Policy Brief

MACKINAC CENTER FOR PUBLIC POLICY

Texas Public Policy FOUNDATION

SEPT. 29, 2016 S2016-06 ISBN: 978-1-942502-08-1

Dental Therapists: A Proposal to Expand Access to Dental Care in Michigan

By Michael Van Beek and John Davidson

Introduction

In a speech on Sept. 14, 2011, Michigan Gov. Rick Snyder outlined his ideas for how to help state residents become healthier. He praised some current health care policies and practices, but also warned that the system is "costly and confusing," and that there were too few health care providers. Gov. Snyder also emphasized the connection between a person's oral health and his or her overall healthiness, and claimed that poor oral health was resulting in "inappropriate use of emergency rooms."[1]

Gov. Snyder is right that oral health is an important part of a person's health, a fact that is not well enough known and too often forgotten. Michigan has too few health professionals, in some areas of the state, particularly dental providers. And evidence suggests that Michiganders may be paying more than they would had if more people had access to preventive dental services. Neglecting preventive care means that too often people wait until a minor dental issue escalates into a major one, perhaps even requiring a trip to the emergency room.

For example, a 2014 study by Anderson Economic Group found that there were more than 7,000 emergency room visits in 2011 in Michigan for preventable dental issues. Over 1,000 of these visits turned into hospitalizations, but about half of them were for treatment of cavities — a problem that can be easily dealt with in a dental office.[2]

Using emergency rooms to treat problems arising from preventable dental issues is inappropriate, in Gov. Snyder's terms, in part because it requires time and resources of medical staff who could otherwise serve patients suffering from accidental and unpreventable urgent medical emergencies. It's also extraordinarily expensive. Estimates suggest that it costs about five times more to treat pain and infections resulting from dental problems at a hospital's ER department than the appropriate care would have cost at a dentist's office.[3]

The AEG study estimated that patients and insurers paid about $15 million for the dental-related 7,000 emergency room visits in 2011 — or, more than $2,000 per visit, far more than preventive care at a dentist's office would have cost.[4] But this $15 million is just what was paid to hospitals — not necessarily what hospitals actually charged for these emergency services. AEG estimated this amount to be a whopping $58 million, or about $8,300 per emergency room visit.[5]

What can be done to avoid these types of unnecessary health care costs? Clearly, more people in Michigan need access to dental care. One way of making it easier for people to get that care is to allow for more dental service providers to operate in the state. Currently, Michigan only allows licensed dentists and dental hygienists to perform the treatments that would have prevented many of these emergency room visits.

On a per capita basis, the number of dentists in Michigan is close to the national average. But they are not equally distributed throughout the state, leaving too many people without an easily accessible dental provider. Moreover, Michigan's dentists are aging quickly and a sizable amount of them are likely to retire soon.

Other states face similar issues and are creating midlevel dental providers, sometimes called dental therapists. A dental therapist, supervised by a dentist, could provide basic preventive treatment and other routine care, which would

ABOUT THE AUTHORS

Michael Van Beek is the director of research at the Mackinac Center for Public Policy. **John Davidson** is a senior fellow at the Texas Public Policy Foundation.

likely reduce the number of emergency room visits for dental conditions. Michigan should consider this approach as it will: 1) help deal with the current identified dental care shortage areas, 2) put downward pressure on the price of dental services, making it more affordable for more people, and 3) respond to Michigan's future demand for dental services.

What is a Dental Therapist?

Licensed dental therapists work with dentists much like physician assistants work with doctors. They are licensed by the state, which defines the educational, training and testing requirements needed for a dental therapist license to be granted. Dental therapists have a defined and limited set of practices that they can perform as defined by state law. Midlevel providers can only work under the supervision and direction of a licensed dentist.

Michigan Senate Bill 1013, legislation sponsored by Sen. Mike Shirkey, R-Clarklake, would create a new license for dental therapists and provides the specific requirements for training and practice for these midlevel dental care providers. It requires dental therapists to have graduated from an accredited dental therapy program at a state-approved college or university.[6] These programs are accredited by the Commission on Dental Accreditation. CODA is part of the American Dental Association and provides accreditation for dental education programs.[7] It is the same agency that accredits Michigan's current dental school programs and dental hygienist programs.[8]

Aspiring dental therapists also have to pass a state test and gain direct experience in dental care before receiving a license to work. The state test would be a comprehensive, competency-based clinical examination to test their knowledge of dental care and the relevant Michigan laws.[9] Completing 500 hours of supervised clinical practice would satisfy the direct experience requirement.[10] To renew a license, a dental therapist would have to complete another 35 hours of state-approved continuing education within two years.[11]

Dental therapists could only work at licensed, state-approved hospitals, local health facilities, federal health centers or health programs operated by a Native American tribe. They could also work at a child health center or other dental clinics whose primarily patients come from low-income backgrounds or do not have dental insurance.[12] Further, dental therapists would only be able to work if they sign a "practice agreement" with a licensed dentist. This agreement would outline what specific services, among those allowed by the state license, the dental therapist could perform.[13]

SB 1013 would allow dental therapists to perform a number of different services, if approved by a licensed dentist. These include examining a patient's teeth, taking and analyzing X-rays, cleaning and polishing teeth and filling cavities. Other allowable activities would include fabricating and placing crowns, applying topical preventive agents and sealants, administering local anesthetic and extracting erupted primary teeth.[14] For all other patient needs, a dental therapist would be responsible for referring the patient to the appropriate dental care professional.[15]

Dental Therapists at Work in Other Countries and States

Developed countries have been using midlevel dental providers for decades. New Zealand, for example, has licensed dental nurses (equivalent to a dental therapist) for almost a century.[16] In 2004, the U.S. government's Indian Health Service partnered with New Zealand to train and license dental health aide therapists to serve rural communities in western Alaska as part of the Alaska Native Tribal Health Consortium's Community Health Aide Program.[17] By 2005, the first therapists were practicing in Alaska. Today, they serve 81 rural communities with a combined population of more than 40,000.[18]

In more recent years, state legislatures in Minnesota, Maine and Vermont have started to use midlevel dental providers. In 2009, Minnesota created licenses for dental therapists and for advanced dental therapists. These two designations differ in the level of supervision required, but both allow license holders to perform a variety of important preventive and routine procedures, including filling cavities and some extractions.[19] In 2014, Maine passed a law authorizing dental hygiene therapists, and in June 2016 Vermont passed a similar law.[20] Twelve other states have introduced legislation in 2016 to create midlevel dental providers like those in these three states.[21]

There are minor differences in how midlevel dental providers work in different states. But the reason for creating a new provider position is similar: to increase dental care access for underserved groups and boost the supply of dental providers to meet the challenges of an aging dentist workforce. In Minnesota, where dental therapists

have been practicing the longest in the U.S., this approach appears to be working. A 2014 report by the Minnesota Department of Health and the Minnesota Board of Dentistry found that the introduction of dental therapists and advanced dental therapists is working as planned. They have increased access to care for underserved populations and enabled dental practices to treat more uninsured and Medicaid patients. The report also found that patients of these midlevel providers were generally satisfied with the services they received and that demand for these professionals is growing.[22]

There is also some evidence that hiring midlevel providers increased the efficiency of dental practices. A case study of one Minneapolis community or safety net clinic — a treatment center that primarily serves low-income patients — found that a single dental therapist performed 1,756 patient visits in one year. Moreover, increased patient volume at the clinic generated revenues that exceeded the cost of employing the dental therapist by more than $30,000 and allowed the clinic to hire another midlevel provider.[23]

These findings corroborate research showing that midlevel dental providers can safely perform about half the procedures done at safety net dental clinics, 80 percent of procedures done at community clinics, and more than half of those done at hospital-based clinics.[24] The reason for this is simple: Midlevel dental providers are trained to perform procedures that are most common, like filling cavities and extracting teeth, procedures that are also in high demand among underserved and uninsured populations.

Current State of Dental Health in Michigan

There are several encouraging statistics about oral health in Michigan, and these should not be ignored. For instance, Michigan has a long history of fluoridation, with Grand Rapids being the first city in the U.S. to enhance its water supply with fluoride in 1945. Michigan now ranks 15th in the country for access to fluoride-enriched drinking water.[25] Michigan also ranks well, given its economic ranking among the states, in use of dental services. Just over two-thirds of adults visited a dental service provider in 2012, a few percentage points above the national average and 18th best in the nation.[26]

However, there are troubling signs, particularly when looking at specific population groups throughout the state. In a 2010 survey, nearly 30 percent of third-graders had untreated dental disease, as did 42 percent of third-graders in the metro Detroit area.[27] Seventeen percent of these third-graders in metro Detroit needed immediate dental care.[28] These data suggest that too many children in Michigan have dental problems and need access to care.

But it's not just children who need better access to affordable dental care; there's evidence that seniors do too. A 2010 survey showed that 30 percent of seniors in Michigan had untreated tooth decay, most of which could be dealt with using basic dental procedures in a dental office. Furthermore, 45 percent of seniors had fair or poor gums because of gingivitis.[29] Eighteen percent of seniors had a major or urgent need for immediate care.[30] A 2013 screening of a sample of seniors found that 17 percent suffered from severe dry mouth, 16 percent had severe gingival inflammation, 17 percent had untreated tooth decay and 13 percent had root fragments.[31]

These data suggest that some pockets of populations in Michigan are not getting the dental care they need. And one of the main barriers to getting care is the cost. Nearly 90 percent of facility managers of retirement homes and senior centers said that the primary reason more seniors do not get dental care is for financial concerns.[32] Only 56 percent of Michiganders have dental insurance, and the average out-of-pocket dental expense in Michigan in 2010 was $827. That's 24 percent higher than the national average of $666.[33] Reducing dental costs would go a long way to ensure that more people have access to the care that they need.

Michigan's Current Dental Care Shortages

But even if dental costs were reduced in Michigan, there still might be underserved areas and populations. The U.S. Department of Health and Human Services defines and identifies "health professional shortage areas" throughout the United States. A shortage area can cover a segment of the population, a geographic region or even a specific health facility. Public officials identify HPSAs for medical physicians, dentists and mental health providers.[34] A dental HPSA is designated based on the ratio of full-time dentists to the population. For instance, a geographical dental HPSA is one in which there are more than 5,000 people per full-time dentist.[35]

According to HHS, Michigan had 212 dental shortage areas in 2014. Although there was only one geographic dental HPSA — the rest were facility-based or special population-based — 76 of Michigan's 83 counties had at least one shortage area. There are almost 900,000 people living in Michigan's dental HPSAs, and only 42 percent of the needed dental services are being provided in these areas, facilities or to these special populations. Michigan would need another 128 full-time dentists working in these facilities and serving these populations to eliminate all these shortage areas.[36]

Federal agencies also rank the severity of shortage areas, allowing for a prioritization of alleviating the 212 different needs. In Michigan, the highest priority dental HPSAs are in the following counties: Houghton, Baraga, Dickinson, Ionia, Wayne, Chippewa, Clare, Mecosta, Osceola, Alger, Grand Traverse, Isabella, Montmorency and Tuscola.[37] The more rural areas of Michigan — the northern Lower Peninsula and entire Upper Peninsula — are home to the most shortage areas.[38] The more populated and suburban areas in the southern Lower Peninsula have fewer dental HPSAs. Providing dental services to sparsely populated geographic regions appears to be a challenge in Michigan.

The impact of these shortage areas on the oral health of Michigan residents can be found in surveys and screenings of population groups in Michigan. For instance, in a 2010 screening 17 percent of third-graders in Detroit needed immediate dental services, while only 7 percent of third-graders statewide did.[39] Likewise, while 27 percent of third-graders statewide had untreated dental disease, 42 percent of Detroit third-graders did.[40] Also, while 51 percent of third-graders in the state had had a cavity in their primary teeth, 63 percent had in the Upper Peninsula.[41] But, somewhat surprisingly, third-graders in the Upper Peninsula were more likely to have seen a dentist within the last year than most other children around the state. While 91 percent of them made a visit, while only 74 percent of third-graders in the northern Lower Peninsula did.[42]

New midlevel providers like dental therapists may help alleviate these shortages. Dentists could supervise dental therapists and use them to expand their network of care. They also could deploy them to high-need areas and do so for less money than opening up a brand new office.

Michigan's Medicaid Problem

The likelihood that someone receives preventive dental care, such as a routine checkup at a dentist's office, varies with personal income. For instance, only 44 percent of adults in Michigan with less than $20,000 in reported income visited a dentist in 2012. But 72 percent of adults with a household income between $35,000 and $49,999 visited a dentist that year and 86 percent of adults in households with incomes above $75,000 did.[43] This is one of the fundamental challenges of trying to expand access to dental care.

One contributing factor to this problem is that Medicaid does a poor job of helping low-income families get dental care. Michigan uses a "fee-for-service" funding model that relies on Medicaid reimbursing dentists for services they provide Medicaid-eligible patients. But Medicaid reimbursement rates are very low — having not increased since the 1990s — and too few dentists opt to enroll in the Medicaid program. In fact, only 10 percent of dentists in Michigan had Medicaid claims of $10,000 or more in 2008. And six counties in Michigan did not have a single dentist enrolled in Medicaid's fee-for-service reimbursement program.[44]

Fortunately, efforts have been underway to make it easier for low-income families to receive dental services, especially for children. Delta Dental of Michigan, a large dental insurance provider, partnered with the state of Michigan to create a program called Healthy Kids Dental. Under this arrangement, Delta Dental reimburses dentists who provide services to Medicaid-eligible children. Delta Dental is able to give higher reimbursement rates for dentists than Medicaid (although not equal to their customary rates). Participating dentists do not have to enroll in Medicaid's program to get reimbursed. They can apply for a reimbursement like they would for any other patient covered by a private dental insurance plan.[45]

This program has made significant improvements to low-income children's ability to gain access to dental care. In 1999, only 8 percent of children who were eligible for Medicaid benefits received a preventive dental service. In 2013, that figure had increased to 36 percent and Healthy Kids Dental is now available to children in every county in Michigan.[46] That's important progress for sure, but it still lags the national average, where 39 percent of Medicaid-eligible children receive preventive dentist services annually.[47]

Despite this effort, 64 percent of low-income children are not seeing a dentist on a regular basis, potentially creating higher health care costs in the future. As noted earlier, it is estimated that treating pain and infections from preventable dental problems by a hospital's emergency department costs about five times more than what the preventive service would cost at a dental provider.[48]

Emergency room visits for oral health issues is a real problem in Michigan. Recall that the Anderson Economic Group study (commissioned by Delta Dental) found that there were over 7,000 emergency room visits related to oral health issues, all of which were for preventable conditions, and 1,000 of these patients needed to be hospitalized as a result of their condition. This situation creates millions of dollars of extra emergency room and hospitalization costs that could have easily been prevented with the appropriate dental care needed to avert these types of emergencies.[49]

Adding a midlevel dental provider could help more low-income families in Michigan get dental care. Dental therapists would make it easier and less costly for dentists to expand their practices, especially their capacity to provide routine and preventive care — care that helps reduce future health-related costs. Instead of being limited to having to hire a second dentist to enlarge their practice, dentists could expand on a smaller scale by hiring a dental therapist. Since a dental therapist will not cost as much as a second dentist, this will allow dentists who would not otherwise be able to afford expanding their practice to do so. This will benefit low-income families, because they are potential clients for new business for dentists. And more dentists expanding their practices means better access to more affordable dental care.

A second reason why dental therapists may help low-income families is that offices that employ them might be more open to accepting Medicaid's reimbursement rate. They also might be more likely to take part in the Healthy Kids Dental program. Midlevel providers may be better able to provide care at the lower reimbursement rates offered by Medicaid and Health Kids Dental. If this is the case, more dentists might be willing to expand their services for Medicaid-eligible populations.

Further, if dentists find that hiring dental therapists makes it feasible to expand their practice, the market for dental services will become more competitive. That could lead to lower prices, benefitting all consumers of dental services, but low-income ones the most, especially those who currently cannot afford any dental care. In a 2010 survey of parents of third-graders in Michigan, the two most common reasons cited for why third-graders had not visited a dentist were lack of insurance and affordability.[50]

At least one group of professionals who are very knowledgeable about the dental markets agree with this assessment. A survey of deans of dental schools published in 2013 by three Michigan professors found that three-fourths of respondents thought that midlevel providers would "improve access to care for the underserved." More than half these deans agreed that the dental profession should include new midlevel practitioners.[51]

Michigan's Looming Dentist Shortage

It may appear that Michigan has just the right number of licensed dentists and dental hygienists, who perform certain procedures under the direct supervision of a dentist, but not as many as a dental therapist would. There are about 7,700 licensed dentists and more than 10,000 dental hygienists in Michigan. About 87 percent of dentists are licensed in general dentistry and 13 percent specialize in a particular area, such as orthodontics or periodontics. In 2011, there were about 6.2 dentists per 10,000 people in Michigan, exactly the national average. And Michigan has two dental schools and 12 dental hygiene programs.[52]

However, dentists are not evenly distributed around the state, which makes it harder to gain access to a dentist in some areas than others. In 21 counties, there are fewer than 3.5 dentists per 10,000 people, and in another 20 counties there are between 3.6 and 4.9 dentists for 10,000 people. This means that although Michigan's overall ratio of dentists per 10,000 people is at the national average, people living in about half the counties in this state have far fewer dentists available.[53]

Additionally, Michigan's current crop of dentists is aging. According to a 2011 survey, 52 percent of dentists in Michigan are 55 years old or older.[54] With the average retirement age for dentists at 69 years old, it's likely that within the next 10-15 years, roughly half of Michigan's current dentists — about 3,850 — will retire.[55] In fact, when asked how long they planned to continue practicing, 50 percent of Michigan dentists said they planned to continue practicing for less than 10 years. That was five years ago.[56]

It's unlikely that the shortages created by these retiring dentists will be filled in a timely manner by the normal injection of new dentists from Michigan dental schools. About 81 percent of current dentists attended one of Michigan's two dental schools: the University of Michigan School of Dentistry and the University of Detroit Mercy School of Dentistry.[57] These schools combined enroll approximately 150 new students per year.[58] If they graduate a similar number each year, there will not be enough new dentists to replace the ones planning to retire, reducing the supply of dental services.

A dental shortage is important for at least two reasons. As a shortage of dentists increases, so will prices, which will make it even more difficult for low-income families to afford routine dental care. Second, shortages will likely be more prevalent and more severe in the areas in the state that are already underserved. This will exacerbate the problem the state already faces with providing access to affordable dental care in rural areas.

Dental therapists can help ease some of these problems by enabling dentists to maintain their practices during a period when there may not be enough new dentists available to replace the retiring ones. Given this looming dentist shortage in Michigan, these midlevel providers could become an important part of the effort to maintain or quickly replenish the supply of dental care available to Michiganders.

National Efforts to Enact Dental Workforce Reform

Although only three states have approved dental midlevel providers, along with several Native American tribal communities in Alaska, Washington and Oregon, the idea is gaining momentum nationwide, and often drawing bipartisan support. In 2015, a bill authorizing dental hygiene practitioners (the equivalent of dental therapists) was introduced in Texas by Democratic lawmakers. A diverse coalition of groups endorsed it, including the Texas Hospital Association, the right-leaning Americans for Tax Reform, and the left-leaning Center for Public Policy Priorities.[59] Although the bill failed to pass, a poll of likely voters statewide found that 89 percent supported the idea. Support was strong among Democrats (90 percent), Republicans (90 percent), and independents (87 percent).[60]

A more recent poll conducted by Wilson Perkins Allen Opinion Research for Americans for Tax Reform found similar support across the United States. Of likely voters, 79 percent expressed support for creating a dental therapist license, while only 15 percent opposed this idea. Among partisan groups, 77 percent of Republicans support dental therapists, as did 80 percent of Democrats and 80 percent of independents.[61]

In Massachusetts, where more than half the low-income adults and children received no dental care of any kind in 2014, a bill creating dental hygiene practitioners failed in the Joint Committee on Health Care Financing. It was, though, subsequently passed unanimously by the Senate.[62] In Ohio, a dental therapist bill has been introduced in the Senate, and New Mexico's House of Representatives passed a bill last year that would have created midlevel dental providers, but it failed to pass in the Senate.[63]

Bolstering these legislative efforts, the Commission on Dental Accreditation voted in August 2015 to implement dental therapy education standards after three years of research and evaluation of the efficacy and safety of the midlevel provider model.[64] CODA is an independent entity recognized as the national accrediting agency for dental education programs by the U.S. Department of Education, so its recognition of professional education standards for dental therapy is significant.

Moreover, the CODA decision was endorsed by the Federal Trade Commission, which had previously urged the adoption and implementation of standards "which would facilitate the mobility of dental therapists from state to state to meet consumer demand for dental services."[65]

Conclusion

Midlevel dental providers, or dental therapists, are analogous to physician assistants in the medical profession. Their work is directly supervised by a dentist, but they are licensed to perform services on their own. Most of these services are routine, preventive type of care, such as cleaning teeth, filling cavities and doing other minor restorations.

Although relatively new to the United States, midlevel dental providers have practiced in dozens of countries for years, including Australia, Canada, England, New Zealand and the Netherlands.[66] There is a substantial amount of evidence suggesting that there is no discernible difference in the quality of care provided by a dental therapist compared to that provided by dentists.[67]

Michigan could use this new classification of dental providers to mitigate the impact of two problems standing in the way of widespread access to dental care. One is the area-, facility- and population-based shortages identified by federal agencies that exist in the current dental service market. These shortages particularly harm low-income Michiganders and those living in less-populated areas. Seventy-five percent of dental school deans agree that midlevel dental practitioners would be an effective tool to meet these needs.

The second problem is the looming dentist shortage. About half of Michigan's current dentists are set to retire in the next 10-15 years, and Michigan's two dental schools are not on pace to produce enough dentists to replace them. This will lead to an inadequate supply of dentists, which will lead to more shortages. With an increase in shortages will come an increase in prices, and this will make delivering affordable dental services to currently underserved populations even more difficult. Dental therapists could play an important role in minimizing the impact of a large number of dentists leaving the practice for retirement.

Oral health is increasingly recognized as an important component of overall general well-being. As such, it is crucial that Michigan maintain policies that make dental services safe, but also accessible and affordable. The evidence suggests that licensing new dental therapists will help the state meet all three of these goals for its residents and help contribute to a healthier Michigan.

Endnotes

1 Rick Snyder, "A Special Message from Governor Rick Snyder: Health and Wellness" (State of Michigan, Sept. 14, 2011), https://perma.cc/JR5T-ND87.

2 Alex Rosaen and Jason Horwitz, "The Cost of Dental-Related Emergency Room Visits in Michigan" (Anderson Economic Group, LLC, April 3, 2014), 2, https://perma.cc/9SPL-RJ79.

3 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 113, https://perma.cc/WP43-6H7U.

4 Alex Rosaen and Jason Horwitz, "The Cost of Dental-Related Emergency Room Visits in Michigan" (Anderson Economic Group, LLC, April 3, 2014), 2, https://perma.cc/9SPL-RJ79.

5 Ibid.

6 "Senate Bill No. 1013" (State of Michigan, June 7, 2016), Sec. 16651, https://perma.cc/76YD-QPD5.

7 "About Us" (Commission on Dental Accreditation, 2016), https://perma.cc/ZAZ9-Y95G.

8 "Search for Dental Programs" (Commission on Dental Accreditation, 2016), https://perma.cc/EQP4-8BMS.

9 "Senate Bill No. 1013" (State of Michigan, June 7, 2016), Sec. 16651(2)(B), https://perma.cc/76YD-QPD5.

10 Ibid., Sec. 16651(2)(C).

11 Ibid., Sec. 16654.

12 Ibid., Sec. 16655.

13 Ibid., Sec. 16656.

14 Ibid., Sec. 16657.

15 Ibid., Sec. 16658.

16 "A Century of Oral Health Care" (NZ Dental & Oral Health Therapists Association), https://perma.cc/6UFX-S2QD.

17 Sarah Shoffstall-Cone and Mary Williard, "Alaska Dental Health Aide Program," *International Journal of Circumpolar Health* 72, no. SUPPL.1 (2013): 1–5, https://perma.cc/44VS-XSCG.

18 "Dental Health Aide" (Alaska Native Tribal Health Consortium), https://perma.cc/A4Y6-UKBX.

19 "Dental Therapist (DT)" (Minnesota Department of Health, Sept. 9, 2016), https://perma.cc/66H8-2JBK; "Dental Therapist Scope of Practice" (Minnesota Board of Dentistry, 2009), https://perma.cc/9JT9-AWAZ; "Advanced Dental Therapist Scope of Practice" (Minnesota Board of Dentistry, 2009), https://perma.cc/3QDP-TM77.

20 "LePage Signs Bill for Dental Hygiene Therapists" (The Associated Press, April 29, 2016), https://perma.cc/A4WG-M756; Wendell Potter, "Organized Dentistry Loses Big In Another State As Propaganda Stops Working" (Huffington Post, June 20, 2016), https://perma.cc/6N65-6BTV.

21 Logan Elizabeth Pike, "Research & Commentary: Dental Therapists" (The Heartland Institute, Aug. 30, 2016), https://perma.cc/8UDB-ZWQY.

22 "Early Impacts of Dental Therapists in Minnesota" (Minnesota Department of Health, Minnesota Board of Dentistry, Feb. 2014), 1–2, https://perma.cc/A3KQ-PMUM.

23 "Expanding the Dental Team: Increasing Access to Care in Public Settings" (The Pew Charitable Trusts, June 2014), 2, https://perma.cc/QL74-BPRP.

24 Elizabeth Phillips, Anne E. Gwozdek and H. Luke Shaefer, "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," *American Journal of Public Health* 105, no. 9 (Sept. 2015): 1770–1776, https://perma.cc/GF5M-F44V.

25 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 12, https://perma.cc/WP43-6H7U.

26 Ibid., 12, 32.

27 Ibid., 57.

28 Ibid., 65.

29 Ibid., 58.

30 Ibid.

31 Ibid., 79.

32 Ibid., 78.

Endnotes (cont.)

33 Ibid., 92; Frederick Rohde, "Dental Expenditures in the 10 Largest States, 2010" (Agency for Healthcare Research and Quality, June 2013), https://perma.cc/4UDR-RB6H.

34 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 93, https://perma.cc/WP43-6H7U.

35 Ibid., 94.

36 Ibid.

37 "HRSA Data Warehouse" (U.S. Department of Health and Human Services, Sept. 21, 2016), https://perma.cc/9ZYT-8D5E.

38 "HRSA Data Warehouse: Map Tool" (U.S. Department of Health and Human Services, Sept. 21, 2016), https://perma.cc/UHJ3-HGF2.

39 "Count Your Smiles, 2011-2012" (Michigan Department of Community Health, May 2011), 18–19, https://perma.cc/ZB65-6HN7.

40 Ibid., 16.

41 Ibid., 44.

42 Ibid., 48.

43 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 42, https://perma.cc/WP43-6H7U.

44 "Check-Up on Oral Health: A Call to Action" (Michigan Oral Health Coalition, 2014), 2, https://perma.cc/W99D-QENX.

45 Ibid., 1.

46 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 33, https://perma.cc/WP43-6H7U; Sue Thoms, "Kent County Kids Get 'Huge Win' as 2016 State Budget Expands Dental Program" (MLive.com, June 17, 2015).

47 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 56, https://perma.cc/WP43-6H7U.

48 Ibid., 113.

49 Alex Rosaen and Jason Horwitz, "The Cost of Dental-Related Emergency Room Visits in Michigan" (Anderson Economic Group, LLC, April 3, 2014), https://perma.cc/9SPL-RJ79.

50 "Count Your Smiles, 2011-2012" (Michigan Department of Community Health, May 2011), 25, https://perma.cc/ZB65-6HN7.

51 Mert N. Aksu, Elizabeth Phillips and H. Luke Shaefer, "U.S. Dental School Deans' Attitudes About Mid-Level Providers," *Journal of Dental Education* 77, no. 11 (Nov. 2013): 1469–1476, https://perma.cc/VJD5-DVDY.

52 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 9, 11, 15, https://perma.cc/WP43-6H7U.

53 Ibid., 15.

54 "Michigan Department of Community Health Survey of Dentists" (Michigan Department of Community Health, Feb. 2012), 10, https://perma.cc/G9FG-VS28.

55 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 129, https://perma.cc/WP43-6H7U.

56 "Michigan Department of Community Health Survey of Dentists" (Michigan Department of Community Health, Feb. 2012), 8, https://perma.cc/G9FG-VS28.

57 "Oral Health in Michigan" (The Center for Health Workforce Studies, April 2015), 131, https://perma.cc/WP43-6H7U.

58 Ibid.

59 John Davidson, "Improving Access to Care Through Dental Hygiene Practiontioners" (Texas Public Policy Foundation, April 10, 2015), https://perma.cc/HC8W-5ELL.

60 John Davidson, "New Poll Shows Voters Strongly Support Dental Workforce Reform in Texas" (Texas Public Policy Foundation, April 21, 2015), https://perma.cc/N7UP-NQAU.

61 Paul Blair, "ATRF Poll Shows Overwhelming Bipartisan Support for Creation of Mid-Level Dental Providers" (Americans for Tax Reform, Aug. 31, 2016), https://perma.cc/BBV3-KK74.

Endnotes (cont.)

62 "ED Utilization for Preventable Oral Health Care Conditions in MA" (Massachusetts Health Policy Commission, April 6, 2016), https://perma.cc/2TW2-Q49R; Kelly Vitzthum, "UPDATED – Dental Hygiene Practitioners: Why They're Needed in Massachusetts, and Why the Amendment Failed" (Harvard Law Petrie-Flom Center, July 12, 2016), https://perma.cc/569Q-UTPQ.

63 "Senate Bill 330" (Ohio State Senate, May 17, 2016), https://perma.cc/HVH7-7K53; Rosalie Rayburn, "Dental Therapist Bill Passes the House," *Albuquerque Journal*, March 17, 2015, https://perma.cc/6ZVJ-ALQG.

64 Kimber Solana, "CODA Votes to Establish Accreditation Process for Dental Therapy Education," *ADANews* (American Dental Association, Aug. 7, 2015), https://perma.cc/G5S2-Z3CH.

65 "FTC Staff Urges Dental Accreditation Commission To Adopt Dental Therapy Accreditation Standards" (Federal Trade Commission, Dec. 1, 2014), https://perma.cc/9K37-NEAX.

66 Jay W. Friedman, "The International Dental Therapist: History and Current Status.," *Journal of the California Dental Association* 39, no. 1 (Jan. 2011): 23–9, https://perma.cc/9PW5-U65N; Burton L. Edelstein, "Examining Whether Dental Therapists Constitute a Disruptive Innovation in US Dentistry," *American Journal of Public Health* 101, no. 10 (2011): 1831–1835, https://perma.cc/JM7H-HBWF.

67 For a list of some of this research, see: "Dental Therapists" (Kansas Dental Project), https://perma.cc/FSS3-D97T.

MACKINAC CENTER
FOR PUBLIC POLICY

Guarantee of Quality Scholarship

The Mackinac Center for Public Policy is committed to delivering the highest quality and most reliable research on Michigan issues. The Center guarantees that all original factual data are true and correct and that information attributed to other sources is accurately represented.

The Center encourages rigorous critique of its research. If the accuracy of any material fact or reference to an independent source is questioned and brought to the Center's attention with supporting evidence, the Center will respond in writing. If an error exists, it will be noted in a correction that will accompany all subsequent distribution of the publication. This constitutes the complete and final remedy under this guarantee.

ISBN: 978-1-942502-08-1 S2016-06

Mackinac Center for Public Policy, 140 West Main Street, P.O. Box 568 Midland, Michigan 48640 989-631-0900 www.mackinac.org.