DELTA DENTAL®

Delta Dental of Minnesota Foundation

Access to Dental Health Care for Children

Promising Practices and Opportunities to Expand Care

Addressing oral health needs for children is vital; oral health is a key component of overall health and can be maintained largely through consistent care and healthy behaviors. Still, dental caries are one of the most prevalent chronic conditions among children in the United States. Good oral health among children can have substantial implications across their life times, yet too many children do not receive the oral health care they need.

Delta Dental of Minnesota Foundation works to expand access to dental care for Minnesota's underserved populations. The Foundation invests in programs and organizations to advance these goals:

- Optimize the capacity of the oral health safety net system
- Expand the oral health care workforce and health care team
- Provide oral health care prevention and education

The Foundation worked with Wilder Research to evaluate its impacts, understand current oral health care needs, and identify future improvement opportunities related to their three strategic areas. The results highlighted below were identified through a review of research literature and interviews with select oral health experts, Delta Dental of Minnesota Foundation grantees, and loan repayment for service program recipients.

This brief is intended to inform oral health care practitioners and stakeholders of the current state of oral health care needs for children in Minnesota, as well as promising practices being used to expand access and improve outcomes for children.

Oral health care needs in Minnesota

Cavities are preventable and treatable

While Minnesota children's oral health is slightly better than the national average, there are still great needs that must be addressed. **Dental caries, or cavities**, is the most common chronic disease in children,[1] even though they are both **preventable and treatable**.[2]

3.5 times more tooth decay in low-income households

Low-income children and children of color are disproportionately affected; they have the highest rates of dental caries. For example, children in households below 200% of the federal poverty level have three-and-a-half times more tooth decay than children from wealthier families.[3]

Oral health issues may lead to increased school absences

Oral health issues can have serious implications. Untreated dental problems have been found to be related to **increased absences from school** and, from this, poorer school performance.[4]

No single risk factor determines a child's oral health trajectory

Rather, **cumulative risk** has been found to have adverse outcomes in childhood and across the lifespan. Because of this, it is important to look at the nuanced picture of oral health among children in Minnesota to determine how practitioners, advocates, and other stakeholders can intervene to set children on a positive oral health trajectory.

[1] Benjamin, R. (2010). Oral health: The silent epidemic. *Public Health Reports, 125*(2), pp. 158-159.

[2] Lee, Y. (2013). Diagnosis and prevention strategies for dental caries. *American Journal of Lifestyle Medicine, 3*(2), pp. 107-109.

[3] Neese-Todd, S. (2010). *A guide to improving children's oral health care: Tools for the Head Start community.* Robert Wood Johnson Foundation. Retrieved from: https://www.chcs.org/media/Guide_to_Improving_Childrens_Oral_Health.pdf

[4] Jackson, S., Vann, W., Kotch, J., Pahel, B., & Lee, J. (2011). Impact of poor oral health on children's school attendance and performance. *American Journal of Public Health, 101*(10), pp. 1900-1906.

The map shows the geographic areas in Minnesota that are particularly **at risk for poor oral health outcomes among children**, as measured by a combination of oral health risk factors.[5] Each county is assigned one of four risk categories, based on their average score across all indicators relative to other counties.

The risk category is meant to **focus attention and start conversations** about where counties fall along the continuum of risks, the availability and accessibility of resources in high-risk counties, and what we can learn from counties that provide the lowest-risk environments for children.

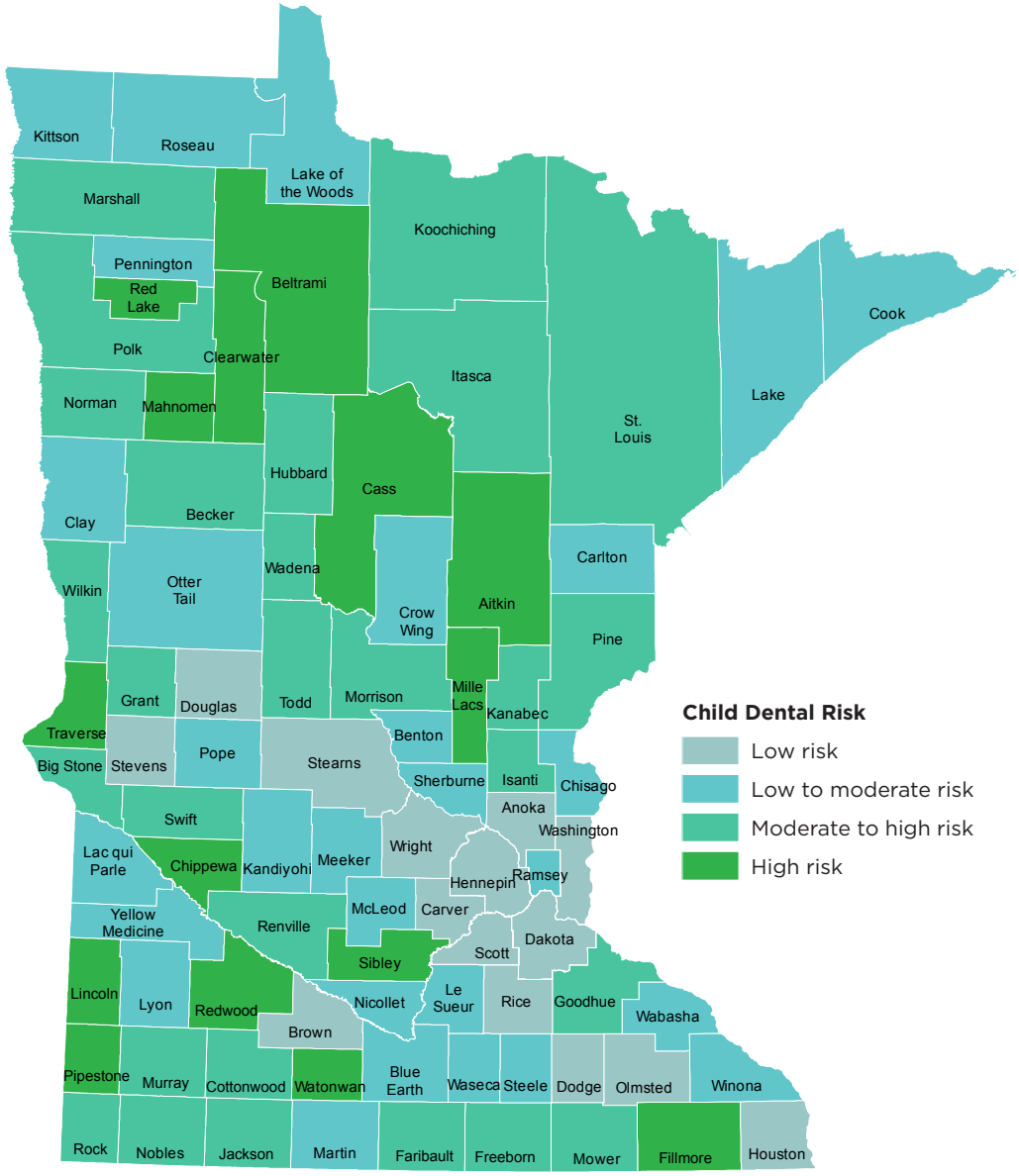
Several Minnesota counties with moderate to high or high oral health risks are projected to have higher child population growth than other counties, including Hubbard, Becker, Cass, Big Stone, Todd, Red Lake, Clearwater, Cottonwood, Mahnomen, and Wadena. These counties, except Hubbard, also met the federal rules for Dental Health Professional Shortage Area (HPSA) status.[6] This population growth, coupled with an already high level of oral health risk, may result in even more children being left behind if services cannot meet needs. While some Twin Cities metropolitan area counties are considered low or low to moderate risk, strong population growth is expected to be concentrated in the metro area which may affect service accessibility. In fact, Carver, Hennepin, Ramsey, Scott, and Washington counties all expect growth of at least 10 percent through 2030.[7]

[5] Child dental risk includes child poverty, child health insurance coverage, child tobacco use, child soda consumption, and preventative dental service use of children with MNCare or Medicaid.

[6] Minnesota Department of Health (2018). Dental Health Professional Shortage Area (HPSA) designations, 2018 map. Retrieved from: https://data.web.health.state.mn.us/web/mndata/hpsa-access

[7] Minnesota Compass. (n.d.). Projected population change by county, 2017-2030. Retrieved from https://www.mncompass.org/demographics/population#1-11450-g

Child Dental Risk 2018, Minnesota Counties



Sources: Wilder Research analysis of data from U.S. Census Bureau, Small Area Health Insurance Estimates, Small Area Income and Poverty Estimates; Minnesota Departments of Education, Health, and Public Safety, Minnesota Student Survey; and Minnesota Department of Health, Oral Health Service Use.

Increasing access: Promising practices and approaches

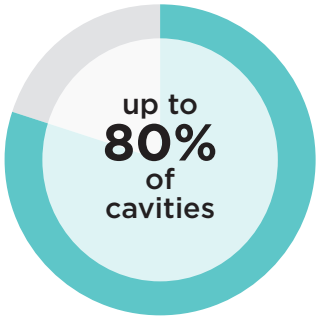
Delta Dental of Minnesota Foundation and others can help increase childhood access to dental care by continuing to support promising treatments and approaches.

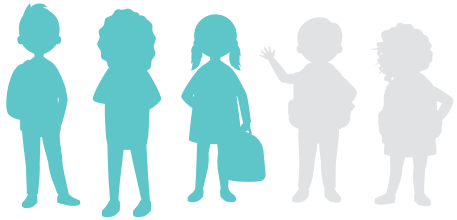
The Foundation has been investing in programs that use promising practices to improve access to oral health care for children. Program examples are noted.

Treatments

Dental sealants

The Centers for Disease Control and Prevention reports that sealants on permanent molars could prevent:





but 60% of children age 6-11
do not get them.[8]

Fluoride varnish

The American Dental Association has shown that fluoride varnish is effective when applied topically:

to the primary teeth of
preschool children

and the permanent teeth of
school-aged children[9]

[8] Centers for Disease Control and Prevention. (2016). *School dental-sealant programs could prevent most cavities, lower treatment costs in vulnerable children.* Retrieved from https://www.cdc.gov/media/releases/2016/p1018-dental-sealants.html

[9] American Public Health Association. (2010). *Fluoride varnish for caries prevention*. Retrieved from https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/09/07/51/fluoride-varnish-for-caries-prevention

> *"There is a school-based program, Smiles at Schools program…They have actually increased impact based on the information that they have provided."*

–Oral health expert

Funding example

Through its 'Smiles@School' program, the Delta Dental of Minnesota Foundation has **contributed over $1.5 million to support school-based sealant programs** in Minnesota since 2013. The Foundation initiated this partnership with the Minnesota Department of Health to increase sealant use among children considered most at-risk of poor oral health.

Approaches

School-based oral health care

Programs in which oral health care is provided to students in school have shown promise; these programs provide care like fluoride varnish, sealants, and referrals to community-based, accessible dental providers.[10]

6.5 million

low-income children are estimated to benefit from school-based sealant programs across the U.S.[11]

> *"[We plan to] collaborate with schools, communities, and health professionals to prevent and, in the longer term, reduce dental disease for Minnesota children, especially among uninsured and underserved children who are disproportionately impacted by poor oral health."*
>
> –Grantee

Funding examples

Just Kids Dental provides oral health screenings, dental cleanings, sealants, fluoride varnish, individualized oral hygiene instruction, nutritional education, and complimentary oral health kits to each child at every visit. They provided oral health outreach programs for students at 40 school and community sites in 2013-2015.

In the first semester of a new pilot program, **Open Door Health Center** served 60 children at a school-based outreach program. The children served through this program were in great need of oral health care; 28 were found to have caries, many of which were rampant cases.

[10] Dudovitz, R. N., Valiente, J. E., Espinosa, G., Yepes, C., Padilla, C., Puffer, M., & Chung, P. J. (2018). A school-based public health model to reduce oral health disparities. *Journal of Public Health Dentistry, 78*(1), pp. 9-16.

[11] Griffin, S. O. (2016). Vital signs: Dental sealant use and untreated tooth decay among U.S. school-aged children. *Morbidity and Mortality Weekly Report,* 65(41), pp. 1141-1145. https://doi.org/10.15585/mmwr.mm6541e1

Oral health education

These programs **teach about healthy behaviors,** including:

brushing teeth daily

drinking fluoridated water

consuming healthy diets that are low in sugar

Oral health education is being increasingly incorporated into the Women, Infant, and Children (WIC) program, nursing, midwifery, and other **programs targeting new mothers and young children** to decrease disparities in oral health among children.

"I hope they continue to support that demand for oral health education."

– Oral health expert

"Education really helps prevent [oral health problems] from a younger age and also gets the parents to understand the importance of their own oral health. I found from doing parent classes for an early childhood program [that] it was always interesting to me how little the parents really initially knew."

– Oral health expert

Funding example

The National Children's Oral Health Foundation provided kindergarten and first grade summer school students in St. Paul with oral health education and ensured they brush their teeth daily.

Rice Regional Dental Clinic reached parents through WIC and Minnesota's Child and Teen Checkups networks. Outreach efforts targeted low-income, first-time mothers who received check-ins until their child turned 3.

Foundation grantees: Additional strategies in delivering care

Expand workforce team with advanced dental therapists

There are a wide variety of barriers that prevent children from accessing the oral health care they need. A shortage of dentists – across the United States and within Minnesota – is one reason why not enough children are receiving consistent oral health care.

The position of dental therapist was created through Minnesota state legislation in 2009; dental therapists are mid-level dental professionals who provide oral health care in underserved areas.

"The upside is that having an advanced dental therapist on staff allows us to see more patients, and she's specifically trained in providing pediatric dentistry, which is our highest priority population. Not all providers are able and willing to serve that patient population, so finding an individual who has that skill and interest and having the funding to bring her on staff significantly increased access to pediatric dental care in our practice."

– Grantee

Funding example

A partnership between Children's Dental Services and the Minnesota Women, Infants, and Children (WIC) program resulted in expansion of dental teams to include a registered dental hygienist, an advanced dental therapist, and bilingual community health workers. These teams provided free and reduced-cost comprehensive, culturally focused dental care to pregnant women and children in 16 counties in Minnesota.

Remove barriers to accessing oral health care by bringing care directly to communities

Underserved communities oftentimes face an uphill battle in getting to the dentist. Scheduling, transportation, and other logistics will keep parents from being able to bring their child to the dentist.

With that in mind, several Delta Dental of Minnesota Foundation grantees have found innovative ways to bring care directly to the patients they need to serve. This includes school-based programs, as well as mobile dentistry, WIC clinics, and hospitals.

"There are a number of barriers for low-income people, including getting to care. They might not speak the language, they might not have money for a car, they might live in a community that's not close to a bus line, and parents might not be able to bring kids during normal business hours… When we bring the care directly into the communities where low-income children naturally congregate, it eliminates these barriers."

– Grantee

Oral health experts: Future opportunities to improve access to care

Support organizations to build partnerships in and outside the health care systems

"[It is] more than just [placing dental] sealants. I think maybe helping dental safety net providers get to these locations where their patients are or build partnerships to serve those patients in those areas."

– Oral health expert

Encourage integration of dental health with the overall health care system

" Integrating oral heath screening into preschool screening. Toothbrushing is in the rules for [some] child care, so they are brushing their teeth every day."

– Oral health expert

Provide oral health education and prevention at younger age

" Starting oral health services early in the settings where children are helps. Make sure we encourage parents to get on board that this is something that they need to be attending to from the age of 1 versus waiting until their children have a cavity at [age] 3 or 4."

– Oral health expert

Promote full implementation of collaborative agreements

" I think that we have a lot of opportunities for alternative models in Minnesota, but the adoption of those models by dentists, especially those who have been out of school more than ten years, is a very slow and difficult process. We have expanded the function of dental assistants in this state, we have collaborative practice hygienists, we have dental therapists. So we have lots of opportunities for at least some care to be given outside of a brick and mortar facility, but nobody really knows how to maximize that, or use it, or incorporate it into their practice."

– Oral health expert

Other recommendations

Continue to use dental sealants, fluoride varnish, silver diamine fluoride, and other effective and innovative prevention methods

For example, silver diamine fluoride (SDF), a more recent promising treatment for active dental caries in primary teeth in children and adults was **cleared by the U.S. Food and Drug Administration in 2016**, receiving the FDA's Breakthrough Therapy Designation.[12]

Pay attention to emerging risks among children such as vaping, consumption of energy drinks, and human papillomavirus (HPV)

Tobacco use among middle-and high-school students has been steadily decreasing since 2014. However, since the introduction of the e-cigarette, that number is now increasing, and it is estimated that one in five high school students may now be using tobacco products. **E-cigarette use from 2017 to 2018 increased 78% among high-school students and 48% among-middle school students.** E-cigarettes contain propylene glycol, glycerin, and nicotine that have been shown to lead to an increase in cavities, gum disease, and other oral health issues.[13]

Frequently drinking sugar-sweetened beverages, including sports drinks and energy drinks, is also associated with tooth decay, cavities, and many other health issues. **In 2011-2014, 6 in 10 youth (63%) drank a sugar-sweetened beverage on a given day.**[14]

Finally, according to the Centers for Disease Control and Prevention, **about 14 million Americans, including teens, become infected with HPV each year.** HPV can cause cancer, including cancer of the mouth or throat.[15]

Therefore, it is important to support integration of oral health and primary health, including having all types of health professionals work together to improve general health.

[12] Gao, S. S., Zhang, S., Mei, M. L., Lo, E. C., & Chu, C. H. (2016). Caries remineralisation and arresting effect in children by professionally applied fluoride treatment: A systematic review. *BMC Oral Health, 16*(1), 12.

[13] Perioimplant Advisory (January 10, 2019). Vaping and oral health: It's worse than you think. Retrieved from https://www.perioimplantadvisory.com/articles/2019/01/vaping-and-oral-health-it-s-worse-than-you-think.html

[14] Centers for Disease Control and Prevention. (n.d.). *Get the facts: Sugar-sweetened beverages and consumption*. Retrieved from https://www.cdc.gov/nutrition/data-statistics/sugar-sweetened-beverages-intake.html

[15] Centers for Disease Control and Prevention. (n.d.). *The link between HPV and cancer*. Retrieved from https://www.cdc.gov/hpv/parents/cancer.html

Looking ahead

In delivering all of these methods of care, providers should:

- Focus on areas of most need, including rural areas
- Encourage resourceful workforce practices, like collaborative dental hygiene and advanced dental therapist agreements, to increase access and reach more people
- Work to remove and reduce barriers, like bringing services into communities by collaborating with schools to deliver school-based oral health care
- Support innovative service delivery and approaches, such as teledentistry or the use of silver diamine fluoride
- Support integration of oral health and primary health
- Start early by working with young children

For more information

Connell, E., & Gozali-Lee, E. (2018). *Grantee impact: An evaluation of grantee data for the Delta Dental of Minnesota Foundation.* St. Paul: Wilder Research.

Connell, E., Granias, A., & Gozali-Lee, E. (2018). *Promising practices in improving oral health care service delivery and access: A literature review prepared for the Delta Dental of Minnesota Foundation.* St. Paul: Wilder Research.

Gozali-Lee, E., Connell, E., & Bell, S. (2018). *Stakeholder perspectives of Delta Dental of Minnesota Foundation: Results of key informant interviews with grantees, loan repayment for service program recipients, and subject matter experts.* St. Paul: Wilder Research.

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Created by Wilder Research.

MAY 2019

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