	Mixed	Yes	Yes	Yes
Cultural appropriateness	Yes	Yes	Mixed	Yes	Yes	Mixed	Yes
Responsive to population needs and desires	Mixed	Mixed	Mixed	Yes	Yes	Mixed	No
Governance includes patient representatives	Yes	Mixed	No	No	No	No	Mixed
Provider motivation to care for underserved	Yes	Yes	Mixed	Yes	Yes	Yes	Yes
Comprehensiveness within Medicaid allowances	Mixed	Mixed	Mixed	Yes	Yes	No	No
Internal weaknesses							
Insufficient numbers of sites to meet demand	Yes	Yes	Yes	Yes	Yes	Yes	No
Insufficient size to meet demand	Yes	Yes	Yes	Yes	Yes	Yes	No
Insufficient staffing by dentists	Mixed	Mixed	Mixed	No	No	Mixed	Yes
Insufficient allied dental health personnel staffing	Yes	Yes	Yes	No	No	No	Yes
Inefficient	Mixed	Mixed	Yes	No	No	Mixed	Yes
Inadequately financed	No	Yes	Yes	Mixed	No	Yes	Yes
Unprofitable/unsustainable	Mixed	Mixed	Mixed	No	No	Yes	No
External opportunities							
Expansion of governmental infrastructure support	Yes	Mixed	Mixed	Mixed	Mixed	No	No
Demand by dental educators for training off-sites	Yes	Yes	Yes	No	No	No	No
Health information technology incentives	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medical–dental integration	Yes	Yes	No	No	No	Mixed	No
Potential to incorporate evidence-based dental care	Yes	Yes	Yes	Mixed	Mixed	Mixed	No
Potential to incorporate disease management	Yes	Yes	Yes	Mixed	Mixed	No	No
Expansion of dental workforce size and delegation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
External threats							
Cuts in Medicaid coverage or payments	Yes	Yes	Generally yes	Yes	Yes	No	Yes
Over regulation	Yes	Generally yes	Generally yes	Generally yes	Generally yes	No	Yes
Competing demands and interests of policymakers	Yes	Yes	Yes	Yes	Yes	No	No
Robust economy and employment (?)	No	No	No	No	No	No	No
Health reform's guaranteed pediatric dental benefit		No	No	No	No	No	No

dental schools as safety net providers, the table suggests significant variation and therefore implies that some schools are doing better than others on this measure. Dental educators could therefore learn well from one another about what works and what does not in providing care to their communities.

Safety net dental providers

Dental professionals who provide care in the safety net have been described as those "with a specific interest in providing or mission to provide dental care to low-income and other underserved populations" (3). These include roughly 20 percent of private US dentists who are active Medicaid providers, comprising about 30,000 dentists nationally. Among 42 reporting states, these one-in-five dentists billed at least $10,000 to Medicaid in 2000 (31). Paucity of providers is a problem even in states that have significantly reformed their dental Medicaid programs. For example, despite dramatic relative increases in dentist enrollment following payment and administration reforms in AL, MI, SC, TN, and VA (respective increases of 76, 150, 93, 112, and 62 percent) (32), only a small percentage of dentists enrolled themselves as providers (31, 24, 44, 19, and 17 percent, respectively, calculated from numbers of dentists by state at http://www.statehealthfacts.org/comparemaptable.jsp?ind=442&cat=8, accessed January 2, 2010) and even fewer actively participated. As a result, utilization by Medicaid-insured children averaged only about one-third even in these exemplary states' programs.

There is very little empirical evidence about the characteristics of dentists who provide care in Medicaid or are employed in the safety net. Pediatric dentists see Medicaid beneficiaries at rates three times greater than general dentists [18.9 percent (33) versus 6.3 percent (30)]. Analyses of Medicaid providers in Wisconsin revealed that dentists who accept new Medicaid patients are more likely practicing in rural areas, are pediatric specialists (34), are non-white

(34,35) practice in groups of three or more, and are foreign educated (35). A Massachusetts analysis of its community health center dentists reports that 132 (approximately 2 percent of state-licensed dentists) are employed in health centers and that 40 percent of them hold limited licenses granted to graduates of foreign dental schools. Most health center dental directors (87 percent) chose health center practice because they "felt a mission to the dentally underserved population" (36). Compared to other Massachusetts dentists, they were disproportionately minority (36 percent African-American or Hispanic) and older (49 percent over 50), and earned less (83 percent earn less than $120,000) (36).

Maryland successfully established a program that placed foreign-educated dentists who completed US pediatric dentistry programs in health centers as "fellows," but this program is diminishing as demand for US pediatric dentistry residency slots grows and fewer foreign graduates are being admitted (Norman Tinanoff, University of Maryland, December 24, 2009, personal communication). Foreign-educated dentists in American general dentistry fellowships also provide significant levels of care to underserved populations. Their long-term retention, however, is often hampered by immigration policies that require most to return to their country of origin for at least 2 years before seeking to emigrate (37). New York State recently joined Delaware as the only states requiring at least 1 year of postdoctoral training for state licensure, thereby increasing demand for postdoctoral training programs that typically target the underserved.

In addition to the estimated 30,000 private dentists who are actively participating in Medicaid, 1,600 dentists, including those in the National Health Service Corps, are employed in FQHCs (1) and perhaps an equal number more in other health centers. The nation's 9,300 third and fourth year dental students, and 5,600 postdoctoral trainees provide care to the underserved, often in community sites and comprehensive care clinics (38), and less frequently in hospitals. From these findings, it is conservatively estimated that less than 3 percent of US dentists are employed in the safety net, and less than one-quarter of private practice dentists are accessible to underserved populations. On the ground, these percentages are often much lower. For example, calls made late in 2009 to all dentists in Palm Beach County, Florida found that only 12 of 304 primary care dentists in the county (4 percent) accept a new publicly-insured child patient (39).

Among tomorrow's dentists (40), the influence of "care to underserved" in choosing a dental career varies considerably by race and ethnicity. Many more black and Latino students who graduated in 2008 ranked care to the underserved as influential or very influential in their career choice as did white students (80.9, 70.1, and 47.2 percent, respectively). These minority students also expected to treat more underserved individuals in their future practices (36.8 percent of black, 26.7 percent of Latino, and 6.5 percent of white students expect that 50 percent or more of their future patients will be from underserved populations), but they comprise only 11 percent of the 2008 graduating classes. Underrepresented minority students' anticipation of treating more underserved individuals reflects existing practices of black and Latino dentists (41).

Regarding dental school preparation to care for the underserved (40), one in six 2008 graduates (16.5 percent) reported being less than prepared to "care for a diverse society," one in five (22.0 percent) to "adapt treatment planning for low-income individuals," one in four (23.0 percent) to provide "oral health care for rural areas," and one in three (37.7 percent) to "care for the disabled." The majority (70.5 percent) agree that "access to care is a major problem in the United States," and nearly the same numbers (69.5 percent) agree that "providing care to all segments of society is an ethical and professional obligation," but fewer students agree that "everyone is entitled to receive basic oral health care regardless of ability to pay" (59.7 percent). Only one in 50 (1.7 percent) graduating students report a long-term plan to practice in a "community clinic." Among 2007 graduates, 1 year after graduation, 2.2 percent were employed by dental safety net organizations (42).

According to the National Network for Oral Health Access, an association of health center dentists, "Workforce issues remain a top concern for Health Center dental clinics struggling with issues of recruitment, retention, training, salary, and turnover rates" (43). One-quarter (44) to one-third (45) of health center dentists report planning to leave health center employment for reasons other than retirement, and more than a third of health centers are recruiting dentists at any given time (45,46). Factors associated with intention to leave employment include, in order of frequency, short-term experience in health centers, completion of loan repayment obligation, lack of opportunity to exercise professional judgment, and not ranking "mission to the dentally underserved population" as the first choice for health center employment. About half (46 percent) of former National Health Service Corps dentists in health centers reported that they continue to care for the underserved, with black dentists, and those scoring high on an altruism scale most likely to do so (47). Vacancy rates in health centers vary by location with urban centers having fewer vacancies for dentists than large and small rural and isolated sites (15.5 percent versus 23.8, 32.6, and 27.2 percent) (46), and firm job offers are most commonly rejected because of perceived low salaries and locations of the centers (45). More than half of health center dentists have had private practice experience prior to joining health centers, while a third come directly from training and others from military or public health experience (44).

Allied dental health professionals contribute meaningfully to the dental safety net. Not only are dental hygienists and dental assistants (including expanded function allied

personnel) widely employed in safety net facilities, but 29 states have created authority for hygienists to have "direct access" to patients without a dentist's specific authorization (48), and two states (CO and ME) allow independent practice of dental hygiene.

Policy alternatives for safety net workforce

In its totality, the dental safety net is not an organized system of care, but a hodgepodge of disparate local, state, and federal programs and policies that seek to address the needs of vulnerable populations. As such, its workforce needs vary, as do other "systems" issues including financing and financial stability, reporting, accountability and evaluation, and quality management and assurance. Regarding workforce, this review reveals a number of policy options available to enhance the adequacy and competency of dental professionals across the safety net.

Addressing consequential oral health inequities and safety net inadequacies will require multifactorial approaches and will therefore require the concerted and cooperative efforts of policymakers from across domains of government, the health professions, education, research, social service, the dental industry, and advocacy and faith communities. Without question, the single best approach is to dramatically reduce need and demand for conventional dental treatment by preventing and managing disease, thereby attaining better health at lower costs. To accomplish this, effective biological and behavioral interventions need to be further developed by scientists, behaviorists, health educators, social workers, and health professionals; promoted by governmental payment, workforce, and reporting policies; and institutionalized for the next generation of caregivers through changes in curricula and experiential education.

Because private practice dentists constitute the overwhelming majority of care delivery capacity in the United States, any attempt to reduce disparities must find ways to significantly increase private dentists' participation in Medicaid. Short term, this can be accomplished through efforts ranging from increasing fees to market-responsive rates, to streamlining Medicaid program administration, providing outreach to private practitioners, organizing care facilitation at the community level, contracting between health centers and private dentists, instituting continuing education of dentists in care of special populations, and developing local- and state-level share-the-care programs (49-51). Longer term, safety net improvements will require active engagement of tomorrow's dental professionals. This can result from changes in how students are selected, trained, licensed, and recognized and rewarded. Evidence from the Pipeline, Profession & Practice demonstration supports expanding the recruitment of racial and ethnic minority dentists. Evidence needs to be developed further to support effective changes in didactic, experiential, and distance curricula that hold promise to expand trainees' understanding of options and opportunities to care for a broader segment of society. Meaningful consideration of safety net practice by future dental professionals can be increased through mentorship by safety net providers and role modeling that features career satisfactions in alternatives to modal private practice. Simply moving clinical training from intramural to extramural locations cannot significantly influence trainees' career choices toward safety net practice. But, coupling extramural training to *bona fide* service learning that addresses the community's needs and desires, and institutionalizes reflective exercises (52) may be. Moving care for the underserved from an abstract concept to a meaningful experience may also be enhanced by interfacing trainees with emergency room physicians and pharmacists who too often are default providers and with social service professionals who deal with access to care. Expanding the numbers of states that require a postdoctoral year of training for dentists can expand care to the underserved through expansion of safety net sites used for such training, enhance clinical skills for care of socially and medically complex patients (53), and raise awareness about safety net careers if coupled with mentorship and encouragement. Perhaps most influential would be formally engaging both part-time and full-time faculty in their continuously stressing the interpersonal social and behavioral, empathetic, ethical, and professional contexts of care in addition to stressing the technical skills inherent in dental care. Doing this effectively will require considerable faculty education, motivation, and formal reward.

Changes in educational opportunities and in state practice acts will be required to capitalize on the benefits of recruiting and retaining foreign-educated/US-trained dentists, expanding the scopes of practice for existing allied dental personnel, increasing direct access dental hygiene practice, implementing cross-state teledentistry, liberalizing supervision requirements, and engaging medical professionals in limited care of acute dental for the immediate relief of pain and infection.

Policymakers' interest in additionally authorizing dental therapists and dental hygienist therapists to provide basic preventive and reparative care with a focus on underserved children is evident in the establishment of the dental health aide therapist in AK, dental therapist in MN, and congressional action to investigate training for this alternative dental provider (54). The dental professions have additionally advocated to policymakers new dental providers to address inequities in access that include the Community Dental Health Coordinator and the Advanced Dental Hygiene Practitioner (55,56).

Development and evaluation of a variety of these new dental providers hold promise to increase workforce in the safety net through systems of care that delegate and coordinate services under the overall management by dentists

trained to coordinate such systems. From a systems perspective, workforce issues relate considerations of types of providers and their designated scope, supervision, training, and deployment; their numbers, distributions, and competencies; and organized approaches to coordinating the care that they provide. As new providers are envisioned and their roles developed by communities of interest and demarcated by state practice acts, each of these factors will need to be considered. Inherent in these discussions should be maximizing the utility of new providers in enhancing equity of care availability and affordability. These developments will expose a variety of perspectives and, of necessity, deal with controversial issues including whether new providers (particularly dental therapists) should be authorized to care only for the underserved. For example, while some proponents of dental therapists would target these new providers exclusively to care of the underserved, others counter that unrestricted deployment would be more effective because it could provide the private sector the opportunity to expand services to the underserved through delegation. Some raise concerns about "two-tiered" health care with limited services available through dental therapists to the poor in the safety net and comprehensive care available through delivery in private dental offices, while others envision delegation of all primary dental services for all populations to therapists with the dentist retaining direct responsibility for those patients and procedures that present greater complexity.

Policies and programs that capitalize on the robust cohort of dental professionals in private practice are urgently needed to bolster both the programmatic and financial safety net. Many dentists' participation in free care programs and provision of unreimbursed care evidence a commitment to small numbers of the underserved. This commitment needs to be leveraged and institutionalized for greater volumes of care through improved financial incentives in Medicaid and CHIP; establishment of positive social norms regarding care for the underserved through social recognition and rewards; public–private contracting between FQHCs and private dentists; and opportunities to enhance skills in caring effectively for people of different cultures, languages, and social conditions. Study clubs targeting dental offices that volunteer for Give Kids a Smile and other free care programs could be vehicles for technical and cultural skill enhancements; sharing experiences, best practices, and problem solving; gaining greater understanding of various groups of underserved individuals; meeting with public officials, advocates, industry, and others concerned; developing professional organizational policies; creating small area collaboratives like "share-the-care" and case management efforts; and exploring business practices that foster "doing well by doing good." Individual dentists or local dental societies can also "adopt" programs such as a Head Start or senior center, program for people with special needs, or migrant or immigrant agency. As when engaging students, existing practitioners can be positively influenced by leaders and mentors who establish expectations, demonstrate engagement, and facilitate expanded practice.

Careful and objective health service research is needed to explicate the independent relationship between public insurance payment levels and dentists' participation in Medicaid and CHIP. A direct relationship between fee levels and dentist participation in Medicaid is assumed, with an important threshold level below which private dentists do not generally participate because of their need to cover operating costs. Yet, there is little evidence in the literature to quantify these anticipated relationships. A review based on key informants and state Medicaid reports in six states suggests that a threshold phenomenon does exist and that payment increases are a necessary if insufficient condition to engage the private sector dental workforce, but that utilization rates remained modest after program reforms (32). A primary analysis of North Carolina Medicaid claims data following a substantial fee increase, and eligibility expansion found that "expansions and reimbursement rate increases were only marginally effective in increasing access" (54). Similarly, there is little information regarding return on public investment for policymakers to use in formulating decisions regarding payment levels. Recruitment and retention of dental professionals to safety net facilities may be enhanced by improving their efficiency and staffing, and by increasing compensation, inclusive of salary and benefits. Further refinement and expansion of for-profit Medicaid-only group practices and their integration within larger systems of care similarly hold promise to increase care. And simply expanding the breadth and depth of safety net facilities, providers, and payment streams is critical to ensuring greater equity in care, particularly for those with the greatest needs.

Conclusions

This assessment of the dental safety net – its facilities, providers, and payment programs – substantiates its limited capacity and overall insufficiency in meeting the demands and needs of socially vulnerable populations. While evidence-based disease prevention, health promotion, and disease management hold the greatest promise for improved oral health, the extant burden of disease demands policy solutions that can bolster the available workforce and improve equity for all Americans.

Acknowledgments and conflict of interest

The author thanks experts who provided valuable information on the dental safety net for the article and the "SWOT Analysis Table," including David Albert, Jay Anderson,

Howard Bailit, Courtney Chinn, Todd Cruse, Terry Dickenson, Mark Doherty, Caswell Evans, Michael Helgeson, Robert Isman, Jayanth Kumar, Lewis Lampiris, John McFarland, Mahyar Mofidi, Michael Monopoli, Jessley Ruff, Robert Russell, Norman Tinanoff, and Robert Weyant. Sources of funding: none. Financial disclosure: none. Conflict of interest: none.

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