APPLE TREE DENTAL
Access • Compassion • Excellence

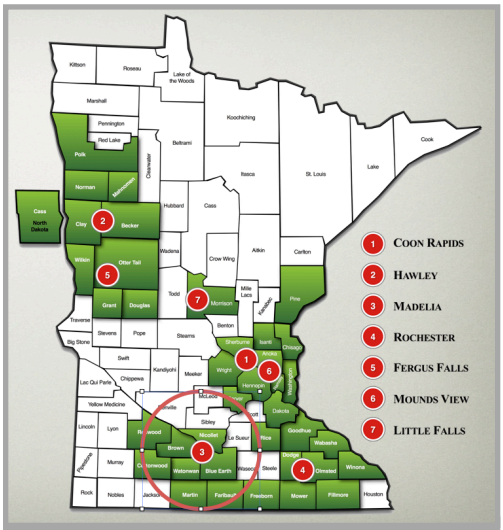
An Advanced Dental Therapist in Rural Minnesota: Jodi Hager's Case Study

Overview

Rural communities face considerable challenges accessing oral health services. Compared to urban settings, fewer people in rural areas receive dental care or have public or private dental insurance. Rural residents have less access to fluoridated drinking water and there are fewer rural dentists than in more populated areas. Studies find that rural Americans suffer from higher rates of poverty, tooth decay and must travel longer distances to reach a dental provider.[1]

Today, 63 million Americans live in areas the federal government has designated as dentist shortage areas; nearly two-thirds of these designations are in rural or partially rural areas, and more than half of the population living in dental shortage areas live in rural communities.[2] Lack of access to dental care, particularly in rural areas, was a chief driver of Minnesota's move in 2009 to become the first state to authorize dental therapists to practice statewide.[3]

Madelia Community Hospital and Clinics entrance



Apple Tree Centers for Dental Health
Madelia Center serves South Central Minnesota

In 2011, Apple Tree Dental began deploying Jodi Hager, an advanced dental therapist, as part of its care team at the Madelia Center for Dental Health (Madelia Center), a dental clinic located within the Madelia Community Hospital and Clinic in rural southwestern Minnesota. In 2016, the population of Madelia was 2,239, and both the hospital and Apple Tree served patients from surrounding south-central rural counties.

This case study, covering Jodi Hager's work from 2014 through 2016, provides an analysis of the productivity and cost effectiveness of an Advanced Dental Therapist (ADT) in order to evaluate

the impact of employing a dental therapist in a rural dental practice. While the results of this study are specific to the unique circumstances under which care was provided at the Madelia Center (e.g., team of providers, patient needs, public/private payer mix, etc.), our findings strongly suggest that other rural dental practices could benefit from adding dental therapists to their dental care teams.

Highlights of Jodi Hager's Case Study Findings:

From January 2014 through December 2016, Jodi Hager's impact working as an Advanced Dental Therapist included:

Productivity

- Working 4 days per week, Jodi provided an average of 1,554 dental visits each year.
- Jodi's average gross production *per day* ($2,762) was 94% of the average of dentists at the Madelia Center during the case study period ($2,951).
- Jodi's financial productivity *per visit* was within 8 - 15% of that of the dentists in the practice. With lower employment costs, Jodi was a cost-effective team member.

Access

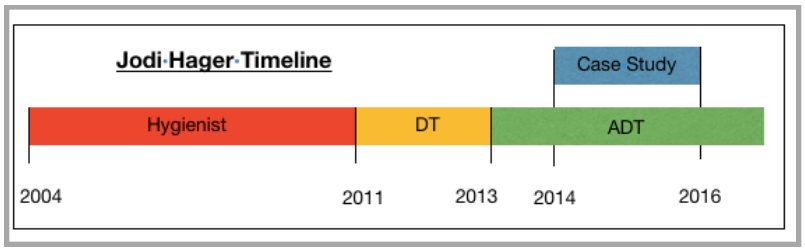
- For public program patients: 78% of Jodi's patients were publicly insured through Medical Assistance (Medicaid) and Minnesota Care (CHIP).
- For people of all ages: 57% of Jodi's patients were children (Under 21 years), the remaining 43% of her patients were adults (21 years and over).
- To restorative dental care: The vast majority of services provided by Jodi were restorative, accounting for 64% of Jodi's gross production.
- To preventive services: Jodi provided 60% of the sealants placed at the Madelia Center (nearly 800/year), one of dentistry's most effective therapies to prevent future decay.

Workflow and scheduling

- Jodi's dual licensure as a hygienist and dental therapist allowed her to dynamically adjust her mix of hygiene and restorative services to meet the changing patient and practice needs.
- In her new role, Jodi was accepted by dentists and other dental team members and by patients. Staff and patients consistently reported that Jodi helped the Center serve more patients and serve them in a more timely manner.

Case Study Setting

This case study focuses on the integration of one of Minnesota's first Advanced Dental Therapists (ADT) into a busy, rural dental practice in which 77% of the patients are enrolled in Medical Assistance (Medicaid) or MinnesotaCare (CHIP).



Jodi Hager joined the practice as a dental hygienist in 2004 and began working as a dental therapist in 2011, after completing her training, working four days a week. During her first two years as a dental therapist at the Madelia Center, her restorative services required indirect supervision. In 2013, she was licensed as an Advanced Dental Therapist allowing all her work to be done under general supervision. During the three-year case study period, from 2014 - 2016, the Madelia Center's staff also included 1-2 dentists, two dental hygienists and five dental assistants/clinical assistants. A dentist was usually, but not always, present on days when Jodi worked. In fact, she was able to help cover for dentists' vacations. Typically, the dentists and dental therapists in the practice worked with dental assistants, while the dental hygienists did not.

During 2016, a local pediatric dentist stopped accepting publicly insured patients. At the same time, one of the Madelia Center's hygienists was on leave for two months. In response to these changes, in 2016 Jodi provided a higher percentage of preventive services (18%), while still providing a substantial amount of restorative care (58%). Jodi's flexibility in helping cover the temporary absence of the hygienist while still providing substantial levels of restorative care suggests that the dual licensed ADT, able to provide both hygiene and dental therapy services, was well-suited to meet the changing needs of the clinic.

Methods

Data from Apple Tree Dental's electronic records system, Open Dental, was used to generate reports for the analysis described below. Information regarding the availability of dental services to public program patients helped provide a regional context for the Madelia Center's operations.

Production reports, based on the American Dental Association procedure codes, Current Dental Terminology (CDT) served as the main data source, identifying the number of procedures provided and the amount charged for each CDT code during each of the years studied.

In addition, Open Dental's scheduling module provided the number of patients seen each day and the number of days worked by individual providers. The providers were "grouped" into dentists, hygienists and the Advanced Dental Therapist. Production reports for each of the three study years identified the number and types of procedures delivered, aggregated by category (diagnostic, preventive, restorative, etc.). In addition, billed charges were broken out by procedure and aggregated by category. Patients' sources of payment were also identified.

Jodi's production by procedure and by category was compared to the number of patient visits and provider days for each provider category. This yielded data such as average number of patients seen per day by provider category, the production of the clinic per day and per provider day.

Results

Productivity

As shown in the table below, Jodi's average ***daily*** production was 94% of the dentists' during the three-year study period ($2,762 vs. $2,951 per day). In 2016, Jodi actually exceeded the average dentist's overall average daily production, ($2,899 vs. $2,845).

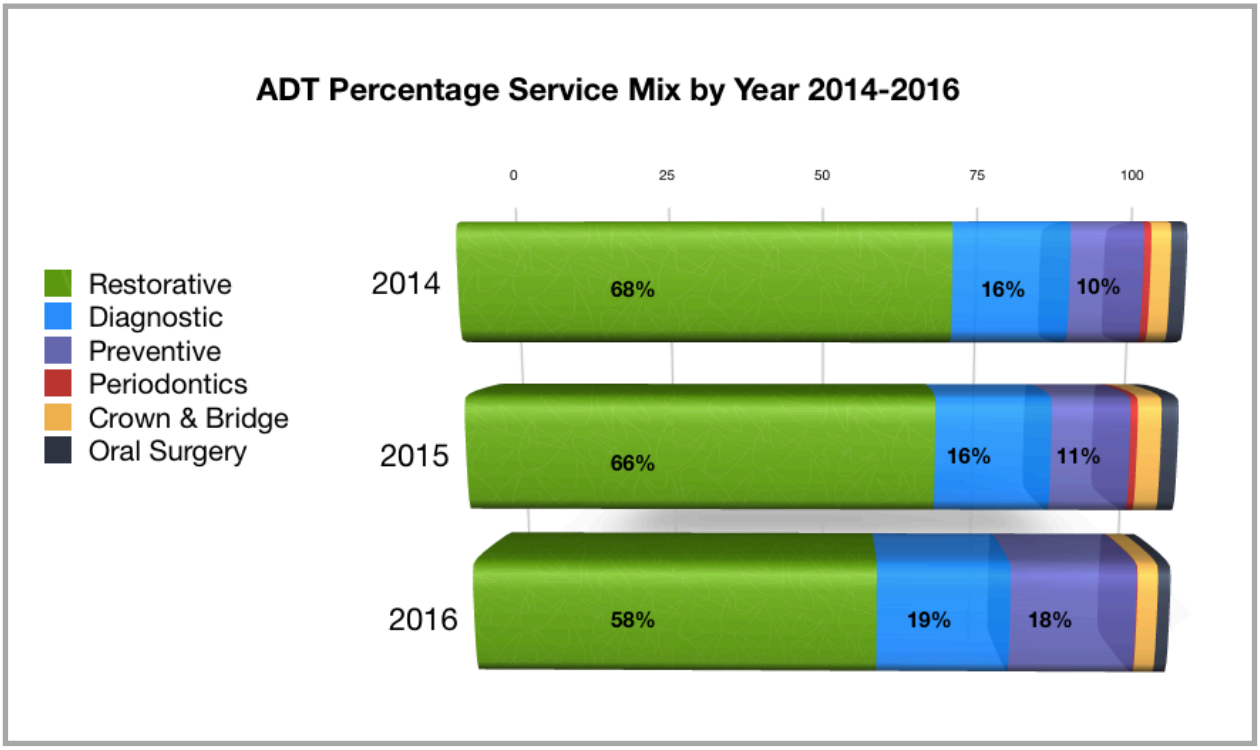
Average Daily Production:
ADT and average of 3 Dentists

Year	ADT	Dentist Average	ADT % of Dentist
2014	$2,469	$2,728	91%
2015	$2,918	$3,281	89%
2016	$2,899	$2,845	102%
Averages	$2,762	$2,951	94%

Jodi's gross production ***per visit*** was between 8 and 15% percent less than the dentists. Her scope of practice includes fewer procedures than the dentists provide, accounting for much of the difference.

Access

During the case study period, Jodi provided an average of 1,554 dental visits each year. 78% of her patients were publicly insured with coverage through Medical Assistance (Medicaid) or Minnesota Care (CHIP), mirroring the Madelia Center as a whole at 77% publicly insured. Jodi served both children and adults, with 57% children and 43% adults.



Restorative services as a percent of Jodi's gross production averaged 64% over the three years. Restorative services were lowest in 2016 (58%), when Jodi's hygiene services increased to 18% as described earlier in this report.

Jodi provided 60% of all the sealants delivered by the clinic in each of the three study years, totaling almost 2,400 sealants. Since sealants are considered one of the best caries prevention tools available in dentistry, the provision of this service by Jodi contributed significantly to prevention goals of this rural practice.

Two types of examinations are within the scope of the ADT: the limited exam that is problem based, and the periodic exam that is part of routine, comprehensive care. During the study period, a shift in the mix of these two exam types occurred among providers. While the number of problem focused limited exams provided by dentists was relatively consistent over the three years, Jodi's limited exam volume decreased over the same period, from 350 in 2014 to 141 in 2016. The decrease in limited exams was accompanied by an increase in the provision of periodic exams, typically done at a dental hygiene recall. Interviews with Madelia Center staff revealed that the change was due to a practice goal to serve as a dental home providing comprehensive rather than emergent care. Because Jodi could provide periodic exams, patients of record with a tooth concern could be scheduled for preventive care with an exam rather than a limited exam only.

Jodi provided a small proportion of oral surgery and crown and bridge services (mostly stainless steel crowns) each year. Her production in oral surgery and crown and bridge was less than 8% of the dentists' production in both categories. Dental therapists cannot place permanent crowns and can only extract periodontally diseased and highly mobile permanent teeth. Jodi provided an average of 90 extractions per year over the 3 years (79, 93, and 106).

Workflow and Scheduling

Telephone interviews with Madelia Center dental team members and patients provided subjective impressions of the acceptance of Jodi's work as a dental therapist. Jodi's collaborating dentists, a staff dentist, a dental assistant, the Madelia Center Director, a hospital administrator and patients were all interviewed. Over time, Jodi's role as a dental therapist became well integrated into the dental clinic's workflow, and there was broad satisfaction with the dental care she provided.

Respondents consistently reported that Jodi Hager's work helped the Madelia Center successfully accomplish its mission providing access to care to underserved patients in a rural community. Interview highlights include:

- Dental team members reported that initial questions about the dental therapist's roles were eased through education of the dental staff in regular team meetings. Trust developed between the dental therapist, dentists, and other team members with experience and open communication as the dental therapist began working for the first time.
- A parent reported that Jodi explained her expanded role and described in detail the services she would be able to provide for her and her children.
- The Madelia Center Director reported that patients trusted and accepted Jodi rapidly, and patients specifically requested that future appointments be scheduled with Jodi.

- Dentists and schedulers reported that patients were able to be seen with shorter wait times for appointments, and also that Jodi was able to help with more rapid triage of patients with urgent care needs.
- The Madelia Center Director reported that dual licensure as a hygienist and dental therapist allowed Jodi the flexibility to provide both preventive and restorative services when patient and clinic needs changed.
- Dentists reported being able to spend less time providing routine restorative care, freeing them up to provide other needed services.
- Supervising dentists reported that Jodi did not hesitate to consult with them when needed. Primary reasons for consultation included when a modification might be needed in a previously planned procedure, when the diagnosis was unclear, when evaluating toothaches, and when procedures outside the dental therapist's scope needed to be planned, such as root canal treatments or dentures or partial dentures.

> According to Jodi's Supervising Dentist:
>
> "Particularly in this rural setting, her past clinical experience and academic preparation have made her a very valuable team member. Because she is here, I am getting my prosthodontic, endodontic and complex restorative patients in much sooner."
>
> "Having a dental therapist has not disrupted our team dynamics in any way, and Jodi's contributions as a dental therapist have been great. It all boils down to teamwork and expectations."
>
> "It was awesome (having a dental therapist as part of the team). I believe this will be a groundbreaking part of dentistry in the future."

Case Study Focus and Limitations

Jodi Hager's case study focuses on one dental therapist joining a small rural practice, answering many common questions about this new dental team member. Over the three years of this case study, procedure mixes changed among the dentists and Jodi. A longer term study, including a larger number of dental therapists could help answer additional questions about productivity and efficiency. In Apple Tree's broader experience, which includes employing seven dental therapists and dozens of dentists, there is significant variability among providers.

In this case study, Jodi worked with a team that included multiple dentists and changing patient needs over time. Although the dentists reported that having Jodi in the practice allowed them to perform more complex procedures, citing clinical examples, it was beyond the scope of the available data to quantify their assessment.

Conclusions

Working as an Advanced Dental Therapist at Apple Tree Dental's rural Madelia Center, Jodi Hager is fulfilling a role initially envisioned by Minnesota's 2009 authorizing legislation; she is helping to improve access to oral health care for an underserved rural population. At least 78% of the patients Jodi treated during the case study fall within that category. Jodi averaged over 185 clinic days per year and provided more than 1,525 dental visits each year. Her ability to help maintain access to dental services when a nearby dentist stopped accepting public program patients in this rural region is another indication of the importance of her role.

Jodi's financial productivity *per visit* was within 8-15% of that of the dentists. The salary difference between the dentists and Jodi was greater than 15%, making the dental therapist's role cost effective. In fact, the Minnesota Department of Health reported that advanced dental therapists earn between 30% - 50% less per hour than dentists.[4]

Finally, it is clear that Jodi has been well integrated into this rural practice. The ability to dynamically provide restorative care and preventive care is an advantageous role for the Madelia Center which is committed to meeting the needs of underserved populations.

Case Study Contributors:

Apple Tree Dental: Dr. Michael J. Helgeson, CEO; Deborah Jacobi, Policy Director; Brenda Prosa, Information Systems Director; Apple Tree Dental Madelia Center staff and patients

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