

## Health Investments that Pay Off: Strategies to Improve Oral Health

### Executive Summary

Tooth decay is the most common chronic disease among American children. Although most Americans enjoy relatively good oral health, low-income families are disproportionately affected by dental-related disease. In particular, children living below the poverty level are two to three times more likely to suffer from untreated tooth decay than those who are economically better off. Access to oral health care that could prevent tooth decay is significantly worse for low-income and minority children. Dental disease left untreated results in serious health, developmental, and social complications, as well as reliance on treatment in high-cost settings such as hospitals.

Tooth decay and other oral health complications are preventable, and several prevention and early treatment options are safe, effective, and economical. Governors who want to address oral health needs should consider interventions that show strong evidence of improving oral health outcomes.

Those interventions are:

- Dental sealant delivery programs, particularly those administered in schools;
- Community water fluoridation programs; and
- Routine application of fluoride varnish by primary care providers.

In addition, governors should consider strategies that support the oral health workforce to increase access to safe and cost-effective interventions, such as fluoride and dental sealant applications, according to a National Governors Association issue brief.<sup>1</sup>

### Introduction

With national attention on transforming health care systems increasing, governors and other state leaders are focused on finding interventions that both improve population health and the quality of health care, and reduce health care costs. Three oral health interventions—placement of resin-based dental sealants on permanent molars in children at high risk for dental caries, community water fluoridation, and routine application of fluoride varnish by primary care providers—meet the criteria of improving health outcomes and demonstrating cost saving and, in the case of community water fluoridation, a return on investment (ROI) within three years.<sup>2</sup>

### Oral Health: Overview of the Problem

Most Americans enjoy good oral health, but the burden of dental-related disease is disproportionately heavy among low-income individuals.<sup>3</sup> Families living below the poverty level experience higher rates of dental caries (tooth decay) than families living above the poverty

<sup>1</sup> National Governors Association. *The Role of Dental Hygienists in Providing Access to Oral Health Care*, (January 2014), <http://www.nga.org/files/live/sites/NGA/files/pdf/2014/1401DentalHealthCare.pdf>

<sup>2</sup> Return on investment (ROI) is often presented differently in the literature. For the purposes of uniformity and comparison with other potential interventions, in this paper, ROI is calculated as (intervention benefit – intervention cost) / intervention cost. In some instances, the ROI has been recalculated by economists from the Centers for Disease Controls Prevention using this formula and may differ from the ROI presented in the original source. A positive ROI reflects cost savings after accounting for all intervention costs within a given time frame. A negative ROI indicates that the benefits from the intervention were not enough to offset the cost of the intervention within the timeframe of the study.

<sup>3</sup> Center for Disease Control and Prevention, National Center for Health Statistics, “Untreated dental caries, by selected characteristics: United States, selected years 1971-1974 through 2007-2010, Table 71,” 2013, <http://www.cdc.gov/nchs/data/hus/2013/071.pdf> (accessed March, 3, 2015).

level regardless of ethnic or racial background. The problem is particularly severe among young children in those families. Although the rate of untreated tooth decay has dropped by almost half among 6 to 19 year olds living in poverty over the past four decades (from 68 percent to 24.7 percent), the needle has not moved at all for children ages 2 to 5 years old (32 percent to 31.7 percent) during the same period.<sup>4</sup> One out of every four children ages 6 to 19 living in poverty has untreated tooth decay, compared with one of every 13 children in those age groups who are economically better off.<sup>5</sup> Just above the poverty level, rates of untreated tooth decay are almost twice as high among African-American and Hispanic children compared with Caucasian children.<sup>6</sup>

The implications of dental-related disease for overall health and well-being are significant. Untreated tooth decay affects all aspects of a person's life. Painful and obvious decay compromises one's ability to eat, sleep, play, and learn, and negatively affects self-esteem and social development.<sup>7</sup> Access to preventive dental care is problematic for low-income families. In 2012, nearly half (48 percent) of children living in poverty had a dental visit compared with more than 80 percent of those of middle income or higher.<sup>8</sup> Uninsured

children have significantly less access than those with insurance coverage (either public or private).<sup>9</sup> Just short of half of children covered by Medicaid actually received dental care in 2010.<sup>10</sup> In addition, millions of Americans live in areas with a shortage of dental professionals, and many more have inadequate access to dentists who accept Medicaid reimbursement.<sup>11</sup>

Similar to the cost profile of other health conditions, inadequate access to prevention and early intervention in oral health leads to more invasive interventions, such as restorative treatments and extractions, in costly sites of service (such as operating rooms and emergency departments). In 2009, the United States spent more than \$100 billion on dental services, which is less than 5 percent of total spending on health care.<sup>12</sup> That proportion has stayed constant over the last two decades. About 9 percent of total spending on dental services was public spending (that is, state and federal).<sup>13</sup> For example, in 2009, preventable dental conditions were the primary reason for more than 830,000 emergency room (ER) visits across the United States, with children visiting the ER for preventable dental problems more than 49,000 times during that year.<sup>14</sup> A significant portion of that costly

<sup>4</sup> Ibid.

<sup>5</sup> Bruce Dye et al., *Oral Health Disparities as Determined by Selected Healthy People 2020 Oral Health Objectives for the United States, 2009-2010 NCHS Data Brief* (Atlanta, GA: Centers for Disease Control and Prevention, August 2012), 1, <http://www.cdc.gov/nchs/data/databriefs/db104.pdf>; comparison groups include: below 100 percent of the federal poverty level and 400 percent or more of the federal poverty level.

<sup>6</sup> Bruce Dye et al., *Oral Health Disparities as Determined by Healthy People 2020 Oral Health Objectives for the United States, 2009-2010 NCHS Data Brief* (Atlanta, GA: Centers for Disease Control and Prevention, August 2012), 1, <http://www.cdc.gov/nchs/data/databriefs/db104.pdf>.

<sup>7</sup> Pew Center on the States, *A Costly Dental Destination: Hospital Care Means States Pay Dearly* (February 2012), 2, <http://www.pewtrusts.org/~media/Assets/2012/01/16/A-Costly-Dental-Destination.pdf>.

<sup>8</sup> Erika Steinmetz, Brian Bruen, Leighton Ku, "Children's Use of Dental Care in Medicaid: Federal Fiscal years 2000-2012" Milken Institute School of Public Health, George Washington University, (October 2014) <http://www.medicaid.gov/medicaid-chip-program-information/by-topics/benefits/downloads/dental-trends-2000-to-2012.pdf>, 1.

<sup>9</sup> Leighton Ku et al., "Increased Use of Dental Services by Children Covered by Medicaid: 2000-2010," *Medicare Medicaid Research Review* 3, no.3 (July 10, 2013): E1-E12 [http://www.cms.gov/mmrr/Downloads/MMRR2013\\_003\\_03\\_b01.pdf](http://www.cms.gov/mmrr/Downloads/MMRR2013_003_03_b01.pdf), E2.

<sup>10</sup> U.S. Government Accountability Office, *Efforts Under Way to Improve Children's Access to Dental Services, but Sustained Attention Needs to Address Ongoing Concerns Report to Congressional Committees*, (Washington DC: November 2010), 1, <http://gao.gov/new.items/d1196.pdf> (accessed December 11 2014).

<sup>11</sup> Ibid., E5.

<sup>12</sup> Centers for Medicare and Medicaid, *National health expenditures by type of service and source of funds: CY 1960-2009*, (May 2014), [http://www.cms.gov/NationalHealthExpendData/02\\_NationalHealthAccountsHistorical.asp](http://www.cms.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp), 25.

<sup>13</sup> Centers for Medicare and Medicaid, *National health expenditures by type of service and source of funds: CY 1960-2009*, (May 2014), [http://www.cms.gov/NationalHealthExpendData/02\\_NationalHealthAccountsHistorical.asp](http://www.cms.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp).

<sup>14</sup> Pew Center on the States, *A Costly Dental Destination: Hospital Care Means States Pay Dearly* (February 2012), 1, <http://www.pewtrusts.org/~media/Assets/2012/01/16/A-Costly-Dental-Destination.pdf>; and The Pew Charitable Trusts, *Many States are Missing an Opportunity to Prevent Tooth Decay and Reduce Medicaid and Other Health-related Costs* (January 8, 2013), <http://www.pewtrusts.org/en/about/news-room/press-releases/0001/01/01/many-states-are-missing-an-opportunity-to-prevent-tooth-decay-and-reduce-medicaid-and-other-healthrelated-costs>

ER care is paid by taxpayers through Medicaid and other public programs; children account for about one-third of Medicaid's total spending on dental services.<sup>15</sup> A report published by the Pew Charitable Trusts estimated that between 2010 and 2020, annual Medicaid spending for dental care could increase from \$8 billion to more than \$21 billion because of preventable dental disease.<sup>16</sup>

To manage the possibility of such a large increase in Medicaid expenditures for preventable dental conditions, states should consider increasing access to oral health interventions shown to be safe and effective in clinics and communities, such as those discussed below. Some of those interventions show rapid ROI (such as community water fluoridation); others show potential cost-savings over a period extending beyond our three-year definition of rapid ROI (such as dental sealant delivery programs and routine application of fluoride varnish by primary care providers).

## Improving Oral Health Outcomes with Cost-Saving Interventions

States considering how to address oral health needs should examine the following interventions, which show strong evidence of improving oral health outcomes and are associated with cost savings:

- Dental sealant delivery programs;
- Community water fluoridation programs; and
- Routine application of fluoride varnish.

### *Dental Sealant Programs*

Dental sealant programs, particularly school-based

programs, have been found to be effective in reducing dental caries and improving oral health.<sup>17</sup> School-based programs provide sealants—a resin-based physical barrier placed on the permanent molars' chewing surfaces to prevent caries from beginning or progressing—to students either at schools or in dental clinics. School-based programs are recommended by the Community Preventive Services Task Force, an independent and nonfederal panel of public health and prevention experts that provides evidence-based findings and recommendations about preventive services in the community, programs, and policies through the Guide to Community Preventive Services. The recommendation is based on strong evidence that sealants reduce tooth decay and that school-based programs are effective in increasing the number of school-age children (ages 5 to 16 years) receiving sealants.<sup>18</sup> Those programs typically target schools with high rates of participation in federal programs that provide free or reduced-price meals, a strategy for providing access to children from families with low incomes. Currently, 35 states plus the District of Columbia do not have sealant programs in their highest-need schools.<sup>19</sup>

Preliminary evidence suggests that placement of resin-based sealants in children at high risk for developing dental caries (primarily Medicaid beneficiaries) is cost-effective. An analysis by the DentaQuest Foundation, using estimated effectiveness from a Cochrane Review, found that sealing all permanent first molars in high-risk children (defined as: annual caries incidence without sealants is 70 percent) would save Medicaid up to \$53 per child or a net cost savings to Medicaid of up to

<sup>15</sup> The Pew Charitable Trusts, *Many States are Missing an Opportunity to Prevent Tooth Decay and Reduce Medicaid and Other Health-related Costs* (January 8, 2013), <http://www.pewtrusts.org/en/about/news-room/press-releases/0001/01/01/many-states-are-missing-an-opportunity-to-prevent-tooth-decay-and-reduce-medicare-and-other-healthrelated-costs>

<sup>16</sup> Ibid.

<sup>17</sup> Jean Beauchamp et al., "Evidence-based clinical recommendations for the use of pit-and-fissure sealants: A report of the American Dental Association Council on Scientific Affairs," *The Journal of The American Dental Association* 139, no. 3 (March 2008): 257-268.

<sup>18</sup> The Guide to Community Preventive Services, "Preventing Dental Caries: School-Based Dental Sealant Delivery Programs, Task Force Finding and Rationale Statement," Community Preventive Services Task Force, <http://www.thecommunityguide.org/oral/supportingmaterials/RRschoolsealant.html> (accessed October 18, 2014).

<sup>19</sup> Pew Center on the States Infographic, "Most States Lag on Dental Sealants," The Pew Charitable Trust, <http://www.pewtrusts.org/en/multimedia/data-visualizations/2013/most-states-lag-on-dental-sealants> (accessed December 3, 2014).

\$13,310 per 1000 teeth (approximately 250 children).<sup>20</sup>

### ***Community Water Fluoridation Programs***

According to the Centers for Disease Control and Prevention (CDC), community water fluoridation (fluoridation) is the controlled adjustment of fluoride in a public water supply to optimal concentration in order to prevent caries (tooth decay) among members of the community. Fluoride acts to impede demineralization and to enhance the remineralization of dental enamel, both of which prevent dental caries.<sup>21</sup> The Community Preventive Services Task Force recommends the use of fluoridation programs, pointing to strong evidence that such programs reduce dental caries across populations.<sup>22</sup> Communities using fluoridation programs have a substantially lower prevalence of dental caries compared to communities that do not use the intervention. Evidence shows that fluoridation prevents tooth decay by providing frequent and consistent contact with low levels of fluoride, ultimately reducing tooth decay by 25 percent over a lifetime.<sup>23</sup> Additional evidence shows that schoolchildren living in fluoridated communities, on average, have 2.25 fewer cavities than those not living in fluoridated communities.<sup>24</sup> Recently, the U.S. Public Health Service updated its 1962 Drinking Water Standards for fluoridation based on new scientific evidence of available fluoride sources and

trends in dental fluorosis (visually detectable changes in tooth enamel that cause white markings on teeth).<sup>25</sup> The new guidance maintains that fluoridation is an effective public health intervention and updates the recommended concentration of fluoride in drinking water from a range of 0.7 to 1.2 milligrams per liter (exact value depends on outdoor air temperatures) to 0.7 milligrams per liter (regardless of outdoor air temperature). Immediately before that update (published in August of 2015), almost half of states did not meet the federal targets for fluoridation of drinking water.<sup>26</sup> In addition, there is considerable evidence that fluoridation programs are safe and no convincing evidence that fluoridation results in severe dental fluorosis or other adverse health effects.<sup>27</sup> According to the CDC, in 2012, 24 states of 51 including Washington, D.C., did not meet the national health objective for community water fluoridation. That objective was defined as 79.6 percent of the state's population on public water systems receives optimally fluoridated water.<sup>28</sup>

To the extent states are looking to create or continue fluoridation programs, data suggest strong ROI. The ROI varies with size of the community, increasing as community size increases. The estimated ROI for fluoridation programs over a three-year period was \$3.24 in small communities and \$20.52 in large communities in annual treatment costs per dollar

<sup>20</sup> Calculations from DentaQuest Institute re-analysis based on Ahovuo-Saloranta et al., "Sealants for Preventing Dental Decay in the Permanent Teeth Review," *Cochrane Database of Systematic Reviews* 2013, 3. no.: CD001830 (November 1, 2012).

<sup>21</sup> The Guide to Community Preventive Services, "Preventing Dental Caries: Community Water Fluoridation," Community Preventive Services Task Force, <http://www.thecommunityguide.org/oral/fluoridation.html>, (accessed October 18, 2014).

<sup>22</sup> The Guide to Community Preventive Services, "Preventing Dental Caries: Community Water Fluoridation," Community Preventive Services Task Force, <http://www.thecommunityguide.org/oral/fluoridation.html>, (accessed October 18, 2014).

<sup>23</sup> Division of Oral Health, National Center for Chronic Disease Prevention and Health Promotion, "Community Water Fluoridation," Centers for Disease Control and Prevention <http://www.cdc.gov/fluoridation/basics/index.htm> (accessed December 3, 2014).

<sup>24</sup> The Guide to Community Preventive Services, "Preventing Dental Caries: Community Water Fluoridation," Community Preventive Services Task Force, <http://www.thecommunityguide.org/oral/supportingmaterials/RRfluoridation.html> (accessed October 18, 2014).

<sup>25</sup> U.S. Department of Health and Human Services, *U.S. Public Health Service Recommendation for Fluoride Concentration in Drinking Water for the Prevention of Dental Caries* (July-August 2015), 2, [http://www.publichealthreports.org/documents/PHS\\_2015\\_Fluoride\\_Guidelines.pdf](http://www.publichealthreports.org/documents/PHS_2015_Fluoride_Guidelines.pdf).

<sup>26</sup> Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, "Oral Health in the US: Key Facts," June 2012, <http://kaiserfamilyfoundation.files.wordpress.com/2013/01/8324.pdf> (accessed December 3, 2014).

<sup>27</sup> The Guide to Community Preventive Services, "Preventing Dental Caries: Community Water Fluoridation," Community Preventive Services Task Force <http://www.thecommunityguide.org/oral/supportingmaterials/RRfluoridation.html> (accessed October 18, 2014).

<sup>28</sup> Centers for Disease Control and Prevention (US). Community water fluoridation: 2012 water fluoridation statistics <http://cdc.gov/fluoridation/statistics/2012stats.htm> (accessed September 23, 2015).



spent, excluding productivity losses.<sup>29</sup> Taking into account the lifetime cost of maintaining restorations and productivity losses, fluoridation programs save an estimated \$38 for every \$1 invested. A study of a fluoridation program in **Colorado** used an economic model that compares the costs of fluoridation programs with treatment savings achieved through averted tooth decay. The analysis found that Colorado's fluoridation programs yielded an average annual savings of \$60 per person served by the 172 public water systems included in the study (each system served a population of at least 1,000 individuals).<sup>30</sup> The authors suggest that additional savings and improved outcomes could be realized if fluoridation programs are implemented in more localities.

### ***Routine Application of Fluoride Varnish***

Fluoride varnish is an effective method used to reduce early childhood caries (tooth decay in primary teeth) by re-mineralizing weakened tooth enamel and slowing the progression of decay. Professional application of fluoride varnish prevents 37 percent of decay in primary teeth.<sup>31</sup> Evidence shows that fluoride varnish is safe to provide to children, is easily applied using a quick procedure, and is effective at reducing dental caries in children.<sup>32</sup> The U.S. Preventive Services Task Force recommends that primary medical care providers apply fluoride varnish to teeth when the first tooth comes in through 5 years of age.<sup>33</sup> That method

also can be effectively integrated into well-child visits and delivered by supporting medical staff. Currently, Medicaid programs in 46 states and the District of Columbia pay medical providers for preventive dental care during well-child visits.<sup>34</sup> Fewer states have incorporated such reimbursement into their Children's Health Insurance Program (CHIP). A study of **Wisconsin's** Medicaid program found that reimbursing medical providers for delivering fluoride varnish resulted in a significant uptake in the use of fluoride varnish among children between the ages of 1 and 2.<sup>35</sup>

Although most states reimburse their Medicaid medical providers for providing the service, uptake varies in primary care practices. The optimal rate of reimbursement to create sufficient incentive for primary care practices to incorporate routine fluoride varnish application into routine care is not known. Rates currently vary from \$15 to \$80 for a bundle of services including screening and referral to a specialist if indicated, fluoride varnish application, and patient education. A reimbursement rate of \$50 has increased uptake in primary care practices in **North Carolina** for provision of that bundle of services (see box on page 6). Experts suggest that fluoride varnish application might not be a priority during a child's medical visit because of the challenges of incorporating the procedure into an already burdensome workflow.<sup>36</sup> In addition, experts

<sup>29</sup> Calculations from the Centers for Disease Control and Prevention, based on a re-analysis of Susan Griffin, Karl Jones, Scott Tomar, "An Economic Evaluation of Community Water Fluoridation," *Journal of Public Health Dentistry* 61, no. 2 (Spring 2001): 78-86. Note: This analysis defines productivity losses as lost productivity associated with the parent taking their child to the dentist.

<sup>30</sup> Joan O'Connell et al., "Costs and Savings Associated with Community Water Fluoridation Programs in Colorado," *Preventing Chronic Disease, Centers for Disease Control and Prevention 2: Special Issue* (November 2005): 1-13, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1459459/pdf/PCD2SIA06.pdf>, 7.

<sup>31</sup> Valeria CC Marinho et al., "Fluoride varnishes for preventing dental caries in children and adolescents," *Cochran Database of Systematic Review 2013 7*, no.: CD002279 (May 13, 2013): 1-92.

<sup>32</sup> Valeria CC Marinho et al., "Fluoride varnishes for preventing dental caries in children and adolescents," *Cochran Database of Systematic Review 2013 7*, no.: CD002279 (May 13, 2013): 1-92.

<sup>33</sup> U.S. Preventive Services Task Force, "Dental Caries in Children from Birth Through Age 5 Years: Screening," Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, <http://www.uspreventiveservicestaskforce.org/uspstf/uspndnch.htm> (accessed December 3, 2014).

<sup>34</sup> <http://www.pewtrusts.org/en/research-and-analysis/analysis/2011/08/29/reimbursing-physicians-for-fluoride-varnish>

<sup>35</sup> Christopher Okunseri et al., "Increased Children's Access to Fluoride Varnish Treatment by Involving Medical Providers: Effect of a Medicaid Policy Change," *Health Services Research* 44, no.4 (August 2009): 1144-1156.

<sup>36</sup> The Pew Charitable Trust, Children's Dental Policy Staff, Interview with the National Governors Association, April 2015

## North Carolina's Into the Mouths of Babes Program

North Carolina's Into the Mouths of Babes (IMB) program is an example of a promising model for delivery of oral health services to children aimed at preventing and reducing early childhood tooth decay and referring children for additional dental services when needed. The Centers for Medicare & Medicaid Services data from 2013 show that more than 37 percent of children in North Carolina's Medicaid program, aged 0 to 2 years, received oral health services compared with the national average of 7.5 percent.<sup>37</sup> The IMB program trains medical providers to deliver a variety of preventive oral health services to children insured by North Carolina's Medicaid program. Medical providers deliver an Oral Preventive Procedure, which includes an oral evaluation and caries risk assessment; counseling with primary caregivers; and the application of fluoride varnish. The services are provided to children from the time their first tooth erupts through age 3½. A child can have that procedure up to six times during that timeframe. The program has shown promising results, including reducing the need for dental treatment for children before 18 months by half, compared with children who were not in the program. As mentioned above, medical providers are reimbursed by North Carolina Medicaid at a rate of \$50 for the bundle of oral health services for each of the six visits.<sup>38</sup> The reimbursement rate has been credited by national experts with increased uptake of these procedures in the Medicaid program in North Carolina, but further analyses are required to determine the range of reimbursement rates needed to increase uptake.<sup>39</sup>

point to inadequate referral pathways from primary care physicians to dentists in some states as a barrier to uptake.<sup>40</sup> As a result, some primary care physicians might be reluctant to identify an oral health problem without being able to ensure that the necessary referral and wrap-around services are in place for the child.

The routine application of fluoride varnish by primary care providers is a core element of models integrating oral health into primary pediatric services. Preliminary analyses suggest cost savings from the routine application of fluoride varnish by primary care providers to children in Medicaid, starting at 9 months old. Such in-

tervention could yield savings to the Medicaid program within three years.<sup>41</sup> However, the magnitude of savings has not been determined and needs to be studied further.

## Strategies to Implement and Finance Evidence-Based Oral Health Interventions

Below are strategies state leaders might consider as they think about how to approach oral health challenges in their state:

- **Expand Dental Sealant Programs.** States should expand or redesign their dental sealant programs

<sup>37</sup> FFY 2013 CMS-416 reports, Line 1b, 12f

<sup>38</sup> North Carolina Department of Health and Human Services, "Into the Mouths of Babes/Connecting the Docs," <http://www.ncdhhs.gov/dph/oral-health/partners/IMB.htm> (accessed October 15, 2014).

<sup>39</sup> Ashley Kranz et al., "North Carolina Physician-Based Preventive Oral Health Services Improve Access And Use Among Young Medicaid Enrollees," *Health Affairs* 33, no. 12 (2014):2144-2152.

<sup>40</sup> The Pew Charitable Trust, Children's Dental Policy staff, Interview with the National Governors Association, April 2015.

<sup>41</sup> Kristin Hendrix, et al., "Threshold analysis of reimbursing physicians for the application of fluoride varnish in young children," *Journal of Public Health Dentistry* 73, 2013:297-303.

for low-income children to eliminate access barriers. One such barrier is the prior-exam rule. Although dental hygienists are adequately trained to assess molars before applying sealants, state prior-exam rules require a dentist to perform an exam and provide a recommendation for dental sealants before a hygienist places the sealant. Some experts say that such a requirement adds an unnecessary and costly step because hygienists are capable of doing the assessments and because dentists are not usually co-located with hygienists in school-based sealant programs. In addition, growing evidence indicates that incomplete caries removal (the partial removal of a cavity from a tooth) followed by sealant placement is an effective practice.<sup>42</sup> Dental hygienists in several states already are performing those types of restorative procedures; however, some

state scope-of-practice laws, including the prior exam rule, limit the ability of dental hygienists to practice to the top of their licenses.<sup>43</sup> (see box below).

- **Pay Primary Care Providers to Provide Preventive Oral Health Care.** States might adopt an adequate reimbursement rate for primary care providers to provide preventive oral health care, including the application of fluoride varnish. What constitutes an adequate reimbursement rate can only be known by experimentation with different rates. North Carolina's Into the Mouths of Babies program has successfully integrated fluoride varnish into the primary care workflow. In that program, Medicaid reimburses primary care providers \$50 per visit for delivering a package of

## Make Better Use of the Current Workforce

To increase access to effective interventions that show cost savings, states might consider expanding scope-of-practice laws and changing Medicaid reimbursement policies to expand opportunities for all dental professionals, including dental hygienists, to practice to the top of their licenses.<sup>44</sup> Additionally, states should consider emerging models for new types of dental providers, including dental therapists and advanced dental hygienist practitioners. These provider models, new in the United States, have been developed in **Alaska** and **Minnesota** and will soon be joined by **Maine**. Fifteen other states are considering similar provider models to address dental access and improve oral health.<sup>45</sup> A recent NGA issue brief provides in-depth information about state considerations in expanding the dental health workforce.<sup>46</sup>

<sup>42</sup> Schwendicke, F, Doerfer, CE and Paris, S, "Incomplete Caries Removal: A Systematic Review and Meta-analysis," *Journal of Dental Research*, 92(4), 2013: 306-314.

<sup>43</sup> American Dental Hygienists' Association, "Overview of Restorative Services Provided by Dental Hygienists and Other Non-Dentist Practitioners," December 2014, [http://www.adha.org/resources-docs/7517\\_Restorative\\_Services\\_Factsheet.pdf](http://www.adha.org/resources-docs/7517_Restorative_Services_Factsheet.pdf) (accessed December 2014); and National Governors Association. *The Role of Dental Hygienists in Providing Access to Oral Health Care*, (January 2014), <http://www.nga.org/files/live/sites/NGA/files/pdf/2014/1401DentalHealthCare.pdf>.

<sup>44</sup> National Governors Association. *The Role of Dental Hygienists in Providing Access to Oral Health Care*, (January 2014), <http://www.nga.org/files/live/sites/NGA/files/pdf/2014/1401DentalHealthCare.pdf>.

<sup>45</sup> The Pew Charitable Trusts, *Expanding the Dental Team: Increasing Access to Care in Public Settings* (June 30, 2014), [http://www.pewtrusts.org/~media/assets/2014/06/27/expanding\\_dental\\_case\\_studies\\_report.pdf](http://www.pewtrusts.org/~media/assets/2014/06/27/expanding_dental_case_studies_report.pdf).

<sup>46</sup> National Governors Association. *The Role of Dental Hygienists in Providing Access to Oral Health Care*, (January 2014), <http://www.nga.org/files/live/sites/NGA/files/pdf/2014/1401DentalHealthCare.pdf>.

services. States also could require pediatricians and primary care providers in their Medicaid programs to assess caries risk and apply fluoride varnish for every child during well-child visits.

- **Update and Invest in Community Water Fluoridation Systems.** States should consider working with the CDC and other stakeholder groups to invest in communities that are establishing water fluoridation systems or updating the equipment for their current fluoridated water systems. It is estimated that at least 10 percent of community water fluoridation systems have old equipment that needs to be replaced in the near future. Governors also could communicate across their regions and localities about the evidence of safety, improved outcomes (including fewer disparities), and cost savings found in existing programs to inform decision making on local investments in water fluoridation programs.

## Strategies to Support Implementation of Data Collection on Oral Health Interventions

### *Improve Data Analytics Capabilities*

States should consider strategies that improve their ability to collect and analyze Medicaid and CHIP data to better inform oral health-related policy decisions on improving program performance, evaluating programs, and identifying gaps in service delivery. The Centers for Medicare & Medicaid Services (CMS) uses state-reported data to monitor progress related to delivery of dental services in the Medicaid benefit for children and adolescents (also known as the Early Periodic Screening, Diagnosis, and Treatment benefit).<sup>47</sup> The

information reported, derived largely from dental procedure codes recorded on Medicaid claims, is a first step toward monitoring oral health care services for children. States could consider ensuring effective use of that monitoring tool. In addition, the Children’s Health Insurance Program Reauthorization Act of 2009 required the U.S. Department of Health and Human Services to identify and publish a core set of children’s health care quality metrics that could be used by state Medicaid and CHIP programs. The metrics were updated in the 2015 Child Core metrics set and include two oral health measures: dental sealants for 6 to 9 year old children at elevated caries risk and percentage of beneficiaries who received preventive dental services.<sup>48</sup> States could collect data on those metrics to measure the quality of care provided to children in Medicaid and CHIP.

Future considerations for data-driven policy making should start with aligning strategies to stratify data across the various sources of data on oral health used for tracking, monitoring, and guiding interventions and reimbursement. For example, agreement on how data will be stratified by age group could allow for meaningful comparison across sources of data on oral health, including national epidemiological data (such as on disease prevalence and access to care) and data used for intervention purposes (such as activities to promote fluoride varnish, sealants, and greater awareness of oral health programs). For example, **Maryland’s** Office of Oral Health (the state’s oral health agency) collaborates with the University of Maryland Dental School to periodically collect data on the oral health status of schoolchildren, using kindergartners and third-graders as the sample populations.<sup>49</sup> Collection of data for children in those grade levels aligns

<sup>47</sup> An example of the kinds of data and reporting that may be useful to states as they monitor oral health care services for children can be found here: <http://www.medicaid.gov/medicaid-chip-program-information/by-topics/quality-of-care/chipra-initial-core-set-of-childrens-health-care-quality-measures.html>

<sup>48</sup> Centers for Medicare & Medicaid Services, “CMCS Informational Bulletin.” Center for Medicaid & CHIP Services, December 2014, <http://www.medicaid.gov/federal-policy-guidance/downloads/cib-12-30-2014.pdf>; and Centers for Medicare & Medicaid Services, “2015 Core Set of Children’s Health Care Quality Measures for Medicaid and CHIP” <http://www.medicaid.gov/medicaid-chip-program-information/by-topics/quality-of-care/chipra-initial-core-set-of-childrens-health-care-quality-measures.html>

<sup>49</sup> Maryland Office of Oral Health, *Oral Health Status of Maryland School Children* (Maryland: Department of Health and Mental Hygiene, February 2013), <http://phpa.dhmh.maryland.gov/oralhealth/Documents/SurveillanceDigest.pdf>



with the data collected by the National Oral Health Surveillance System, a collaborative effort of CDC's Division of Oral Health and the Association of State and Territorial Dental Directors to monitor the burden of oral disease, the use of the delivery system for oral health care, and the status of community water fluoridation on state and national levels.<sup>50</sup> Similarly, other states can use such data—reported on everything from who is using services to provider payment mechanisms and performance indicators—to improve interventions and payment strategies.<sup>51</sup>

### ***Seek Cooperative Agreement Grants from CDC***

States should consider applying for cooperative agreement grants and technical assistance from CDC to support the collection and analysis of data as well as the adoption of oral health intervention. However, national funding is not sufficient to fund all states' needs, and not all states receive such funding from CDC. More information about those funding opportunities is available at the CDC's Division of Oral Health website.<sup>52</sup>

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*October 2015*

The National Governors Association Center for Best Practices (NGA Center) wishes to thank the CDC for a cooperative agreement (1U38OT000227) that supported the development of this issue brief. The NGA Center also would like to thank Dr. Maria-Rosa Watson for her assistance in developing this issue brief.

Recommended citation format: S.Wilkniss and S.Tripoli. *Health Investments That Pay Off: Strategies to Improve Oral Health* (Washington, D.C.: National Governors Association Center for Best Practices, October 29, 2015).

<sup>50</sup> National Oral health Surveillance System, "About NOHSS," Centers for Disease Control and Prevention, <http://www.cdc.gov/nohss/about.htm> (accessed May 2015).

<sup>51</sup> A good resource for states is a toolkit developed by the Centers for Medicaid and CHIP Services, "Improving Oral Health Care Delivery in Medicaid and CHIP: A Toolkit for States." (June 2014) <http://www.medicaid.gov/medicaid-chip-program-information/by-topics/benefits/downloads/oral-health-quality-improvement-toolkit-for-states.pdf>.

<sup>52</sup> Additional information about CDC Cooperative Agreement Grants can be found at [http://www.cdc.gov/oralhealth/state\\_programs/cooperative\\_agreements/index.htm](http://www.cdc.gov/oralhealth/state_programs/cooperative_agreements/index.htm)