

# The Evidence Base for Dental Therapy: Quality, Access, Cost-Efficiency



## **Introduction**

Dental therapists help dentists provide quality oral health care to more patients. They perform a limited number of procedures that are beyond the scope of a dental hygienist (e.g., preparing and filling cavities, performing nonsurgical extractions), which allows dentists to devote more time to complex procedures that only they can perform. Dental therapists command lower salaries than dentists, so adding them to the dental team can help lower the production costs of providing care so practices can increase revenue.<sup>i</sup>

Dental therapists can work under general supervision so they can be used by private and public practices to extend office hours to evenings and weekends without a dentist required to be on site. They can also work remotely in underserved areas, or in off-site locations such as schools, day care centers, and nursing homes to bring care to those who face challenges travelling to a dental office. Below is a compilation of research conducted on the care quality, cost-efficiency, and ability of dental therapists to expand access to care.

## **Cost Efficiency and Profit Generation**

- Main Street Dental Care, a private practice in Montevideo, Minnesota, made an additional \$24,000 in profit and served 200 more Medicaid patients in the therapist's first year (despite Minnesota having one of the lowest pediatric dental reimbursement rates in the country).<sup>ii</sup> Overall, the practice increased patient visits by 27%.<sup>iii</sup>
- Similarly, private, for-profit, dental clinics located in designated dental health professional shortage areas in Minnesota increased revenue and the number of patients served with the addition of dental therapists.<sup>iv</sup> The net benefit for Grand Marais Family Dentistry was 13% of its average monthly revenue.<sup>v</sup> The clinic increased the number of patient visits by 17%.<sup>vi</sup> The net benefit associated with adding a dental therapist for Midwest Dental was 2.4 times the average monthly revenue.<sup>vii</sup>
- People's Center Health Services, a federally qualified health center (FQHC) in Minnesota, found that after one year of employment, the dental therapist generated more than \$30,000 in net revenue.<sup>viii</sup>
- Apple Tree Dental Clinic, a non-profit organization in Minnesota, sends a dental team, including a dental therapist, to provide on-site care at a nursing home for veterans. The dental therapist provided 8-10 dental visits each day for an average daily production up to \$3,122.<sup>ix</sup> The average employment costs per day for the dental therapist were \$222 less than for a dentist, totaling savings of \$52,000/year for Apple Tree.<sup>x</sup>
- Apple Tree also sends a team with a dental therapist to a rural dental clinic. The dental therapist's average daily billing over three years was 94% of the average of the clinic dentists.<sup>xi</sup> Although the average billing per visit was close to the average for clinic dentists—within 8 to 15%, the difference in pay was significantly larger, making the dental therapist's role cost-effective.<sup>xii</sup>
- HealthPartners, an organization that offers health insurance and medical and dental care in Minnesota and surrounding states, found that the difference in productivity (billable procedures) of its dental

therapists is only 9% lower than that of its dentists. However, the compensation package for dentists is almost triple that of dental therapists.<sup>xiii</sup>

- A 2012 report in Alaska found that dental therapists produced an estimated \$127,000 in net revenue for their dental teams each year when collecting 75 percent of billed services.<sup>xiv</sup>
- Dental care is not part of Canada's national health care system. The Government provides coverage to indigenous citizens and some low-income individuals. Battlefords Dental Group, a private practice in North Battleford, Saskatchewan, employed one dental therapist starting in 1980 and hired a second dental therapist in 2009.<sup>xv</sup> In 2012, dental therapists accounted for CA\$217,000 (approximately US\$226,000) in profit after adjusting for commissions and overhead. This includes about 12% of patients receiving Government dental coverage.<sup>xvi</sup>

### ***Access to Care***

- Dental therapists have practiced in Alaska since 2005 and have increased access for over 40,000 Native Alaskans living in rural communities.<sup>xvii</sup>
- An analysis using 2014 dental clinic data from EMKCHC in Massachusetts showed that the dental clinic could add an additional 8 appointments/day (1,920/year) with the addition of a dental therapist.<sup>xviii</sup>
- A 2014 report on the early impacts of dental therapy in Minnesota showed that, on average, 84% of new patients seen by the dental therapists were enrolled in public programs.<sup>xix</sup> Nearly one-third of patients in practices employing dental therapists experienced reductions in travel and wait times since the start of the dental therapists' employment, especially in rural areas.<sup>xx</sup> The clinics that employed dental therapists reported that hiring dental therapists increased dental team productivity and improved patient satisfaction.<sup>xxi</sup> Furthermore, the personnel cost savings allowed the clinics to expand capacity and care for more underserved patients.<sup>xxii</sup>
- In 2017, with 77 dental therapists licensed in Minnesota, dental therapists provided an estimated 107,640 patient visits.<sup>xxiii</sup>

### ***Health Outcomes, Quality of Care***

- The Yukon-Kuskokwim Health Corporation (YKHC), a part of the Alaska Tribal Health System, serves 25,000 Alaska Natives representing 58 federally-recognized tribes. An analysis from 2006 to 2015 showed that high exposure to dental therapists was associated with reductions in the number of extractions of the front four teeth in children under age 3, increases in preventive care for children under age 18, and fewer extractions and more preventive care in adults.<sup>xxiv</sup>
- According to a 2010 evaluation of Native Alaskan dental therapists conducted by Research Triangle Institute, quality of care provided by the dental therapists was equivalent to that provided by dentists, and patient satisfaction was high.<sup>xxv</sup> In this evaluation, 125 direct restorations were evaluated; there were 19 deficiencies noted, with the relative proportion of deficient restorations smaller for therapists (12%) than for dentists (22%).<sup>xxvi</sup>
- A literature review of 1,100 studies and reports assessed dental therapists' performance in 26 countries.<sup>xxvii</sup> The review concluded that the dental therapists provided various services with safety and quality that were on par with those of dentists.<sup>xxviii</sup>
- A systematic research review was conducted by the American Dental Association Council on Scientific Affairs in 2013, about which J. Timothy Wright stated, "*The results of a variety of studies indicate that*

*appropriately trained midlevel providers are capable of providing high-quality services, including irreversible procedures such as restorative care and dental extractions.*<sup>xxix</sup>

- In Saskatchewan, the Saskatchewan Health Dental Plan (SHDP), which trained and employed dental therapists in school-based clinics to provide basic dental care to all children, helped reduce the average number of required fillings by approximately 50% over six years.<sup>xxx</sup>
- Studies analyzing the technical perfection of dental restorations provided by dental therapists and dentists in Canada—on Baffin Island in the Northwest Territories and Saskatchewan—found that the quality of the restorations placed by dental therapists were equal to or better than that of those placed by dentists.<sup>xxxi</sup>

<sup>i</sup> The Pew Charitable Trusts, “5 Dental Therapy FAQs,” (April 21, 2016), <http://www.pewtrusts.org/en/research-and-analysis/q-and-a/2016/04/5-dental-therapy-faqs>.

<sup>ii</sup> The Pew Charitable Trusts, “Expanding the Dental Team,” (June 2014),

[http://www.pewtrusts.org/~media/legacy/uploadedfiles/pcs\\_assets/2014/expandingdentalteamreportpdf.pdf](http://www.pewtrusts.org/~media/legacy/uploadedfiles/pcs_assets/2014/expandingdentalteamreportpdf.pdf); Kamyar Nasseh, Marko Vujicic, and Cassandra Yarbrough, “A Ten-Year, State-by-State, Analysis of Medicaid Fee-for-Service Reimbursement Rates for Dental Care Services,” The American Dental Association (October 2014), [http://www.ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIBrief\\_1014\\_3.ashx](http://www.ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_1014_3.ashx).

<sup>iii</sup> The Pew Charitable Trusts, “Expanding the Dental Team,” (June 2014),

[http://www.pewtrusts.org/~media/legacy/uploadedfiles/pcs\\_assets/2014/expandingdentalteamreportpdf.pdf](http://www.pewtrusts.org/~media/legacy/uploadedfiles/pcs_assets/2014/expandingdentalteamreportpdf.pdf).

<sup>iv</sup> Wilder Research and Delta Dental of Minnesota, “Grand Marais Family Dentistry: Dental Therapist Case Study,” (May 2017) (<http://www.wilder.org/Wilder-Research/Publications/Studies/Delta%20Dental%20of%20Minnesota/Grand%20Marais%20Family%20Dentistry%20-%20Dental%20Therapist%20Case%20Study.pdf>);

Wilder Research and Delta Dental of Minnesota, “Midwest Dental: Dental Therapist Case Study,” (May 2017) (<https://www.wilder.org/Wilder-Research/Publications/Studies/Delta%20Dental%20of%20Minnesota/Midwest%20Dental%20-%20Dental%20Therapist%20Case%20Study.pdf>).

<sup>v</sup> Wilder Research and Delta Dental of Minnesota, “Grand Marais Family Dentistry: Dental Therapist Case Study,” (May 2017) (<http://www.wilder.org/Wilder-Research/Publications/Studies/Delta%20Dental%20of%20Minnesota/Grand%20Marais%20Family%20Dentistry%20-%20Dental%20Therapist%20Case%20Study.pdf>).

<sup>vi</sup> Wilder Research and Delta Dental of Minnesota, “Grand Marais Family Dentistry: Dental Therapist Case Study,” (May 2017) <https://www.wilder.org/wilder-research/research-library/grand-marais-family-dentistry-dental-therapist-case-study-and>.

<sup>vii</sup> Wilder Research and Delta Dental of Minnesota, “Midwest Dental: Dental Therapist Case Study,” (May 2017) <https://www.wilder.org/wilder-research/research-library/midwest-dental-dental-therapist-case-study-and-addendum-dental>.

<sup>viii</sup> The Pew Charitable Trusts, “Expanding the Dental Team: Increasing Access to Care in Public Settings,” (June 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>ix</sup> Apple Tree Dental, “A Dental Therapist in Long-Term Care: A Case Study,” (2017), <http://www.appletreedental.org/wp-content/uploads/2017/09/ADT-LTC-Case-Study-091517.pdf>.

<sup>x</sup> Ibid.

<sup>xi</sup> Apple Tree Dental, “An Advanced Dental Therapist in Rural Minnesota: Jodi Hager’s Case Study,” (February 2018), <http://www.appletreedental.org/wp-content/uploads/2018/02/ADT-Rural-Jodi-Hagers-Case-Study-022118.pdf>.

<sup>xii</sup> Ibid.

<sup>xiii</sup> Dr. David Gesko, Senior Vice President and Dental Director, HealthPartners, “The Triple-Aim in Action: Driving for Improved Results,” (presentation at the National Oral Health Conference, Louisville, April 14-18, 2018). HealthPartners employs 75 dentists and 4 dental therapists; productivity comparison based on CDT codes in dental therapy scope of practice in Minnesota.

<sup>xiv</sup> Mary Kate Scott, “Tribal Health Organization DHAT Survey Results,” (Jan. 11, 2012). This was an analysis commissioned by the Alaska Native Tribal Health Consortium; revenues were based on a 75% collection rate.

<sup>xv</sup> The Pew Charitable Trusts, “Dentists and Dental Therapists in Private Practice: Two case studies” (February 2014)

([http://www.pewtrusts.org/~media/assets/2014/02/12/dental\\_therapist\\_case\\_studies.pdf](http://www.pewtrusts.org/~media/assets/2014/02/12/dental_therapist_case_studies.pdf)). In 2012, the average exchange rate for converting one Canadian dollar to one U.S. dollar was 1.040 (<https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates>).

<sup>xvi</sup> Ibid.

<sup>xvii</sup> Alaska Native Tribal Consortium, “Alaska Dental Therapy Education Programs,” accessed on Feb. 23, 2017 at <https://anthc.org/alaska-dental-therapy-education-programs/>.

<sup>xviii</sup> Data obtained via personal email communications and telephone calls with Toni McGuire, President and CEO; Dr. Brian Genna, Vice President of Dental Services, and Paula Green, Vice President of Advancement. The economic model developed and analyzed by The Pew Charitable Trusts included all actual clinic hours, staff and salaries, additional expenses, reimbursement rates, complexity and volume of patient visits, and no-show rates. Dr. Genna indicated that a new operator would be required, though the cost of this operator would be accounted for prior to hiring a dental therapist. If the full cost of the operator were held against the additional cost of hiring a dental therapist in Year One, the net impact would be -\$2,280. In Year Two, when the operator is paid for, the net impact would be +\$60,720.

<sup>xix</sup> The Minnesota Department of Health and the Minnesota Board of Dentistry, “Early Impacts of Dental Therapists in Minnesota,” (2014), <http://www.health.state.mn.us/divs/orhpc/workforce/dt/dtlegisrpt.pdf>.

<sup>xx</sup> Ibid.

<sup>xxi</sup> Ibid.

<sup>xxii</sup> Ibid.

<sup>xxiii</sup> Email communication between Michael Scandrett, President, MS Strategies, Minneapolis, MN and Jane Koppelman, Research Director, Pew Dental Campaign on 12/05/17.

<sup>xxiv</sup> Donald L. Chi, Dane Lenaker, Lloyd Mancl, Matthew Dunbar, and Michael Babb, “Dental therapists linked to improved dental outcomes for Alaska Native communities in the Yukon-Kuskokwim Delta” *Journal of Public Health Dentistry* (December, 2017), <https://onlinelibrary.wiley.com/doi/abs/10.1111/jphd.12263>

<sup>xxv</sup> Scott Wetterhall, James D. Bader, Barri B. Burrus, Jessica Y. Lee, and Daniel A. Shugars, “Evaluation of the dental health aide therapist workforce model in Alaska: final report,” (Research Triangle Park: RTI International, 2010), <http://www.rti.org/sites/default/files/resources/alaskadhatprogramevaluationfinal102510.pdf>.

- 
- <sup>xxvi</sup> Scott Wetterhall, James D. Bader, Barri B. Burrus, Jessica Y. Lee, and Daniel A. Shugars, "Evaluation of the Dental Health Aide Therapist Workforce Model in Alaska," RTI International (RTI Project Number 0211727.000.001) (October 2010), <http://www.rti.org/sites/default/files/resources/alaskadhatprogramevaluationfinal102510.pdf>.
- <sup>xxvii</sup> David A. Nash et al., "Dental Therapists: A Global Perspective," *International Dental Journal* 58 (2008): 61–70; David A. Nash et al., "A Review of the Global Literature on Dental Therapists," *W.K. Kellogg Foundation*, April 2012.
- <sup>xxviii</sup> Ibid.
- <sup>xxix</sup> J. Timothy Wright, "Do Midlevel Providers Improve the Population's Oral Health?" *The Journal of the American Dental Association* 144, no 1 (Jan. 2013), [http://jada.ada.org/article/S0002-8177\(14\)60574-2/pdf](http://jada.ada.org/article/S0002-8177(14)60574-2/pdf).
- <sup>xxx</sup> Kavita R. Mathu-Muju, Jay W. Friedman, and David A. Nash, "Saskatchewan's school-based dental program staffed by dental therapists: a retrospective case study," *Journal of Public Health Dentistry* (2016): 1-8, doi: 10.1111/jphd.12184.
- <sup>xxxi</sup> Gordon Trueblood, "A Quality Evaluation of Specific Dental Services Provided by Canadian Dental Therapists," Ottawa, Ontario, Canada: Epidemiology and Community Health Specialties, Health and Welfare Canada, 1992.