

2018

MONTANA

ORAL HEALTH

WORKFORCE ASSESSMENT



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PREFACE

This report by the Montana Department of Public Health and Human Services (DPHHS) outlines findings on the dental workforce in Montana. The objectives of the data collection were to examine the distribution and demographic characteristics of the current dental workforce, assess workforce capacity to increase access for underserved populations, and identify opportunities and challenges for health equity in dental care. Data were pulled from multiple sources.

The mission of DPHHS is to improve and protect the health of Montanans by creating conditions for healthy living. The dental workforce assessment informs on strategies to increase access to oral health services for Montana citizens, to promote health throughout the lifespan. The purpose of the Montana Oral Health Workforce Assessment is to provide workforce planning stakeholders with an understanding of the structure supporting Montana's oral health workforce today. This evaluation of Montana's health workforce identifies where resources are currently focused, details projections for the future, and provides consideration of alternative models of care and education. The opportunities discussed are positively impacting access to and utilization of oral health care in states that have adopted like-models.

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EXECUTIVE SUMMARY

A team-based approach to oral healthcare is standard practice. It is characteristic for a dental clinic to consist of one or more dentists, dental hygienists and dental auxiliaries. The team-based method to care allows the dentist to allocate time to the dental activities that only dentists are trained, experienced and licensed to perform. The dentist can then manage and delegate to other members of the dental team. This method of care allows for a higher number of patients to receive care over the course of one day, compared to how many could be seen if a practice were comprised solely of one dentist.

Montanans generally receive oral health care by a dental team at an independent dental clinic, Community Health Center or a member exclusive service provider, such as an Indian Health Service Center or Veterans Affairs facility. With an aggregated population-to-dentist ratio of 2,170:1, Montana has a sufficient supply of independent dentists to serve the general population. A small percentage (1.5%) of Montana's population resides in a county designated as a geographic dental health workforce shortage area. Alongside those located in geographic shortages, special populations including American Indians (6.3% of Montana's population), aging (17.7%), low-income (13.3%) and disabled residents (9.3% under age of 65) are traditionally underserved and often isolated from care. Oral health resources dedicated to serving the needs of these populations are limited. Fifteen years ago, Montana expanded the workforce beyond the traditional general practice setting with the implementation of the dental hygienist limited access permit, with the expectation of reaching more of Montana's underserved residents. In the same vein, states such as Maine, Minnesota and Vermont have adopted a Dental Therapy role, which limits practice locations to underserved geographic regions or populations, creating an extended reach to low-income, at-risk populations. The need for oral health care often does not translate to the demand for oral health care. Populations in-need are often unaware of the importance oral health plays in a person's overall wellness. The Community Health Dental Coordinator is a new role established to coach patients in improving their oral health and increasing utilization of services. Tracking these emerging models of care is critical to both understanding the current state of oral healthcare workforce in the region, and to expanding access to services in the future.

The focus of this report is oral health in relation to primary dental care. It is important to focus on oral health at its most basic level: oral health maintenance, patient education, prevention, diagnosis and treatment of disease. The bulk of the data and discussion included in this assessment are within this purview; however, dental specialists and other medical professionals are a key component to a patient's oral wellness and thus an important consideration in understanding the oral health workforce in its entirety.

The assessment is divided into the following three sections:

SECTION 1 ORAL HEALTH WORKFORCE OVERVIEW

What does Montana's oral health workforce encompass today? Section 1 defines who the oral health care providers are, what their roles consist of, how they are educated and where they practice.

KEY FINDINGS

- Montana has an aggregated 2,170:1 population-to-dentist ratio.
- The majority (87.1%) of Montana's dentists provide care in private practice.
- Dentist and dental hygienist licensures have kept pace with Montana's population growth.

- U.S. dental schools are producing more graduates. Dental school graduate rates have increased by 13% from 2012 to 2016.
- 42% of Montana’s dentists received their dental education from one of four schools: Creighton University (Nebraska); Oregon Health and Science University; University of Minnesota; or University of Washington.
- 5.6% of Montana’s dentists travel across county lines to provide care at a secondary practice.
- Ten counties in Montana have no primary or traveling dentist. These counties range in population from 475 residents to 1,926.
- Further research is necessary to fully assess the dental auxiliary workforce.

SECTION 2 WORKFORCE CAPACITY FOR THE UNDERSERVED

What is the capacity of Montana’s oral health workforce to meet the needs of the underserved?

Section 2 identifies Montana’s traditionally underserved populations and takes a comprehensive look at the resources available to these residents.

KEY FINDINGS

- Montana ranked 20th in the nation for supply of all dentists per population in 2016.
- Beyond Montana’s community health centers, the capacity for dental offices to serve Medicaid is limited. In a 2017 survey, 74 dentists were accepting new adult Medicaid patients and 149 were accepting new child Medicaid patients.
- 10% of Montanans are cared for by 6% of Montana’s dentists through FQHC dental clinics.
- Drive times from the population centers of counties without a dentist to the nearest dentist accepting new Medicaid patients is greater than for those utilizing other payment methods.
- Dentists participating in the National Health Service Corps account for 60% in Montana’s FQHCs and 17% at Indian Health Service dental clinics.
- Only eight dental hygienists are reported to be employed by Indian Health Service dental clinics.
- Less than 11% of Montana licensed dental hygienists hold a limited access permit endorsement.

SECTION 3 OPPORTUNITIES FOR ADVANCEMENT

How can workforce planning efforts help improve access to and utilization of care? Section 3 provides research on emerging roles in oral health and education.

KEY FINDINGS

- Montana currently has two full functioning community dental health coordinators practicing at clinics on the Crow Indian Reservation and Blackfeet Indian Reservation.
- Montana State University is collaborating with the University of Washington to promote interest in a joint-venture dentist education program for Montana residents. The University of Washington program is an established model known as Regional Initiatives in Dental Education (RIDE).
- Emerging models of care and education represent opportunities to extend outreach to Montana’s underserved and deserve a thorough examination to determine the feasibility for Montana.

SECTION 1 ORAL HEALTH WORKFORCE OVERVIEW

What does Montana's oral health workforce encompass today?

ORAL HEALTH PROVIDERS

Montana's oral health workforce is comprised of dental and medical providers. Dentists, dental hygienists, dental auxiliaries and denturists provide patient care explicitly focused on oral healthcare within a dental clinic setting. **Table 1** provides a breakdown of Montana's dental providers.

Table 1. Dental workforce provider profiles, 2017.

Provider Type	Years and Type of Education	Requirements to Practice in MT	Licensed in MT	Practicing in MT
Dentists	4 years; Graduate of a bachelor's degree program 4 years; Graduate of a dental school accredited by the Commission on Dental Accreditation (CODA) 2 years; Dental specialists are required to have completed at least two years in a specialty residency	License from the Montana Board of Dentistry <ul style="list-style-type: none"> • By examination or • By credentials 	821 -- Data Source: (Montana Department of Labor & Industry, 2017) ⁱ	566 • General - 476 (Includes Pediatric Dentists) • Specialists - 90 -- Data Source: (WIM Tracking, 2017) ⁱⁱ
Dental Hygienists	1 year; Pre-Requisite Coursework 2 years; Graduate of a dental hygiene school accredited by the Commission on Dental Accreditation (CODA).	License from the Montana Board of Dentistry <ul style="list-style-type: none"> • By examination or • By credentials 	859 -- (Montana Department of Labor & Industry, 2017)	739 -- Data Source: (Montana Department of Labor & Industry, 2017)
Dental Auxiliaries	1 - 2 years; Graduate of a dental assisting program accredited by the Commission on Dental Accreditation (CODA) --or-- On the job training by a licensed dentist --or-- Instruction through a board-approved continuing education course	No license required. Certification is available and requires completion of a dental assisting program. To expose x-rays, certification is required.	N/A	1340 -- Data Source: (U.S. Department of Labor: Occupational Employment Statistics (OES), 2016)
Denturists	2 years; Graduate of an educational institution accredited by a national or regional accrediting agency recognized by the Montana state board of regents 1 year; Internship under the direct supervision of a licensed denturist	License from the Montana Board of Dentistry <ul style="list-style-type: none"> • By examination 	20 -- Data Source: (Montana Department of Labor & Industry, 2017)	17 -- Data Source: (WIM Tracking, 2017)

i The provider counts provided by the Montana Department of Labor and Industry's professional licensure departments were taken on December 1, 2017. The number of providers represented by the Montana Department of Labor and Industry to be practicing in Montana are based on the address the license is filed with.

ii WIM Tracking datasets include providers with their active practice location(s) in Montana. Each provider is accounted for only once, at their primary practice location. Unless otherwise noted, the data provided by WIM Tracking represents providers practicing at a public access facility. Providers who see patients through a limited use facility, such as Indian Health Services, Military Personnel Services, Employer Sponsored Clinics, Chemical Dependency Facilities, Montana State Hospital and correctional facilities are not represented here. The data represented in this table was pulled on March 22, 2018.

DENTISTS

Scope of Practice

Dentists diagnose and treat dental diseases, dental decay and periodontal disease. Dentists in Montana have the authority to prescribe medications to treat infections and control pain. They may also administer local anesthetics and intravenous and intramuscular injections.

Dentists are responsible for the care provided to patients within their office by dental hygienists and dental assistants that they employ. It is the responsibility of the employing dentist to verify staff qualifications are compliant with the regulations of the Montana Board of Dentistry.

Education & Continuing Education

For licensure in Montana, dentists must graduate from a dental school accredited by the Commission on Dental Accreditation (CODA). No experience, beyond a provider's dental education, is necessary for a dentist to be licensed in Montana by examination. However, there is a minimum requirement of five years of active practice (no less than 3,000 hours of direct patient care) for a dentist to be licensed by credentialing, meaning the Montana Board of Dentistry may recognize a provider's license from another jurisdiction and grant a Montana license without requiring a clinical examination.

Through continuing education (CE), dentists review and evaluate their knowledge of existing concepts and treatment techniques, expand their knowledge of advances in dental skills and further enhance the knowledge of their team members within their dental practice. Dentists licensed and practicing in Montana are required by the Montana Board of Dentistry to complete 60 credits of CE within the three-year license renewal cycle. The Board allows dentists to earn CE credits for a volunteer dentistry. Dentists who specialize in deep sedation/anesthesia have further CE requirements.

Licensure Trends

Based on practice survey data in **Table 1**, approximately 68.9% of dentists licensed in Montana are in active practice in Montana. **Table 2** provides a look at the number of dentists with a Montana license. Although professional licensure data do not depict whether a provider is actively practicing or where a provider is providing care, it is the best historical data set to estimate workforce trends. The number of dentists (general and specialists) that hold a Montana license and file the license with a Montana address has increased by 6.2% from 2011 to 2017. The total number of dentists holding a Montana license is at its highest in 2017, at 821. This is the highest it has been since 2012, when 811 dentists were recorded as having a Montana license.

Table 2. Number of dentists licensed in Montana, 2011-2017.

	2011	2012	2013	2014	2015	2016	2017
Number of Dentist licensees	763	811	764	789	793	763	821
Number of Dentist licensees with MT address	612	621	670	639	649	615	653

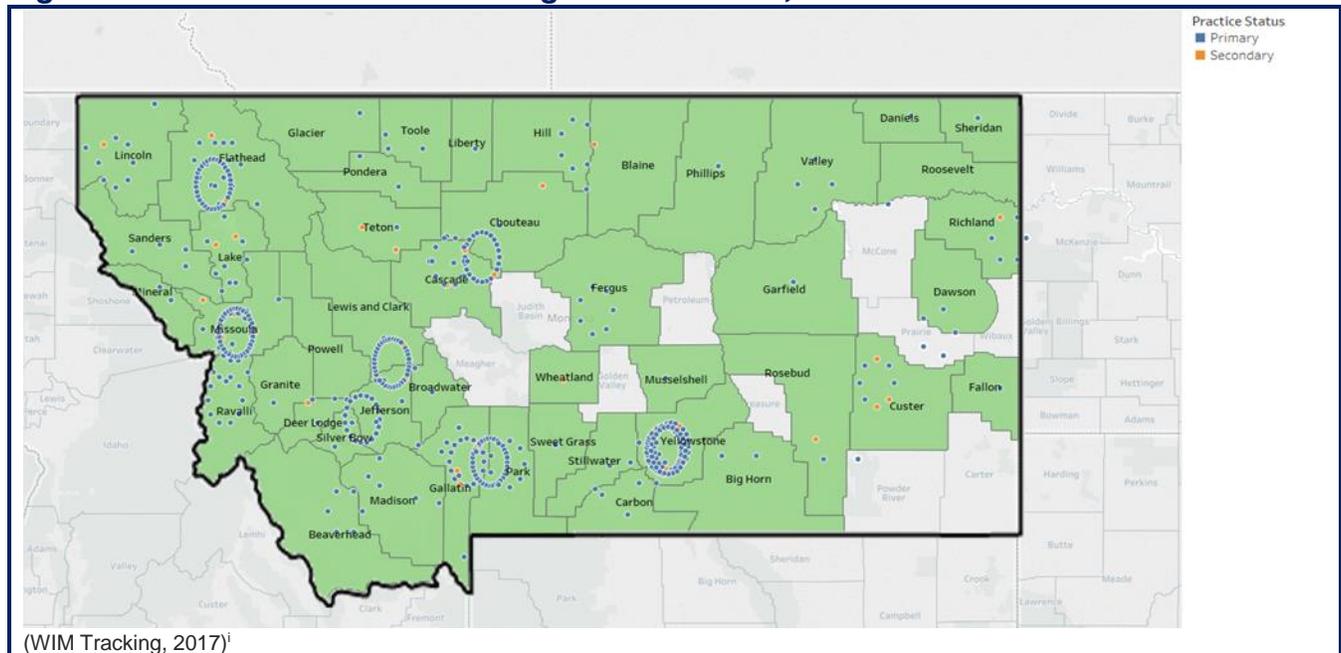
(Montana Oral Health Program, 2011-2017)

Distribution

Encompassing 56 counties, the State of Montana spans over 147,000 square miles and is home to 1,042,520 people.¹ From the western to the eastern border, the state varies greatly in geographical makeup and population dispersion. Over 84% of Montana's dentists are general practitioners, specializing in family or pediatric primary dental care. The remaining 16% are dental specialists.²

Figure 1 shows the distribution of the 84% of dentists who practice general dentistry. 54% of general dentists are practicing in one of the state's six most populated counties. Eleven counties in Montana do not have a full-time practicing dentist. These counties lay in the central and eastern regions.

Figure 1. Distribution of Montana's general dentists, 2017.



Montana's uneven population distribution warrants the recognition of healthcare providers that travel to provide care. Twenty-seven of the 476 primary care dentists in Montana (5.6%) travel to provide dental care across county lines. Some counties have dentists both travelling to the county to provide care and dentists traveling out of the county to provide care. For a detailed look at Montana's traveling dentists, see [Appendix D](#).

Of the 11 counties in Montana without a full-time dentist, one county, Wheatland, has one dentist that travels to see patients in the county. The population of the remaining 10 counties without a dentist or traveling dentist is 12,681 (1.2% of Montana's population). These counties range in population from 475 residents to 1,926. Seven of these counties have experienced a population decrease of 2% or greater from 2010 to 2015.³ Of these residents, 6,926 are in Eastern Montana and 5,755 are in Central Montana. Judith Basin and Treasure are the only two of these counties designated as a geographic Dental Health Professional Shortage Area. See [Section 2: Health Professional Shortage Areas \(HPSA\)](#) for more on this topic. The population centers of McCone, Wibaux and Prairie counties are in

¹ Each point represents an actively practicing general dentist and their practice location by zip code. The dentists represented practice at a facility available to the public. If more than one dentist is in the same zip code, the points are jittered around the zip code. The jittering technique is used to separate overlapping marks by plotting them in a circular pattern around the origin.

proximity to neighboring counties with an active dentist, however drive-time to the closest dentist is 40 to 50 minutes. The average drive-time for a resident in Eastern Montana (based on the county seat) to the nearest dentist is 48 minutes. For residents in Central Montana, the average drive-time to the nearest dentist is 40 minutes.⁴ See **Appendix F** for a list of drive-times for residents in a county without a dentist.

Montana's irregular distribution of oral health providers is consistent with population densities. Rural areas with lesser populations have fewer practice sites and are likely to serve patients from surrounding rural areas that do not have the population needed to support a full-time dental practice. **Table 3** illustrates the ratio of county population to general dentists. The greater the population-to-dentist ratio, the lower the supply of dentists per capita. Montana's aggregated population-to-dentist ratio is 2,170:1 (general dentists only). National estimates include specialty dentists, in which case, Montana's population-to-dentist ratio is 1,842:1 and the U.S. population-to-dentist ratio is 1,639:1.⁵ Population-to-dentist ratios do not precisely depict the number of Full-Time Equivalent dentists and the amount of time each spends providing direct patient care. Aside from the face-to-face time with patients, dentists have administrative duties, dedicate time to staff management, volunteer, continue their education and may work as a preceptor. In Montana, the average dentist's clinical time with patients is 32 hours per week.⁶

The following four counties present a population-to-dentist ratio greater than 5,000 to 1: Broadwater, Chouteau, Pondera, and Teton. Two of these counties have notable American Indian populations; Chouteau has 19.9% and Pondera has 13.9%. Indian Health Services (IHS) does not operate a dental facility in these two counties; however, IHS does provide services in bordering counties; Hill borders Chouteau and Glacier borders Pondera. Teton County has three part-time dentists that travel to Fairfield to provide care. Broadwater County is limited to a sole dentist; however, residents have access to dental services in neighboring Lewis and Clark, and Gallatin Counties.

Table 3. County populations and number of primary care dentists practicing in each county, 2017.

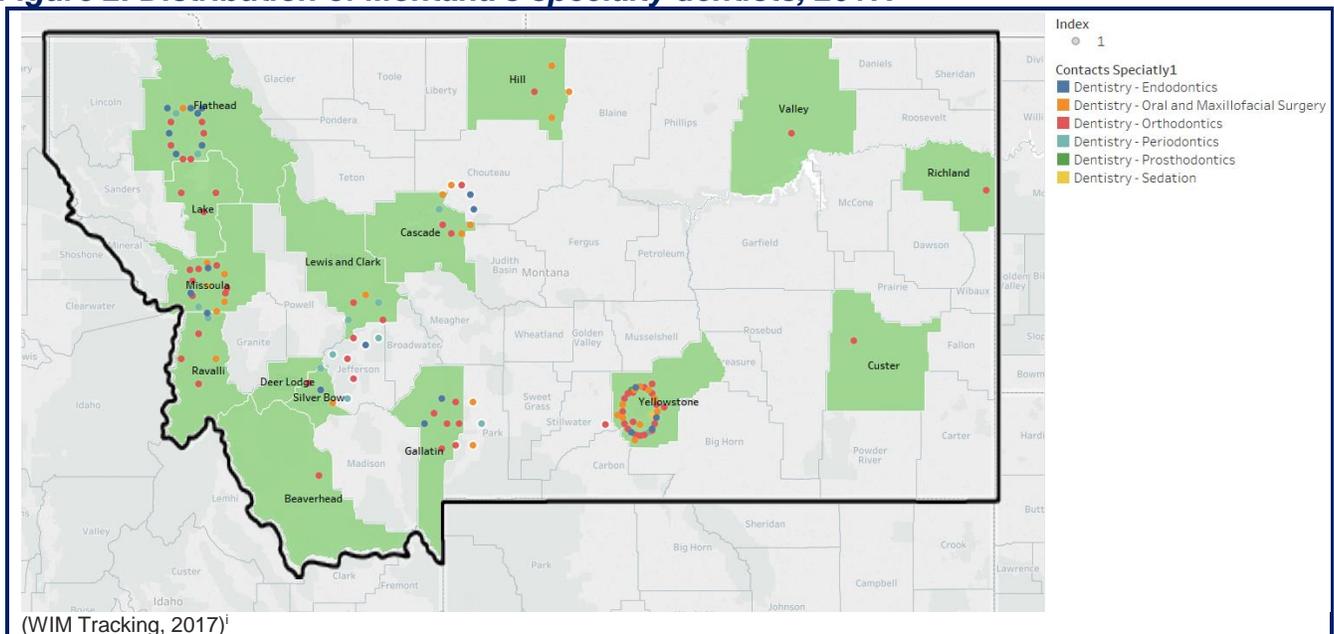
County	County Population Estimates	# of General Dentists	Population-to-Dentist Ratio	County	County Population Estimates	# of General Dentists	Population-to-Dentist Ratio
Beaverhead	9,300	6	1,550:1	McCone	1,683	0	---
Big Horn*	4,238	2	2,119:1	Meagher	1,830	0	---
Blaine*	2,237	1	2,237:1	Mineral	4,251	1	4,251:1
Broadwater	5,689	1	5,689:1	Missoula	114,181	60	1,903:1
Carbon	10,408	3	3,469:1	Musselshell	4,582	1	4,582:1
Carter	1,180	0	---	Park	15,972	9	1,774:1
Cascade	82,278	36	2,285:1	Petroleum	475	0	---
Chouteau	5,767	1	5,767:1	Phillips	4,169	1	4,169:1
Custer	12,135	5	2,427:1	Pondera	6,184	1	6,184:1
Daniels	1,760	1	1,760:1	Powder River	1,773	0	---
Dawson	9,625	5	1,925:1	Powell	6,840	2	3,420:1
Deer Lodge	9,139	4	2,284:1	Prairie	1,160	0	---
Fallon	3,190	1	3,190:1	Ravalli	41,373	15	2,758:1
Fergus	11,427	7	1,632:1	Richland	11,960	5	2,392:1
Flathead	96,165	48	2,003:1	Roosevelt*	4,591	1	4,591:1
Gallatin	100,739	56	1,799:1	Rosebud*	5,733	2	2,866:1
Garfield	1,314	1	1,314:1	Sanders	11,336	5	2,267:1
Glacier*	4,640	3	1,546:1	Sheridan	3,687	1	3,687:1
Golden	827	0	---	Silver Bow	34,622	19	1,822:1
Granite	3,240	1	3,240:1	Stillwater	9,486	2	4,743:1
Hill*	12,429	6	2,071:1	Sweet Grass	3,634	1	3,634:1
Jefferson	11,645	4	2,911:1	Teton	6,104	1	6,104:1
Judith	1,926	0	---	Toole	5,087	2	2,543:1
Lake*	21,210	8	2,651:1	Treasure	697	0	---
Lewis and	66,418	39	1,703:1	Valley	7,659	4	1,914:1
Liberty	2,408	1	2,408:1	Wheatland	2,110	0	---
Lincoln	19,052	9	2,116:1	Wibaux	1,130	0	---
Madison	7,915	3	2,638:1	Yellowstone	157,048	91	1,725:1

(WIM Tracking, 2017) *The populations in counties with an Indian Health Service (IHS) dental clinics have been adjusted. The populations were adjusted by removing the AI population to reflect only those that do not have access to the IHS services. See Table 10 for an overview of the American Indian population and IHS dental operatories.

Specialists

The American Dental Association (ADA) recognizes nine dental specialties. The seven specialties beyond the scope of general dental public health and pediatric dentistry are endodontics, oral and maxillofacial pathology, oral and maxillofacial radiology, oral and maxillofacial surgery, orthodontics and dentofacial orthopedics, periodontics and prosthodontics.⁷ **Figure 2.** Distribution of Montana's specialty dentists, 2017. demonstrates the distribution of specialty dentists in Montana. The map represents one primary dental specialty for each dentist. A dentist may provide one or more of these specialties. General dentists may also be specialists that incorporate these specialty services into a practice. Montana has two dentists that operate under a special permit as dental sedationists.⁸

Figure 2. Distribution of Montana's specialty dentists, 2017.



ⁱ Each point represents an actively practicing specialty dentist and their practice location by zip code. The dentists represented practice at a facility available to the general public. If more than one dentist is in the same zip code, the points are jittered around the zip code. The jittering technique is used to separate overlapping marks by plotting them in a circular pattern around the origin.

DENTAL HYGIENISTS

Scope of Practice

Registered dental hygienists (RDHs) provide preventive services, performing dental prophylaxis, non-surgical periodontal treatment, oral health education and other preventive services. As part of a patient’s oral wellness routine, the dental hygienist performs treatments under general supervision of a licensed dentist.

In Montana, a dental hygienist is not permitted to provide diagnosis or a treatment plan. Dental hygienists can administer local anesthesia under general supervision and have limited prescriptive authority for preventive agents, such as fluoride, topical anesthetics and non-systemic oral antimicrobials.⁹

Through a limited access permit (LAP) endorsement, a dental hygienist can work with patients under public health supervision (without supervision or preauthorization of a dentist). Public health supervision may be performed in federally qualified health centers (FQHCs), migrant worker facilities, health care for the homeless clinics, nursing homes or other public health facilities identified by the Board of Dentistry.

Education & Continuing Education

To practice in Montana, a dental hygienist must hold a diploma from a dental hygiene school accredited by CODA. As with a dentist license, no experience is necessary for a license to be issued by examination. For a license to be granted by credentialing, the dental hygienist must provide proof of experience as a dental hygienist for a minimum of 1,000 hours in the two years prior to applying for the license.

The Montana licensing board requires dental hygienists to complete 36 hours of continuing education over a three-year cycle, with an additional 12 hours required for LAP endorsement holders. They may also perform a limited number of volunteer hours to earn CE credits. Dental Hygienists who hold a LAP in Montana have reported practicing in school-based settings, nursing homes, head start programs, home health, long-term care facilities and free clinics.¹⁰

Licensure Trends

Table 4 demonstrates the trend of dental hygienist licensures in Montana. From 2011 to 2014, the number of licenses increased an average of 3.4% per year. From 2014 to 2016, licensure numbers stabilized and then increased again from 2016 to 2017, by 7.3%. Over the seven years that the trend data were collected, licensures increased 16.6%. This coincides with the number of dental hygienists that report having a Montana address which increased by 18.2% during this same period.

Table 4. Number of dental hygienists licensed in Montana, 2011-2017.

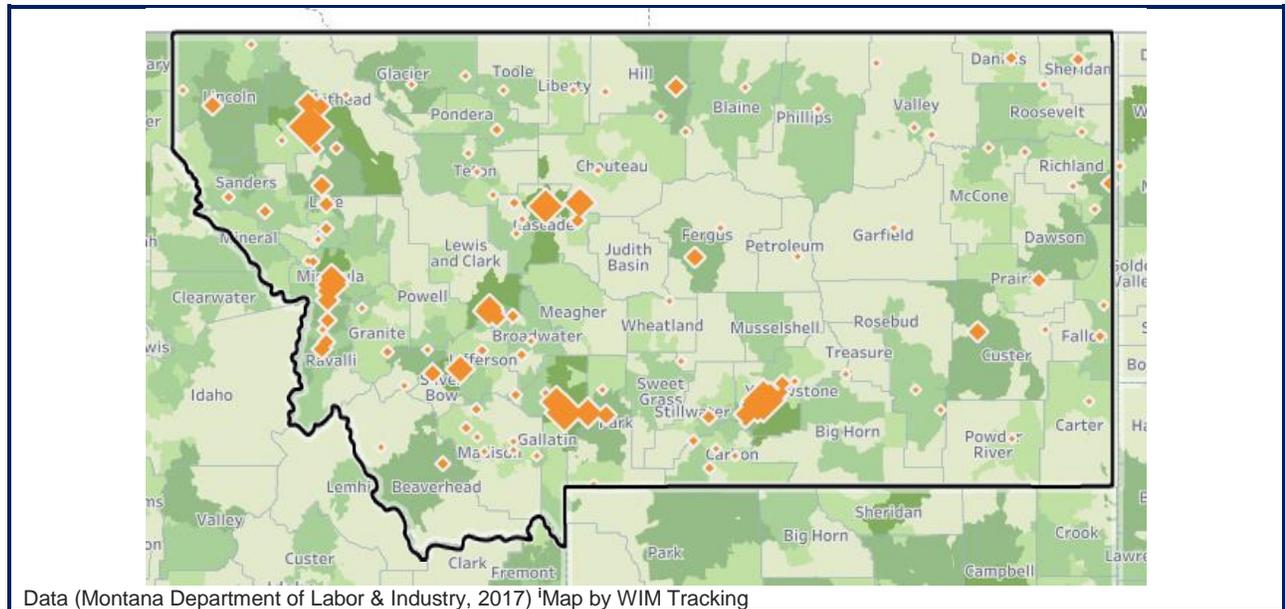
	2011	2012	2013	2014	2015	2016	2017
# of RDH licensees	716	745	766	794	801	800	859
# of RDH licensees with MT address	604	611	629	661	672	677	739

(Montana Oral Health Program, 2011-2017)

Distribution

Minimal data exist regarding the practice status and distribution of Montana's dental hygienists. **Figure 3** represents Montana's licensed dental hygienists and their distribution based on the address on file with the professional licensing board. Data from a 2017 survey of Montana's licensed dental hygienists show 20% of respondents revealed they work at more than one dental practice.¹¹ Of the 10 counties that do not have services provided by a dentist, five have one dental hygienist with an address on file with his/her license in that county (Carter, Petroleum, Powder River, Wheatland and Wibaux).

Figure 3. Distribution of Montana's dental hygienists, 2017.



DENTAL AUXILIARIES

Scope of Practice

Dental auxiliaries, also noted as dental assistants, set up equipment and prepare patients for treatment by the supervising dentist. The dental auxiliaries support the dentist with patient care procedures and perform functions such as making radiographic exposures, taking dental impressions, applying topical anesthetic and fluoride agents, removing excess cement from coronal surfaces, coronal polishing and collecting patient data.

Dental auxiliaries in Montana operate without a professional license, but under the direct supervision of a licensed dentist. It is the responsibility of the supervising dentist to ensure the dental assistant has the skills and certification to perform the functions permitted by the Montana Board of Dentistry.¹²

Education & Continuing Education

To qualify for work placement as a dental auxiliary, one must have completed on-the-job training by a licensed dentist, been instructed through a board-approved continuing education course or have graduated from a dental assisting program accredited by CODA. To expose radiographs a dental

¹ The distribution of Registered Dental Hygienists is based on the address on file with the Montana Department of Labor and Industry Board of Dentistry. This data was extracted on December 1, 2017.

auxiliary must have either passed a written examination or graduated from an accredited dental assisting program.

Distribution

Even less data exist regarding the distribution of dental auxiliaries. Occupational Employment Statistics (OES) provide insight into employment data of dental assistants and reported in May 2017, Montana had 1,340 employed dental assistants. Consistent with other dental professional distribution data, the OES data show a higher concentration of dental auxiliaries in the Western part of the state.¹³

DENTURISTS

Scope of Practice

Montana denturists assess and treat people who are missing some or all their natural teeth. Denturists provide patients with removable dental prostheses, known as dentures, which allow patients to maintain the needed function and presence of teeth.

Education & Continuing Education

To become licensed in Montana a denturist must have graduated from an educational program recognized by the Montana Board of Regents and either completed a one-year internship under the supervision of a licensed denturist or have three years of experience as a licensed denturist in another state. Denturists licensed and practicing in Montana are required by the Montana Board of Dentistry to complete 36 hours of continuing education on a three-year cycle.

Distribution

The distribution of Montana’s denturists mirrors that of the dental specialists in that the denturists are practicing in the Western, more populous counties throughout Montana. Eleven of Montana’s 56 counties have a denturist as outlined in *Table 5*.

Table 5. Distribution of Montana denturists, 2017.

County	# of Denturists	County	# of Denturists	County	# of Denturists	County	# of Denturists
Cascade	2	Gallatin	1	Missoula	3	Silver Bow	2
Flathead	3	Lewis and Clark	1	Pondera	1	Yellowstone	1
Hill	1	Lincoln	1	Ravalli	1		

(WIM Tracking, 2017)

ORAL HEALTH PRACTICE SETTINGS AND EDUCATION

PRACTICE SETTINGS

Dentists practicing in facilities available to the public are caring for patients through independent dental clinics, community health centers and rural health clinics. Most general dentists (87.2%) in Montana operate through independent dental clinics. **Figure 5** represents the distribution of the dental clinics that provide general dental services throughout Montana.

Figure 4. Practice settings of Montana's general dentists, 2017.

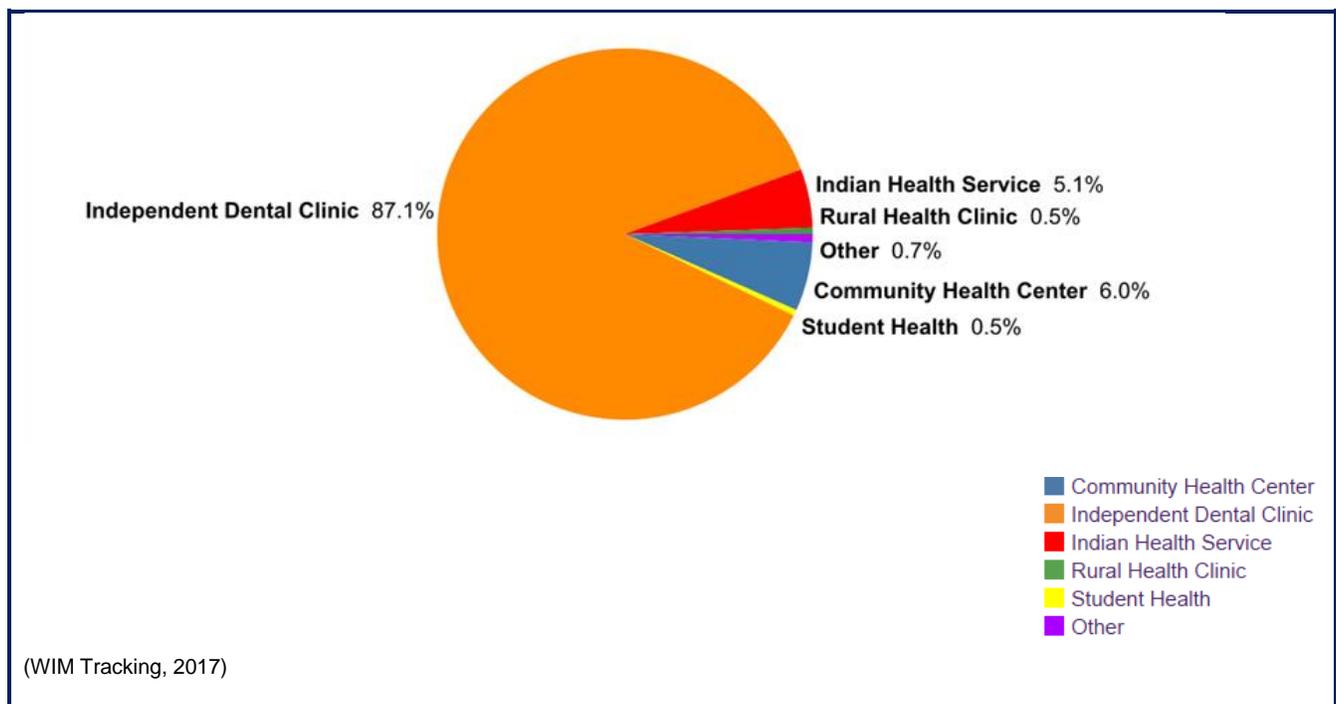
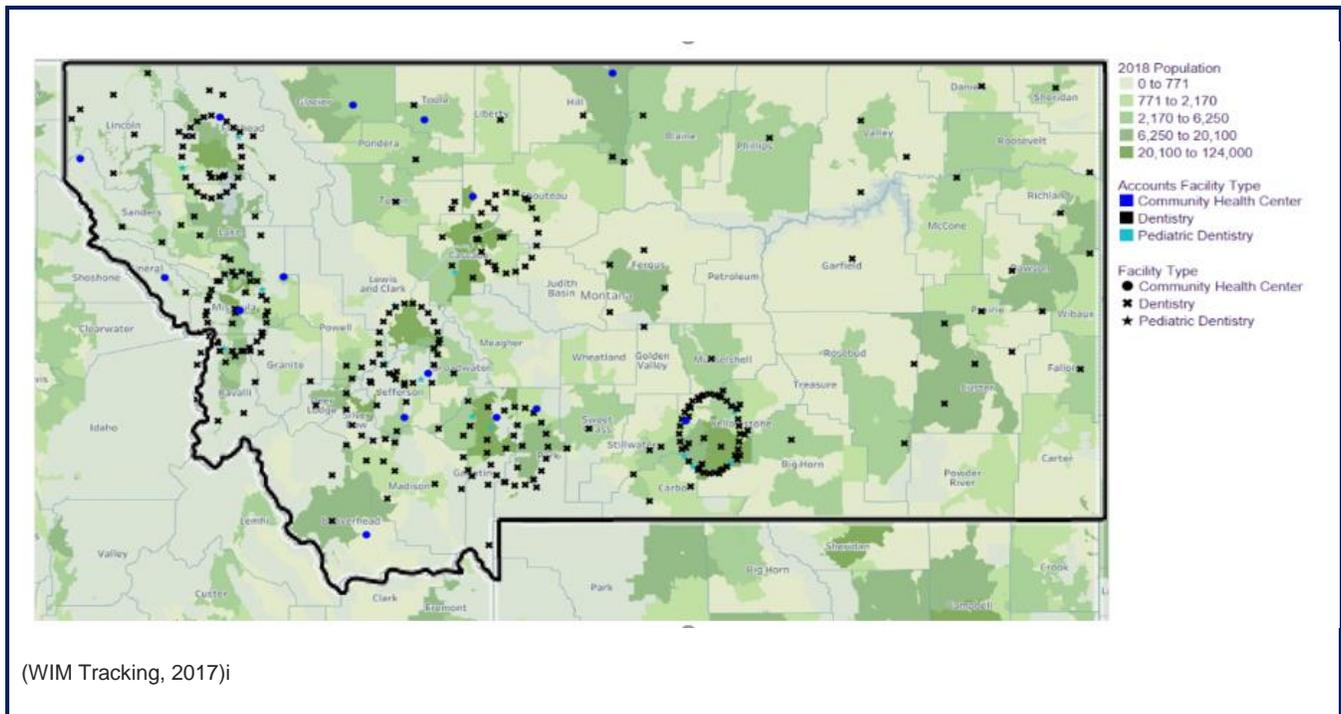


Figure 5. Distribution of primary care dental clinics with practicing dentist, 2017.



Montana has 63 rural health clinics, two of which have dental practices on campus. Montana has 17 community health centers, operating 35 clinics throughout the state. Fifteen of these clinics have at least one dentist providing dental services. Montana also has dentists providing services to specific populations through Indian Health Service, Tribal health facilities, Veterans Affairs Health Care, student health services and the Montana State Prison (**Table 6**).

Table 6. Types of dental facilities and number of practicing dentists, 2017.

Facility Type	Number of Facilities	Dentists at Facility Type
Independent Clinics	353	445
Rural Health Clinics	63	3
Community Health Centers	17 Centers 35 Locations	35

(WIM Tracking, 2017)

ⁱ Each point represents an independent general dental clinic or Community Health Center (by zip code) with a practicing dentist. If more than one facility is in the same zip code, the points are jittered around the zip code. The jittering technique is used to separate overlapping marks by plotting them in a circular pattern around the origin.

PROVIDER EDUCATION

Montana does not operate a dental school. The United States is currently home to 66 CODA recognized dental schools operated in 36 states and one in Puerto Rico. See [Appendix A](#) for a complete list of CODA accredited dental schools. The Health Policy Institute (HPI) reported nationwide the class of 2016 had 5,957 graduates, 87% of which have since reported their occupational status to be active in a dental-related activity. From 2012 to 2016, the total number of graduates from all CODA dental schools increased by 13%.¹⁴

HPI reported that in 2016, 7.4% of first-year dental school students had a permanent residence in a U.S. Mountain state (Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona or New Mexico). Montana does participate in the Western Interstate Commission for Higher Education (WICHE) program. The program provides financial support to a limited number of Montana residents to attend the University of Minnesota Dental School. [Table 7](#), an excerpt from the HPI data, looks closer at the number of first-year enrollees from Montana, its rural neighbors and the schools in which students enrolled. This breakdown shows that in 2016, Montana had one student enroll at the University of Minnesota. At that time, 16 first year students from Montana enrolled in dental schools in Arizona, Colorado, Minnesota, New York, Ohio, Oregon and Utah.

Table 7. Excerpt from legal residence of first year dental students, 2016.

DENTAL SCHOOL	MT	ID	WY	ND	SD
Midwestern University (AZ)	2	5	-	1	1
University of Colorado (CO)	4	-	-	2	-
University of Minnesota (MN)	1	-	-	4	2
Touro College of Dental Medicine (NY)	2	1	-	-	-
Case Western Reserve University (OH)	1	2	-	-	-
Oregon Health & Science University (OR)	1	1	-	1	1
University of Utah (UT)	5	3	1	-	-
TOTAL	16	38	10	17	18

(American Dental Association, 2016-17)ⁱ

In 2016, Montana was 5th lowest in the nation for the number of residents enrolling in dental school. The only U.S. states represented that were lower were Alaska, Delaware, Vermont and Wyoming. Adjacent states, North Dakota and South Dakota, had just one and two more students than Montana enrolled in 2016, respectively. These seven states are the least populated in the U.S.

Of Montana's current dentists, 42% graduated from one of four schools: Creighton University School of Dentistry in Nebraska, Oregon Health and Science University School of Dentistry, University of Minnesota School of Dentistry or University of Washington School Dentistry.ⁱⁱ

[Figure 6](#) shows the distribution of these schools relative to Montana. Forty-two, or 11%, of general dentists in active practice in Montana graduated from Creighton University School of Dentistry in

ⁱ This is an excerpt from the American Dental Association Health Policy Institute's report on the legal residence of first year dental students as surveyed by the dental schools.

ⁱⁱ The WIM Tracking database contains dentists in active practice in Montana and includes dental school graduation information self-reported by dentists. The database contains dental school graduation data on over 75% of Montana's general dentists.

Nebraska. The HPI data show that Montana did not have one resident enroll in this dental school in 2016. See **Appendix B** and **Appendix C** for additional details on dental graduation data.

Figure 6. Locations of dental schools of Montana general dentists, 2017.

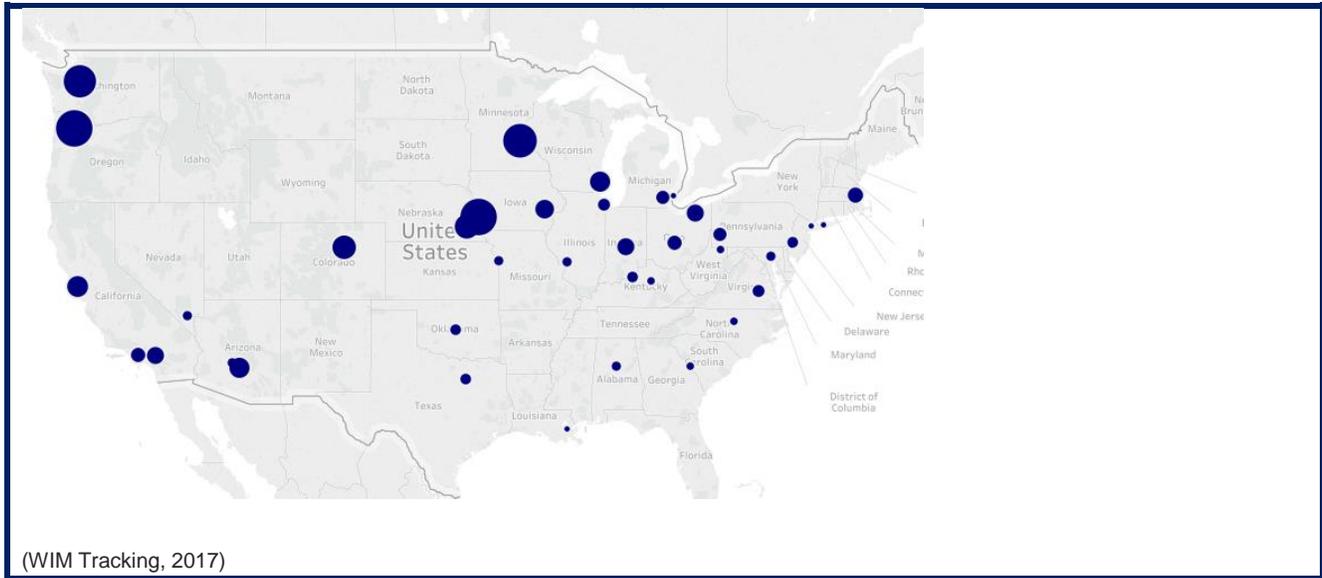
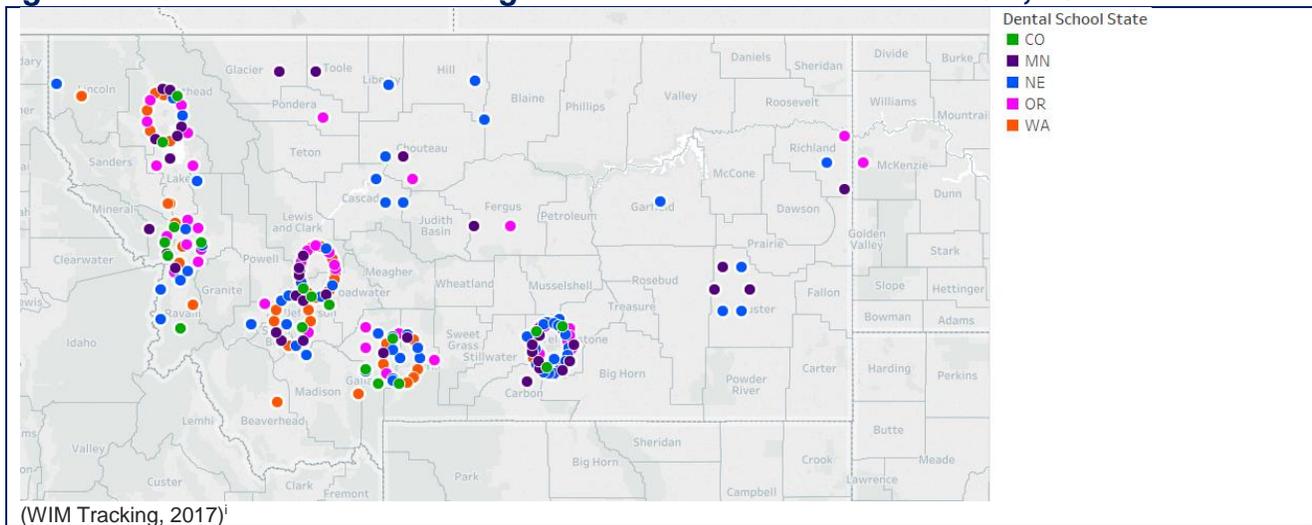


Figure 7 shows the Montana practice locations of dentists who graduated from a dental school in one of the five top referring states of graduates. The graduates from Washington and Colorado are practicing in the Western and more populated areas of Montana, while graduates from a Minnesota, Nebraska or Oregon dental school are practicing in both the urban and rural areas.

Figure 7. Locations of Montana's general dentists and dental school, 2017.



ⁱ Each point represents a general dentist in active practice and their practice location (by zip code) in Montana. The color of the point represents the dental school the dentist graduated from. If more than one dentist is in the same zip code, the points are jittered around the zip code. The jittering technique is used to separate overlapping marks by plotting them in a circular pattern around the origin.

Dental Hygienist Education

With 332 dental hygiene programs in the U.S., dental hygiene education in Montana is limited to a sole program, the Great Falls College MSU Dental Hygiene program. The two-year program accepts 18 new students each year and gives priority admission to Montana residents. The American Dental Hygienists' Association (ADHA) reports that associate programs typically have 62% more applicants than what programs accept. Should that trend hold true for Montana, Montana would have 29 applicants each year.

Dental Auxiliary Education

Dental auxiliary students can choose from 255 CODA accredited dental assisting programs in the U.S. Montana operates two of these programs: Great Falls College MSU Dental Assisting Program and the Salish Kootenai College Dental Assisting Technology Program.

In 2013, the Brewer Dental Center in Billings, Montana started offering two dental assisting apprenticeship programs each year. The program accepts 14 students per course and has met or exceeded capacity in all but one class since inception. The program administrator reported that 90% of the students are from Billings, but they have had students from Missoula, Miles City, Glendive and Wyoming. Brewer Dental Center helps with job placement for graduates and has personally hired 57% of the graduates.¹⁵

Billings Adult and Community Education center offers a Fundamentals of Dental Assisting Prep Program and certificate.

WORKFORCE PROJECTIONS

The healthcare industry is Montana's largest workforce and is projected to grow annually by 1.7% from 2016 to 2026.¹⁶ Dental occupations are projected to grow at an even higher rate in the long-term. National projections indicate dentist occupations will grow by 5.7%, dental hygienists by 9% and dental assistants by 8.9% from 2014 – 2024.¹⁷

In a report titled Meeting State Worker Demand, Montana's dentists are projected to be undersupplied from 2012-25.¹⁸ The U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA) also projects a shortage, estimating a 6% national increase in dentist supply from 2012 to 2025, but a 10% increase in dentist demand. For Montana, HRSA projects a shortage of 50 dentists by 2025. In contrast, in 2015, the Health Policy Institute (HPI) projected the supply of dentists in the U.S. to increase at a faster rate (7.8%) in 20 years from 2015 to 2035. The HPI maintains that national and state aggregate projections inadequately assess the supply and demand of the dental workforce.

In 2015, the HPI listed Montana 5th in the nation of the highest percentage of dentists (58%) younger than 50 years of age. This is higher than the national average of 49% of dentists falling in the same category. The same workforce report found Montana dentists between 50 – 64 years of age represented 28.6% of the workforce and dentists 65 and older at 13.4%. The HPI also reported the average retirement age of dentists across the nation to be 69 years, up from 66 years in 2005.¹⁹ Based on Shortage Designation Management System (SDMS) the average age of Montana dentists is 49 years. Montana has experienced an estimated 6.2% population increase since 2010.²⁰ In **Section 1 Licensure Trends** of this report, it was determined that the number of dentists holding an active Montana license with a Montana address has also increased by 6.2% (2011 to 2017).

HRSA projects the national supply of dental hygienists to outpace the demand from 2012 to 2025. However, the same analysis projects Montana to be one of five states to experience a smaller growth rate and a resulting shortage of 38 dental hygienists by 2025.²¹

According to the Montana Department of Labor and Industry's 2016 to 2026 Occupational Employment Forecasts, dental assistants rank 9th out of the top 20 occupations in the healthcare industry that will have unmet demand each year from 2018 to 2026. Based on turnover and new demand, the report projects 36 dental assistant position openings each year.²²

1 United States Census Bureau. (2016, July 1). QuickFacts Montana. Retrieved December 15, 2017, from United States Census Bureau: <https://www.census.gov/>

2 WIM Tracking. (2017, December). Retrieved from WIM Tracking Database: <https://wimtracking.org>

3 United States Census Bureau. (2016, July 1). QuickFacts Montana. Retrieved December 15, 2017, from United States Census Bureau: <https://www.census.gov/>

4 WIM Tracking. (2017, December). Retrieved from WIM Tracking Database: <https://wimtracking.org>

5 Health Policy Institute. (2017). Supply of Dentists in the U.S.: 2001-2017. Retrieved from American Dental Association: <https://www.ada.org/en/science-research/health-policy-institute/dental-statistics/workforce>

6 Montana Primary Care Office. (2018, May). Shortage Designation Management System Dental HPSA Data.

7 American Dental Association. (2018). Dental Specialty Definitions. Retrieved March 2018, from American Dental Association: <https://www.ada.org/en/education-careers/careers-in-dentistry/dental-specialties/specialty-definitions>

8 Montana Secretary of State. (2011, December 9). Rule: 24.138.3219 Permit Required for Administration of Anesthesia. Retrieved March 22, 2018, from Montana Secretary of State: <http://www.mtrules.org/>

9 Montana Code Annotated. (2017).

10 Montana Oral Health Program. (2011-2017). Professional Licensure Data. Database of Licensure Trend Data.

11 Montana Oral Health Program. (2017). 2017 Survey of Montana Dental Hygienists

12 Montana Secretary of State. (2015, October 30). 24.138.406 Functions for Dental Auxiliaries. Retrieved March 22, 2018, from Administrative Rules of Montana: <http://www.mtrules.org/>

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- 13 U.S. Department of Labor (May 2017). Employment of dental assistants by area. Retrieved April 19, 2018, from Occupational Employment Statistics (OES): <https://www.bls.gov>
- 14 Health Policy Institute. (2016). *Dentist Profile Snapshot by State 2016*. Retrieved March 2018, from American Dental Association: <https://www.ada.org/>
- 15 Brewer Dental Center. (2018). *Dental Assisting Program*. Personal correspondence dated February 28, 2018.
- 16 Montana Department of Labor & Industry. (2016-26). Montana Employment and Labor Force Projections. Retrieved from Montana Department of Labor & Industry: <http://lmi.mt.gov/>
- 17 Projections Managing Partnership. (2014-24). State Occupational Projections. Retrieved from Projections Central: <http://www.projectionscentral.com/Projections/LongTerm>
- 18 Montana Department of Labor and Industry. (2015-25). Meeting State Worker Demand. Retrieved from Meeting State Worker Demand: <http://lmi.mt.gov/>
- 19 Health Policy Institute. (2018, January). Supply of Dentists in the US 2001 -2017. Retrieved March 2018, from American Dental Association: <https://www.ada.org/>
- 20 United States Census Bureau. (2016, July 1). QuickFacts Montana. Retrieved December 15, 2017, from United States Census Bureau: <https://www.census.gov/>
- 21 U.S. Department of Health and Human Services. (2015, February). National and State-Level Projections of Dentists and Dental Hygienists in the U.S., 2012-2025. Retrieved from Health Resources and Services Administration: <https://bhw.hrsa.gov/>
- 22 Montana Department of Labor and Industry. Montana employment and labor force projections: Job growth from 2016 to 2026. Retrieved from <https://lmi.mt.gov/>

SECTION 2 WORKFORCE CAPACITY FOR THE UNDERSERVED

What is the capacity of Montana's oral health workforce to meet the needs of the underserved?

POPULATION GROUPS

On a per population aggregate, Montana has a seemingly sufficient supply of general dentists with a population-to-dentist ratio of 2,170:1. That is one general dentist for every 2,170 people as was illustrated in **Table 1**. Montana's highest populated county, Yellowstone, has an even healthier population-to-dentist ratio, with one general dentist to serve 1,725 people. In 2016, Montana ranked 20th in the nation for supply of all dentists per population.²³

Population and distribution aside, additional influences can vary provider supply and demand:

- **Overflow:** Providers located in border communities may absorb patients from neighboring counties, states or countries.
- **Bypass:** On the contraposition, community members may bypass local services to access care in adjacent communities.
- **Attribution of Resources:** Assessing one provider as one full-time employee at one location, can incorrectly attribute the amount of time resourced to residents at a given location. Providers have varying practice schedules and may provide face-to-face time in multiple counties or states.
- **Utilization:** In 2015, more than one in five (21.3%) adults in the U.S. reported they had not visited a dentist in the last few years.²⁴ Of the adults in Montana reporting they had not visited a dentist in the last 12 months, 58% said they do not seek dental care due to cost, 24% stated they were afraid of the dentist and 10% said they did not perceive a need to visit a dentist.²⁵

Though a reputable identifier of services available and potential need in each area, the population-to-dentist ratio alone does not identify a disparity. The American Dental Association has recognized that tens of millions of Americans lack access to dental care because of underlying factors such as poverty, geography and cultural barriers.²⁶ Alongside populations located in a geographic shortage, special populations including American Indians (6.3% of all Montanans), aging (17.7%), low-income (13.3%) and disabled residents (9.3% under age of 65) are traditionally underserved and often isolated from care.²⁷

UNDERSERVED POPULATIONS

Health Professional Shortage Areas (HPSA)

The Health Resources and Services Administration (HRSA) operates the Bureau of Health Workforce which houses the Health Professional Shortage Designation Branch. This Branch, alongside State Primary Care Offices (PCO), operates the program that collects and analyzes data to determine what areas, populations and health care facilities are facing a shortage of healthcare workers. Health Professional Shortage Area (HPSA) designations are one of the program's ways to determine underserved populations. Montana's Department of Public Health and Human Services (DPHHS), Public Health and Safety Division (PHSD) houses Montana's PCO. The Montana PCO administers federal resources used to help organizations recruit and retain primary care, dental and mental health professionals to serve the region's HPSA communities.²⁸

As of December 28, 2017, HRSA identified 202,582 people living in Montana regions designated as dental HPSAs and 32 new dentists required to fulfill the needs of these populations.²⁹

Federal regulations stipulate that to be considered as having a shortage of providers, a designation must have a population-to-provider ratio that meets or exceeds a certain threshold (dental HPSAs only consider dentists). For dental geographic designations, the ratio must be at least 5,000 to 1. HRSA calculates provider ratios utilizing each dentist's face-to-face patient time to determine the FTEs available to serve patients in each county. Other capacity measures are included in the formulation of designations. These factors include an evaluation of the percentage of population at 200% of the Federal Poverty Level (FPL), water fluoridation status and travel time to the nearest source of care (**Appendix E**).

Table 8 identifies all dental HPSAs that HRSA's online "HPSA Find" reported on December 28, 2017.

- 86 dental HPSA designations (includes automatically designated facilitiesⁱ).
- Six geographic HPSAs, 24 low-income population designations and 56 facilities.
- 26 Montana counties do not have a geographic or low-income population dental HPSA designation.

The Montana PCO has reported that due to a Federal HPSA processing hold, dental access points that have been submitted for review or HPSA update will not register in the online "HPSA Find" until May 2018. In March 2018, the PCO reported 26 Montana dental HPSAs were under review.

In 2014, Montana had 20 counties that were not designated a geographic or low-income population dental HPSA. That is six counties that, as of 2018, are no longer recognized as facing a dental provider shortage. These counties include: Chouteau; Daniels; Golden Valley; Petroleum; Sanders; and Stillwater.

Only two counties in Montana have been deemed as having a shortage of primary care medical providers and more counties are designated as having a geographic primary care HPSA (54) than a dental geographic HPSA (30). The scoring criteria varies with designation type. The population-to-provider threshold for a primary care geographic designation must be at least 3,500 to 1.³⁰ See **Appendix E** for a comparison of dental health, primary care and mental health HPSA scoring criteria.

ⁱ HRSA has deemed certain facility types as eligible for automatic HPSA designation. They include Health Centers (funded under Sec. 330), Health Center Look-Alikes, Tribally-Run Clinics, Urban Indian Organizations, Dual-Funded Tribal Health Centers, Federally-Run Indian Health Service Clinics and Rural Health Clinics meeting NHSC site requirements.

Table 8. Montana dental professional shortage designations (HPSA) by county and type, 2017.

County	Geographic HPSA	Low Income HPSA	Facility HPSA(s)	NHSC provider	County	Geographic HPSA	Low Income HPSA	Facility HPSA(s)	NHSC provider
Beaverhead		●			McCone		●	●	
Big Horn		●	●	●	Meagher				
Blaine		●	●		Mineral	●		●	
Broadwater					Missoula			●	●
Carbon					Musselshell				●
Carter		●	●		Park			●	
Cascade		●	●		Petroleum				
Chouteau					Phillips	●			
Custer		●	●		Pondera			●	
Daniels					Powder River		●	●	
Dawson		●	●		Powell		●	●	
Deer Lodge		●			Prairie		●	●	
Fallon	●		●		Ravalli		●	●	
Fergus			●	●	Richland				
Flathead		●	●	●	Roosevelt		●	●	
Gallatin			●	●	Rosebud		●	●	
Garfield		●	●		Sanders				
Glacier			●	●	Sheridan		●		
Golden Valley					Silver Bow		●	●	●
Granite		●			Stillwater				
Hill		●	●		Sweet Grass				
Jefferson			●		Teton		●		
Judith Basin	●				Toole			●	●
Lake		●	●	●	Treasure	●			
Lewis and Clark			●		Valley				
Liberty					Wheatland	●			
Lincoln			●	●	Wibaux		●	●	
Madison			●	●	Yellowstone			●	●

(Montana Primary Care Office, 2018) See Appendix E for HPSA scoring criteria.

OUTREACH TO THE UNDERSERVED

Outreach programs have been implemented over the years to break down the barriers between Montana’s special populations and access to care. The National Health Service Corps, the Montana Medicaid program, Federally Qualified Health Centers (FQHCs), Indian Health Services (IHS) and the dental hygienists utilizing a limited access permit all operate to administer care to Montana’s underserved populations.

National Health Service Corps

The National Health Service Corps (NHSC) is a program developed to recruit primary care, dental and mental health professionals to underserved areas. Twelve Montana counties that have dental HPSA populations are currently being served by 19 dentists and eight dental hygienists in conjunction with the NHSC program. Five of these NHSC affiliated providers are serving at American Indian Health facilities, 21 are working through a FQHC and two are operating through a private dental facility. This is compared to the 92 physicians, physician assistants and APRNs affiliated with the NHSC program, who are serving across 34 Montana counties.

Medicaid

Medicaid is a joint federal-state healthcare benefit program for eligible low-income populations. The program is designed to improve health outcomes by improving access to care for underserved and vulnerable populations. Montana's Medicaid beneficiaries increased by 31% from 2010 to 2015 (**Table 9**). Since the Legislature expanded the program in 2015, approximately 20% of Montanans are covered by Medicaid.³¹ In Montana, Healthy Montana Kids (HMK) provides health coverage to eligible children through both Medicaid and separate CHIP programs. Montana also offers travel assistance to Medicaid enrollees to help increase utilization of care. Dental Medicaid expenditures accounted for 2.4% of all Medicaid expenditures in 2012, and 2.9% in 2015.

Table 9. Annual number of Montana Medicaid enrollees, 2010-2015.

SFY	Average Monthly Medicaid Enrollment
2015	145,086
2014	134,920
2013	122,650
2012	114,883
2011	112,431
2010	99,227

Appendix G provides a demographic breakdown by county of Montana's underserved populations. Twenty-three of the 56 counties in Montana have a Medicaid population of over 10%. Counties with the highest concentration of American Indian residents account for the top seven counties with the highest percentage of average monthly Medicaid enrollees; percentages range from 25% in Glacier County to 17% in Hill County.

In 2015, Medicaid reimbursement for IHS services was 3% of the state's total expenditures.³² Of the 10 counties in Montana without a practicing dentist, only two (Meagher and Golden Valley) have an average monthly Medicaid enrollment inclusive of over 10% of the population. Five of the other counties (Wibaux, Carter, Petroleum, Powder River and McCone) account for seven of the counties with the lowest percentage of residents enrolled in Medicaid.

Fifteen Montana counties have a population with 25% or more residents who are 65 years of age or older. Granite County has the highest population (31%) of residents 65 or older. Montana's American Indian communities account for six of the 10 counties with the lowest population of residents 65 or older. The other four counties with the lowest population of residents 65 or older include Gallatin (12%), Richland (13%), Missoula (15%) and Fallon (16%).³³ **Figure 8** provides a summary of each Montana county and the percentage of residents 65 years of age or older.

Figure 8. Montana percentage of county population aged 65 years or older, 2016.



In 2016, 144,240 dental claims (including CHIP claims) were filed for services provided to patients with Medicaid. Of these claims, 122,338 (84%) were filed under an individual dentist’s National Provider Identifier (NPI). The other 21,902 claims were filed through an organizational NPI through an FQHC or IHS facility. The general dental Medicaid claims were filed by 418 dentists for a total of 102,942 claims. Of these claims, CHIP-only claims totaled 19,396; were filed by 408 general dentists; and the number of claims filed by dentists ranged from 1 to 3,083. These data show that 87.8% and 85.7% of Montana’s general dentists are participating in Medicaid and CHIP, respectively. This is considerably higher than the national average of 38% of Medicaid or CHIP participants reported by the Health Policy Institute in 2015.³⁴ Of the Montana Medicaid participating dentists, 44% filed under 50 claims; 18% filed between 50 and 100 claims; 32% filed between 100 and 500 claims; and 13% filed over 500 claims.

Figure 9 demonstrates the range in claims’ numbers filed in each county in 2016 (claim locations are based on the address associated with the provider). During this time, there were 13 counties where no Medicaid claim was filed. If a dentist practices in multiple locations, it is possible for the care associated with a claim to be provided in one county, but the claim is filed with an address from another county.³⁵ⁱ

ⁱ The 2016 data for this report was extracted from the Montana Medicaid Claims Database by the Montana Primary Care Office for the HPSA designation scoring process. The methodology for defining parameters to extract the claims was developed by Health Workforce Technical Assistance Center. Claims were defined by CPT codes of Oral Evaluation (D0120-D0180) and Prophylaxis (D1110-D1120).

Figure 9. Medicaid and Children's Health Insurance Program dental claims by county, 2016.

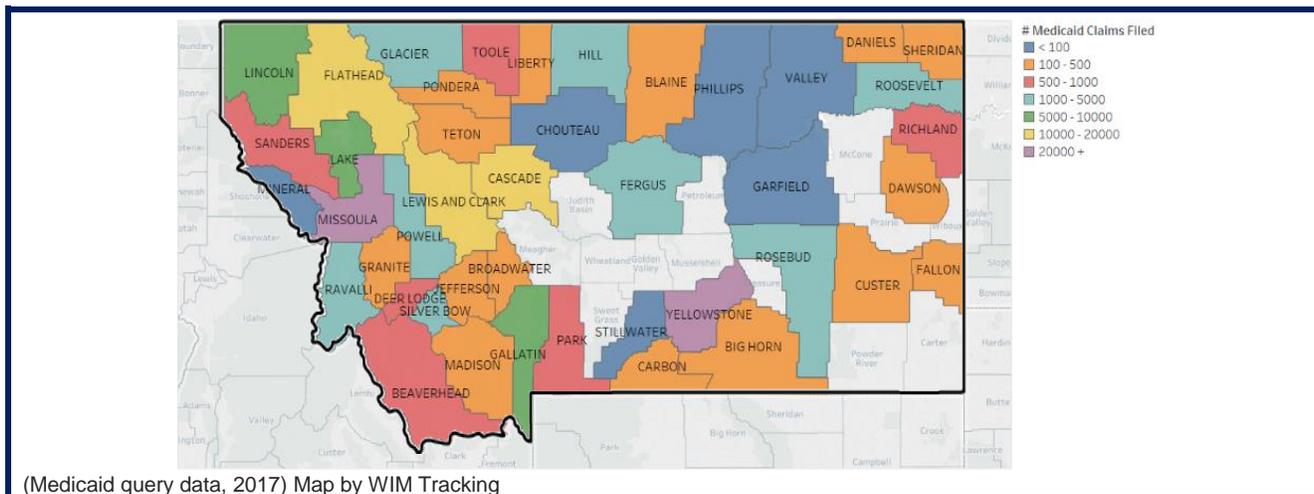


Figure 10 shows the number and location of dentists that were accepting new child patients utilizing a Medicaid insurance plan in 2017. The distribution includes 21 counties that did not have a dentist accepting new children utilizing a Medicaid plan in 2017. The map includes dentists that travel to provide care. For example, Custer County does not have a full-time pediatric dentist, there are two pediatric dentists that travel from Billings to Miles City one day per week. Chouteau and Granite counties have dentists that see patients at a Critical Access Hospital/Rural Health Clinic. Big Sandy Medical Center has one dentist that travels from Great Falls and Granite County Medical Center has one primary dentist and one dentist that travels from Missoula.³⁶ **Figure 11** details the 31 counties that did not have a dentist accepting new adult patients utilizing Medicaid in 2017. It is important to note that this only represents the acceptance of new patients, not the treatment of existing patients.

Drive-times from the population centers of counties without a dentist to the nearest dentist accepting new Medicaid patients is greater than for those utilizing other payment methods. For these adults, the average drive-time from Eastern Montana is 85 minutes and 51 minutes from Central Montana. For children, the average drive-times are 54 and 38 minutes, respectively. In 2017, 74 dentists were accepting new adult Medicaid patients and 149 were accepting new child Medicaid patients.³⁷

Figure 10. Dentists accepting new child Medicaid enrollees, 2017.

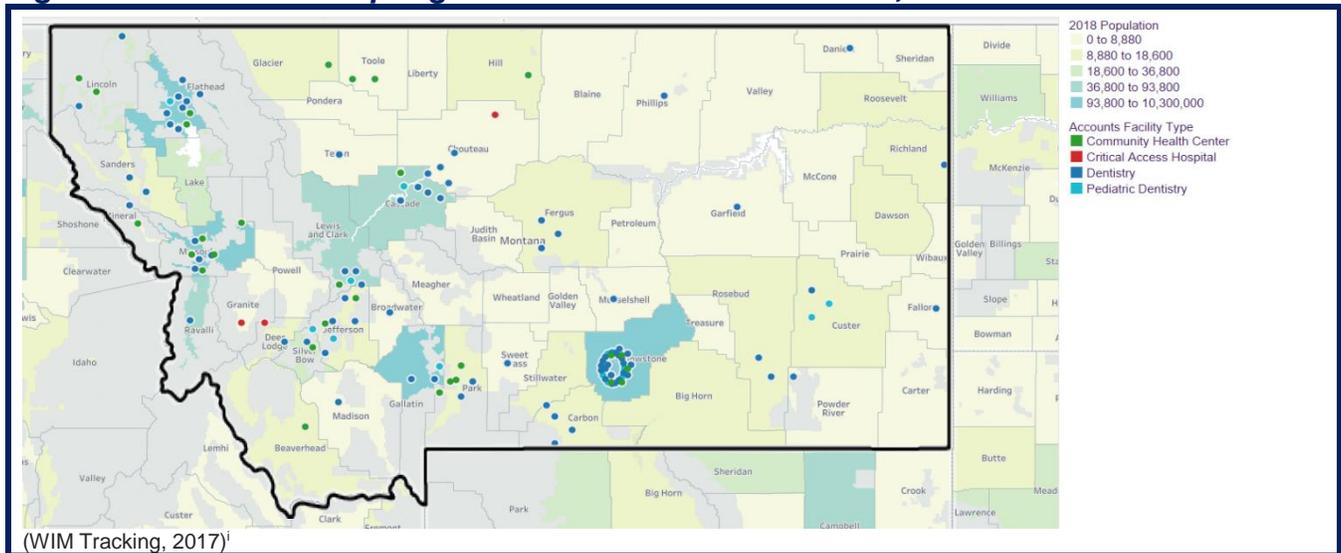
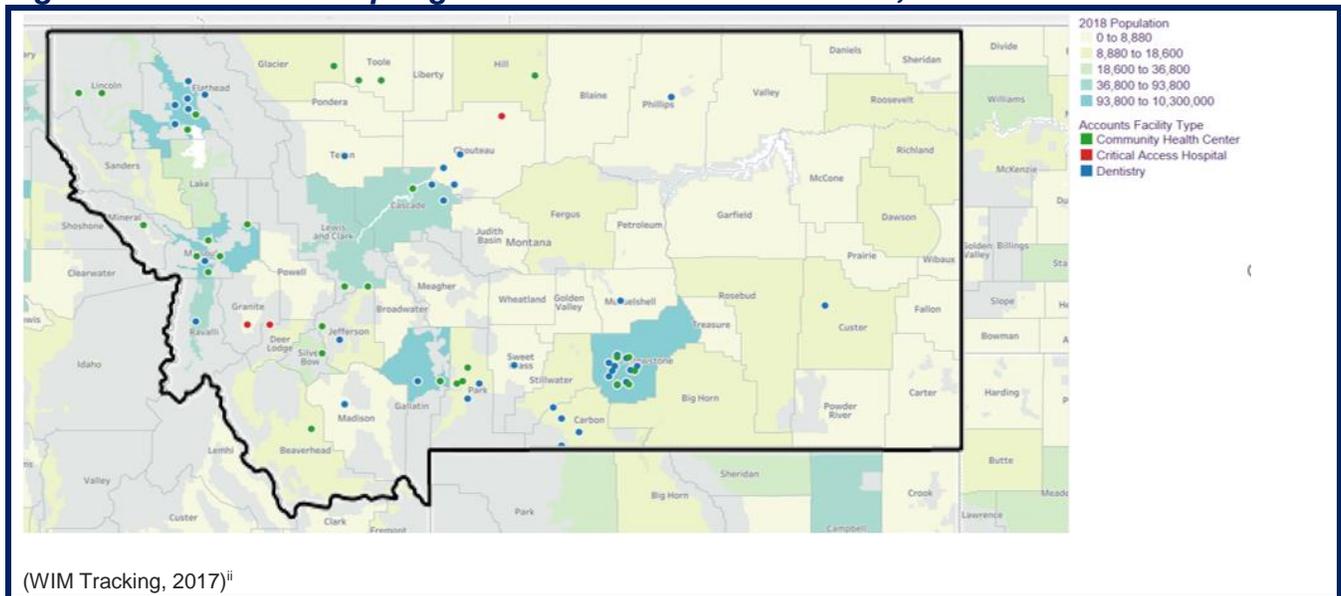


Figure 11. Dentists accepting new adult Medicaid enrollees, 2017.



ⁱ The data for Figures 10 and 11 is from a 2017 phone survey conducted by WIM Tracking (93% response rate). Each point represents a general dental office that responded yes to accepting new child patients utilizing Medicaid and yes to accepting new adult patients utilizing Medicaid. Primary and secondary practice locations are included.

ⁱⁱ In Figures 10 and 11 each point represents an actively practicing general dentist and his/her practice location by zip code. The dentists represented practice at a facility available to the general public. The color represents the type of practice location where patients are cared for. If more than one dentist is in the same zip code, the points are jittered around the zip code. The jittering technique is used to separate overlapping marks by plotting them in a circular pattern around the origin.

Federally Qualified Health Centers

Federally Qualified Health Centers (FQHCs) receive federal grant funding to provide, among other services, comprehensive oral health care to low-income, underinsured or uninsured patients. Montana has 17 Community Health Center systems operating 35 clinics; 15 of these clinics are staffed with at least one dentist.

Outputs of dental services through an FQHC are varied. In some cases, dental care is provided by a dental hygienist or primary care provider and referred out to a local dentist. Bighorn Valley Health Center does not have a dentist on staff but has a dental hygienist to perform oral health screenings and refer patients out to a local dentist if needed. Miles City also has a community health center, oneHealth, but does not offer dental services. Central Montana Community Health Center in Lewiston offers dental services via contractual agreements with dentists in the community. Sweet Medical Centers in Chinook and Harlem provide dental assistance through primary medical care providers. Medical providers refer patients to local dentists and may provide financial assistance through the community health center to cover the costs of the independent dental provider.

Table 10 provides a breakdown of the patients served within an FQHC throughout Montana in 2016. During this time, HRSA's Uniform Data System (UDS) reported FQHCs as having 25.15 Dentist FTEs and 16.23 RDH FTEs care for patients. Dental services accounted for 26.69% of all services provided at all FQHCs.³⁸ In 2017, 35 different dentists saw patients within an FQHC. Of these dentists, 21 (60%) were participants in the National Health Service Corps. Dividing the 106,342 FQHC dental patients with Montana's 2015 population estimates, demonstrates that over 10% of the population is cared for by 6.0% of Montana's dentists at an FQHC. Counties designated by an asterisk (*) in **Table 10** have an FQHC operating satellite clinics in another county. In each case, the UDS data are inclusive across two counties. Community Health Partners operate locations in Park and Gallatin Counties. Southwest Montana Community Health Center operates in Beaverhead and Silver Bow Counties and Partnership Health Center operates in Mineral and Missoula Counties. Big Horn and Ravalli Counties' FQHCs did not report any dental services in 2016.

Indian Health Services

Tooth decay among American Indians and Alaska Natives (AI/AN) is more prevalent than with other American population groups. In AI/AN children, tooth decay is more than four times higher than with white, non-Hispanic children.³⁹ Currently, 6.3% of Montana's population is American Indian and Alaska Native.⁴⁰

Indian Health Service (IHS) health professionals work to meet the health needs of American Indians and Alaska Natives populations. Health care services for tribal members and their descendants are administered through Tribal Health Departments and Urban Indian Centers. IHS operates seven tribal service units in Montana. Combined, the units operate 18 clinics, seven of which have a dedicated dental department with at least one dentist on staff. **Table 11** shows that the IHS Tribal Departments in Montana employ 29 dentists, eight dental hygienists and 57 dental assistants.

Table 10. Community health center percent of dental services and patients served, 2016.

County	Percentage of Services Reported as Dental	Total Patients Served (Medical and Dental)
Big Horn	0%	3,320
Blaine	2.4%	1,863
Cascade	33.9%	3,805
Custer	5.3%	1,194
Fergus	0.2%	2,648
Flathead	28.9%	7,979
Glacier	34.7%	3,460
Hill	45.9%	4,945
Lewis and Clark	23.4%	6,322
Lincoln	36.8%	7,114
Missoula*	32.9%	15,290
Mineral		
Park*	33.4%	11,750
Gallatin		
Silver Bow*	22.3%	12,748
Beaverhead		
Ravalli	0%	1,420
Toole	29.9%	4,485
Yellowstone	21.8%	15,330
Ag Workers	23.5%	2,669

Table 11. Indian Health Service dental clinic capacity, 2017.

County with an IHS Service Unit	County Population	Percentage of Population that is American Indian / Alaska Native	County Population of American Indian / Alaska Native	Number of Dentists at Service Unit	American Indian / Alaska Native Population to Dentist Ratio	Number of RDHs at Service Unit	Number of Dental Assistants at Service Unit
Big Horn	13,242	68%	9,004	5	1,800:1	0	10
Blaine	6,577	51%	4,340	3	1,446:1	1	6
Glacier	13,647	66%	9,007	4	2,251:1	1	12
Hill	16,572	25%	4,143	2	2,071:1	1	5
Lake	29,457	28%	8,247	6	1,374:1	2	9
Roosevelt	11,476	60%	6,885	5	1,377:1	1	7
Rosebud	9,398	39%	3,665	4	916:1	2	8

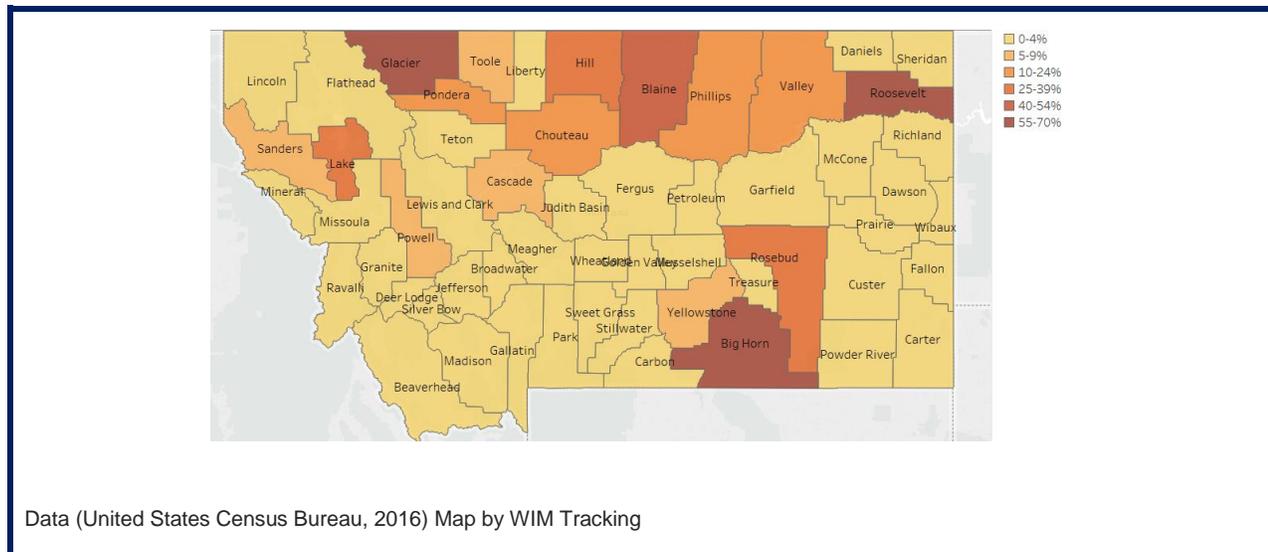
Of the IHS employed dentists, five (17%) are National Health Service Corps (NHSC) participating dentists. Currently, there are no dental hygienists practicing at an IHS site in collaboration with the NHSC program. IHS operates a loan repayment program outside of the NHSC program that assists clinicians in the repayment of student loans in exchange for a service commitment to practice in IHS health facilities.

In review of the American Indian population-to-dentist ratio in the counties that operate a dental facility, they have a greater supply of dentists when compared to Montana’s aggregated population-to-dentist ratio of 2,170:1. There are, however, other American Indian populations prevalent in other counties without an IHS dental operator. Four counties in Montana have an American Indian population representing 10% or more of the population. Phillips (10%), Valley (10%), Pondera (15%) and Chouteau (21%) counties have a combined American Indian population of 3,337 (**Figure 12**). These counties border other counties with an IHS dental clinic.

Access to preventive dental care through IHS facilities is limited, with only eight dental hygienists reported as employed by IHS. The aggregated American Indian population-to-dentist ratio in Montana is 2,372:1 (counting only IHS dentists). See [Appendix G](#) for a review of county demographics.

The American Dental Association (ADA) acknowledges the severity of the challenges American Indian populations are faced with and continues to work toward building solutions to overcome these difficulties. In 2007, the ADA sponsored a summit focused on American Indian and Alaskan Native oral health. The summit led to further discussion on addressing the oral health needs of American Indian and Alaskan Native children and, subsequently, the QUEST Initiative (Quantifying, Understanding and Eliminating Severe Tooth Decay) for these children was born. The QUEST workgroups focus efforts on developing practice solutions to proactively address health concerns rather than increasing workforce capacity.⁴¹

Figure 12. Percent of Montana's American Indian population by county, 2016.



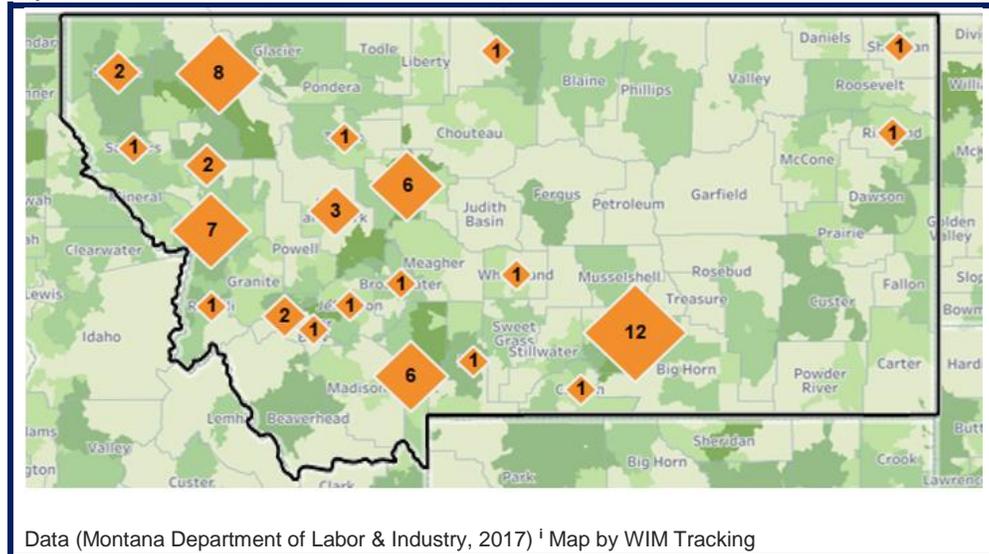
Dental Hygienist Limited Access Permit (LAP)

Eleven percent (N=62) of the Montana licensed dental hygienists hold a LAP endorsement. Of the 62 hygienists, 22 (37%) reported actively utilizing the LAP an average of 10.9 hours per week, based on 2017 survey data. LAP utilization spans eight Montana counties: Cascade, Flathead, Lewis and Clark, Lincoln, Missoula, Roosevelt, Sheridan and Yellowstone.⁴²ⁱ

Figure 13 shows the distribution of Montana’s LAP dental hygienists based on the address on file with the state licensure data. Like the distribution of dentists, concentrations of LAP holders are located in the Western, more populated areas of Montana. Only two LAP endorsements are held by dental hygienists in the most Eastern and Central portions of the State.

ⁱ In 2017 the Montana Oral Health Program conducted a survey of the registered dental hygienists licensed and holding a Limited Access Permit (LAP) in Montana. 71% of LAP holders responded to the survey.

Figure 13. Distribution of Montana's dental hygienist with a limited access permit endorsement, 2017.



Dental hygienists, with a limited access permit, can work with patients under public health supervision (without the supervision or preauthorization of a dentist). Public health supervision may include settings such as FQHCs, migrant worker facilities, health care for the homeless clinics, nursing homes or other public health facilities identified by the Board of Dentistry.

A dental hygienist must meet the following criteria to be eligible for the LAP:

- Hold an active, unrestricted Montana dental hygienist license.
- Have practiced a minimum requirement of clinical hours.
- Hold current professional liability insurance policy.
- Complete additional continuing education prior to application and following issuance of LAP.⁴³

Volunteer Programs

“Donated Dental Services” provides non-emergency dental services to Montana residents who have a permanent disability, are age 65 or older or are medically fragile. Capacity to serve the patients of Jefferson, Missoula, Prairie, Ravalli, Rosebud, Teton and Yellowstone Counties through this program has been met and new patients are not currently being accepted. Since 1997, the program has served 1,164 patients by 193 dentists.

“Shepherd’s Hand Free Clinic” in Whitefish is a medical and dental free clinic operated by volunteers. The clinic offers a wellness program to help encourage patients to improve their health through lifestyle changes. In 2016, the dental clinic reported 23 dentists and 8 dental hygienists who volunteered their services.

“Sealants for Smiles” is a statewide, school-based sealant program that provides preventive sealants to children that qualify for the school’s Free and Reduced Lunch program. Dentists, dental hygienists and

¹ The distribution of Registered Dental Hygienists is based on the address on file with the Montana Department of Labor and Industry Board of Dentistry. This data was extracted on December 1, 2017.

dental assistants volunteer to provide their services at no cost. Dental screenings are also available in schools to help monitor oral health in Montana's children.

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- 23 Health Policy Institute. (2016). Dentist Profile Snapshot by State 2016. Retrieved March 2018, from American Dental Association: <https://www.ada.org/>
- 24 Health Policy Institute. (2014, September). Key Differences in Dental Care Seeking Behavior between Medicaid and Non-Medicaid Adults and Children. Retrieved from American Dental Association: <http://www.ada.org/>
- 25 Health Policy Institute. (2015). Montana's Oral Health and Well-Being. Retrieved from American Dental Association: <https://www.ada.org/>
- 26 American Dental Association. (2018, April 13). Action for Dental Health. Retrieved from American Dental Association: <https://www.ada.org/>
- 27 United States Census Bureau. (2016, July 1). QuickFacts Montana. Retrieved December 15, 2017, from United States Census Bureau: <https://www.census.gov/>
- 28 Montana Primary Care Office. (2018). Retrieved from Montana Department of Health and Human Services: <http://dphhs.mt.gov/>
- 29 Health Resources and Services Administration (HRSA). (2017, December 28). Designated Health Professional Shortage Areas. Retrieved from HRSA Data Warehouse: <https://datawarehouse.hrsa.gov/>
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- 31 Montana State Medicaid Program. (2017). The Montana Medicaid Program: Report to the 2017 Legislature. Helena: Department of Public Health and Human Services. Retrieved from <https://dphhs.mt.gov/>
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- 34 Health Policy Institute. (2015). Dentist Participation in Medicaid or CHIP. Retrieved from American Dental Association: <https://www.ada.org/>
- 35 Montana State Medicaid Program, 2017
- 36 WIM Tracking. (2017, December). Retrieved from WIM Tracking Database: <https://wimtracking.org>
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- 38 Health Resources and Services Administration. (2016). 2016 Health Center Profile. Retrieved December 2017, from HRSA Health Center Program: <https://bphc.hrsa.gov/>
- 39 Kathy R. Phipps, D. a. (2015, April). The Oral Health of American Indian and Alaska Native Children Aged 1-5 Years: Results of the 2014 IHS Oral Health Survey. Retrieved from Indian Health Service: <https://www.ihs.gov/>
- 40 United States Census Bureau. (2016, July 1). QuickFacts Montana. Retrieved December 15, 2017, from United States Census Bureau: <https://www.census.gov/>
- 41 American Dental Association. (2007 - 2016). Symposium on Early Childhood Caries in American Indian and Alaska Native Children. Retrieved from American Dental Association: <https://www.ada.org/>
- 42 Dentist Numbers: WIM Tracking, RDH and Dental Assistant Numbers: U.S. DPHHS Indian Health Service Dental Directory
- 43 Administrative Rules of Montana (ARM). (2017, December 9). 24.138.425 Limited Access Permit. Retrieved March 22, 2018, from Montana Secretary of State: <http://www.mtrules.org/>

SECTION 3 OPPORTUNITIES FOR ADVANCEMENT

How can workforce planning efforts help improve access to and utilization of care?

EXPANDING THE DENTAL WORKFORCE

Utilization of Medical Providers

Medical professionals who provide primary or emergency healthcare services can be presented with the need to provide oral care interventions and offer an opportunity to provide guidance and early preventive interventions. In Montana, physicians, advanced practice registered nurses (APRNs), physician assistants (PAs) and other medical clinic staff may provide preventive oral health services as part of a patient's overall wellness plan or provide pain relief to placate the needs of a patient facing a dental emergency. **Table 12** provides an overview of the number of primary care providers available to patients in Montana.

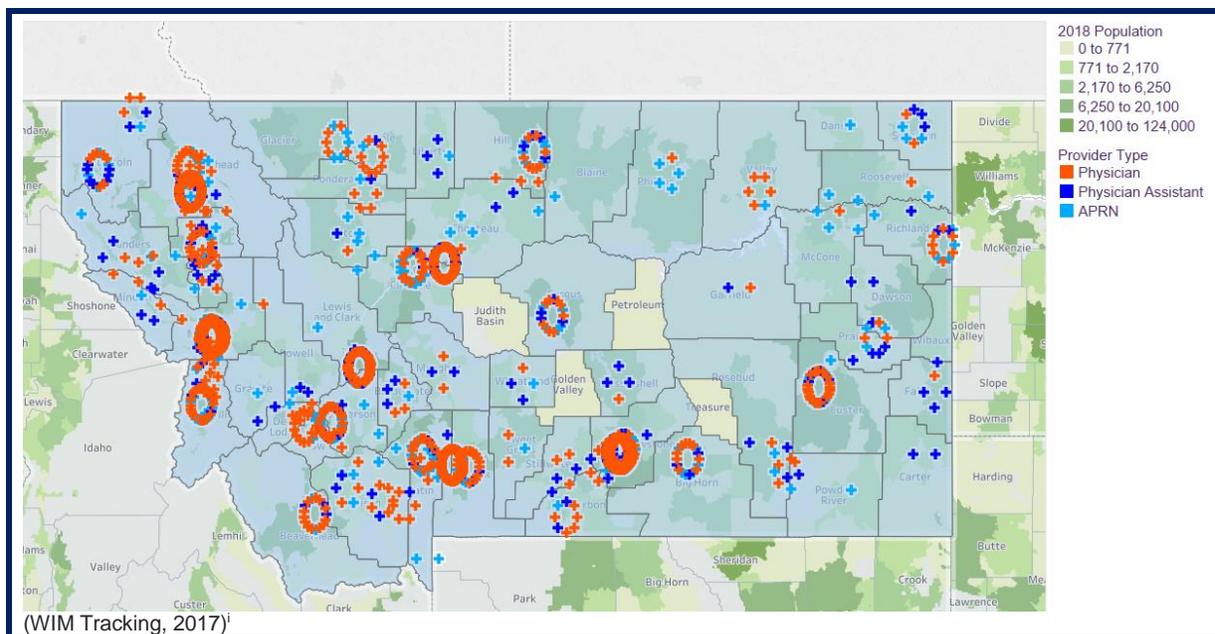
Table 12. Primary medical care provider profiles, 2017.

Provider Type	Years and Type of Education	Requirements to Practice in MT	Licensed in MT	Practicing in MT
Physicians	4 years; Graduate of a bachelor's degree program 4 years; Graduate of a medical school accredited by the American Osteopathic Association or meets the standards established by board rule 3 – 4 years; Completed an approved residency program or has had training that the board has determined is at least the equivalent of an approved residency (if the physician graduated from medical school prior to 2000)	License from the Montana Board of Medical Examiners by examination	5507 -- Data Source: (Montana Department of Labor & Industry, 2017)	2159 Primary Care Only: 683 Family Medicine: 381 Internal Medicine: 113 Pediatrics: 84 OB/GYN: 105 Urgent Care: 17 Emergency Care: 163 -- Data Source: (WIM Tracking, 2017)
APRNs	4 years; Graduate of a bachelor's degree program 2 - 4 years; Graduate of master's program, post-graduate certificate or doctorate from a national accredited advanced practice nursing program	License from the Montana Board of Nursing by examination or state compact	1304 -- Data Source: (Montana Department of Labor & Industry, 2017)	593 Primary Care Only: 310 Family Medicine: 242 Internal Medicine: 25 Pediatrics: 19 OB/GYN: 24 Urgent Care: 16 Emergency Care: 6 -- Data Source: (WIM Tracking, 2017)
Physician Assistants	4 years; Graduate of a bachelor's degree program 2 - 3 years; Graduate of a physician assistant training program accredited by the review commission on education for the physician assistant or by the American Medical Association's committee on allied health education (if the physician assistant graduated before 2001)	License from the Montana Board of Medical Examiners by examination A physician assistant must be supervised (direct, onsite or general) by a licensed physician.	744 -- Data Source: (Montana Department of Labor & Industry, 2017)	469 Primary Care Only: 190 Family Medicine: 174 Internal Medicine: 7 Pediatrics: 2 OB/GYN: 7 Urgent Care: 37 Emergency Care: 20 -- Data Source: (WIM Tracking, 2017)

Figure 14 displays the distribution of primary care physicians, APRNs and PAs throughout Montana. Comparative to the review on dentist distribution, 12 counties in Montana do not have a primary care physician. However, when considering allied health professionals, only four counties do not have a primary care provider. Primary medical care operatories are utilizing mid-level providers in eight counties that do not have a primary care physician.

Of the 11 counties that do not have a dentist, seven do have a primary care physician, APRN or PA. Four counties in Montana lack access to a dentist, primary care physician, APRN or PA (**Figure 14**). The population of these counties combined is 3,925 (.37% of Montana's population). Judith Basin accounts for nearly 50% of that population and was home to a rural medical clinic in the past. Wibaux County does not have a provider practicing full-time, but a PA travels from Dawson County twice per week.

Figure 14. Distribution of primary care medical providers, 2017.



In response to the lack of access to and utilization of dental care, leaders in and advocates for workforce development have identified innovative roles designed to target underserved communities. The Community Health Dental Coordinator (CHDC), Dental Therapist (DT) and Dental Health Aide Therapist (DHAT) roles represent opportunities for advancement and are worth consideration among workforce planning efforts for Montana. **Table 13** provides a comparison of these emerging roles on how they are educated, the scope of practice, and the communities they are intended to serve.

ⁱ Each point represents an actively practicing physician, physician assistant or APRN and their practice location by zip code. The providers represented practice at a facility available to the public. If more than one provider is in the same zip code, the points are jittered around the zip code. The jittering technique is used to separate overlapping marks by plotting them in a circular pattern around the origin.

Table 13. Emerging roles in dentistry provider profiles, 2017.

Provider Type	Education	Communities Served	Requirements to Practice	Scope of Practice	States Utilizing Model
Community Health Dental Coordinator	1 – 3 years pre-requisite as a Dental Hygienist or Dental Auxiliary 6 months - 1 year in CDHC program 60 hours of clinical training	Low-income, uninsured and underserved patients	<ul style="list-style-type: none"> Licensed as a Dental Hygienist or Dental Auxiliary or other trained dental personnel Certified as a CDHC 	<ul style="list-style-type: none"> Educate patients about oral health and prevention Provide minimal preventive services such as a fluoride and sealants Coordinate care Provide behavior coaching 	21 U.S. States 2 CDHCs in Montana
Dental Therapist	1 year prerequisite 3 years in DT program	Low-income, uninsured and underserved patients	<ul style="list-style-type: none"> Supervised by a dentist Graduate of a Master of Dental Therapy program Licensed as a Dental Therapist or Licensed as a Dental Hygienist and permitted with additional authority as approved by state statute 	<ul style="list-style-type: none"> Educate patients about oral health and prevention Provide basic preventive services Drill and restore teeth Remove primary teeth 	Minnesota Maine Vermont
Dental Health Aide Therapist	2 years 3,000 hours of clinical training 400-hour dentist-supervised preceptorship	Alaska Native and American Indian Tribal Communities	<ul style="list-style-type: none"> Licensed in the State of practice (AK and WA) Currently no license required under the pilot project in Oregon 	<ul style="list-style-type: none"> Educate patients about oral health and prevention Give fluoride treatments Place sealants Clean teeth Place fillings Perform simple extractions 50 procedures total 	Alaska Washington Oregon is evaluating the role and utilizing DHATs through a pilot project. Idaho is currently training a DHAT and advocating for the adoption of the role.

Community Dental Health Coordinator

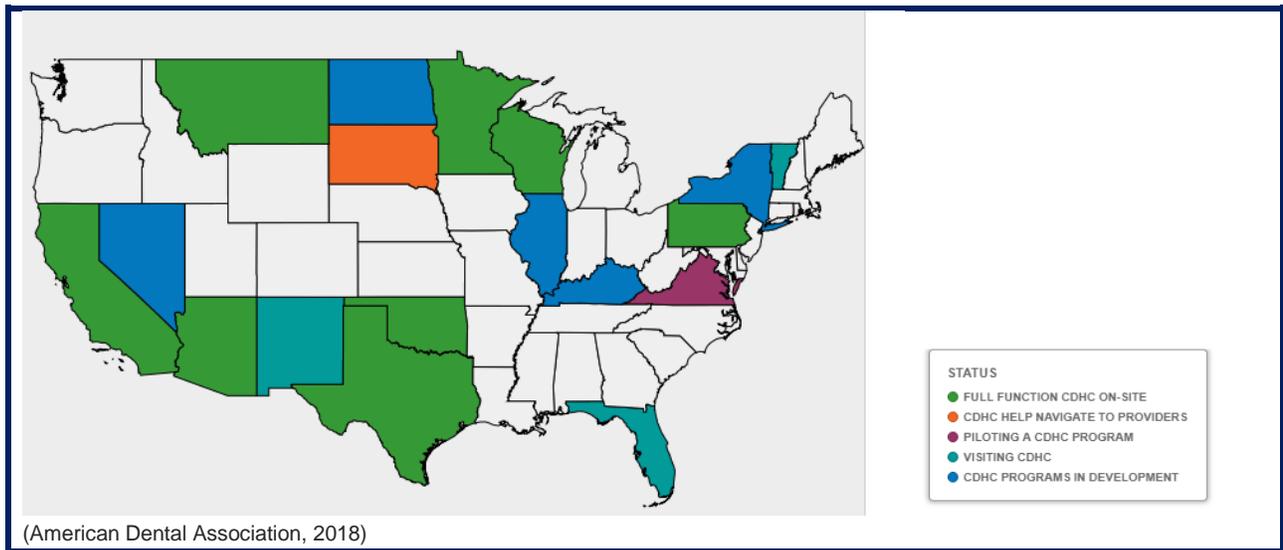
The Community Dental Health Coordinator (CDHC) Initiative was launched in 2006 by the American Dental Association (ADA) to create a new member of the dental health team. These professionals are licensed dental hygienists or dental assistants who are recruited from the same communities they are intended to serve. They are trained and certified as a CDHC to provide preventive services, oral health education and care coordination to underserved communities throughout the U.S. CDHCs coach patients to develop health behaviors that positively impact their oral health. Their role is designed to lessen the gap between access and utilization of care. The CDHC teaches patients how to obtain dental care, arrange for transportation to keep appointments, maintain oral health and manage healthy behaviors. On a more advanced level, the CDHC may perform minimal preventive services.

CHDCs act as liaisons between at-risk populations and the dental services available in their communities. The model has been adopted in community settings including schools, churches, institutions, social service agencies and among tribal populations.

As of 2018, 134 CDHCs across the U.S. have received training, working in 21 states. CDHCs can receive training online. **Figure 15** shows Montana as one of only eight states with a full functioning on-site CDHC. The ADA reports that there are two full functioning CDHCs operating at clinics on the Crow Indian Reservation and Blackfeet Indian Reservation. Seventeen schools in the U.S. offer CDHC programs.⁴⁴

A similar approach to health behavior coaching has become an interest in medical primary care, and the University of Montana now offers a certificate in Health Behavior Coaching. A Health Behavior Coach is a professional who works with clients to make behavior changes regarding their health and enhance their quality of life.

Figure 15. Community dental health coordinators across the U.S., 2017.



Dental Therapist

Dental Therapists (DT) are an emerging mid-level health professional created to serve low-income, uninsured and underserved patients. Minnesota was the first state to adopt this role and licensed the first dental therapist in 2011. There are currently 90 dental therapists licensed in Minnesota.⁴⁵ As part of the dental team, a dental therapist in Minnesota is licensed to provide basic restorative services and preventive care under a collaborative management agreement and under the supervision of a licensed dentist. With additional certification, a dental therapist may become an advanced dental therapist (ADT) and perform further functions under general supervision.⁴⁶ Maine and Vermont are the only other states that allow a dentist to hire a dental therapist. Nine other states are actively exploring the feasibility of the role.⁴⁷

The University of Minnesota is offering a three-year dual degree program which is the Bachelor of Dental Hygiene/Master of Dental Therapy. There are prerequisite courses required to complete the program, making the total educational period four years in duration. The program educates students to perform basic preventive services, drill and restore teeth and remove primary teeth.⁴⁸ Metropolitan State University and Normandale Community College, both in Minnesota, also offer advanced degree programs for licensed dental hygienists to become licensed as a dental therapist and credentialed as an advanced dental therapist. Vermont Technical College currently offers a degree in dental hygiene and is working to develop a Dental Therapy Education program.

This new role in the field of dentistry is innovative, yet controversial as the ADA continually challenges the scope of practice by maintaining that drilling and extracting teeth are procedures only dentists are qualified to perform.

Dental Health Aide Therapist

The Dental Health Aide Therapist (DHAT) is another emerging mid-level role in tribal communities. Tribal members are recruited to be trained and then return home to serve their communities. The DHAT is skilled in providing routine and preventive services as part of a dentist-led team. Limited in the scope of practice, compared to a Dental Therapist, the DHAT is trained and licensed to perform 50 or fewer procedures. In Alaska, 84.7% of the procedures a DHAT provides are known as preventive and routine. The role was initially developed in Alaska in 2005, and through the advocacy of the National Indian Health Board, it has grown in acceptance and utilization by tribes in Washington and is under exploration in Oregon. In 2017, the University of Washington conducted a study on the utilization of dental therapists in Alaska's Yukon Kuskokwim Delta. The study reviewed EHR and Medicaid data from 2006 - 2015. The study concluded that increased Dental Therapist treatment days were consistent with improved outcomes. The study found that children in Alaska experienced a 284% decrease in anterior front tooth extractions from 2006 to 2015 and a 60% increase in utilization of preventive care. During the same time, adults in these communities increased preventive care utilization by 75% and the new role led to a 26% decrease in tooth extractions.⁴⁹

In Washington, the role was signed into law in February 2017.⁵⁰ A DHAT in Washington must be recognized by a federally authorized community health aid program, certification board or a federally recognized Indian tribe that has adopted certification standards that meet or exceed the requirements of the former. The services must be performed within the boundaries of a tribal reservation and operated by an Indian health program. Persons receiving care must be members of a federally recognized tribe or eligible for services under Indian health criteria.

In 2011, legislation was passed in Oregon authorizing the Oregon Health Authority to develop pilot projects with the intent of achieving one of the following: developing new categories of dental personnel; teaching new skills to existing providers; or expanding training to current providers. Sponsored by the Northwest Portland Area Indian Health Board, a pilot project is underway in Oregon where three tribes have student DHATs in training, and two of those tribes also have a practicing DHAT. The practicing DHATs were trained at the Alaska Native Tribal Health Consortium DHAT Education Program and the first began practicing in Oregon in July 2017. DHATs in Oregon are not licensed but operate under the scope of the 2011 pilot project legislation. The Alaska Native Tribal Health Consortium DHAT Education Program has applied for accreditation by CODA.⁵¹

A tribe in Coeur d'Alene, Idaho, currently has a student participating in the Alaska DHAT program. This student is expected to graduate in 2019, however mid-level dental services by a DHAT are yet to be authorized by the State of Idaho.

EXPANDING DENTAL EDUCATION IN MONTANA

Regional Initiatives in Dental Education (RIDE)

Montana does not have a dental school; however, Montana universities do offer pre-dental curriculums. In July 2017, an Intent to Plan was initiated by the Montana University System describing a RIDE model which would be a collaboration between Montana State University in Bozeman and the School of Dentistry at the University of Washington. In January 2018, the Montana Board of Regents unanimously endorsed the proposal.

The proposed program would follow a similar path as the Montana WWAMI Program, a regional education program that aids states without medical schools in the training of physicians. Through this model, dental students would spend their first year of dental school at MSU Bozeman, their 2nd and 3rd years in Washington and their 4th year in rotations that include pre-established rural dental practices, community health centers and Indian Health Service dental clinics throughout Montana. The University of Washington states that the “program addresses dentist shortages by increasing access to publicly funded dental education, producing additional dentists to serve patients in rural and underserved areas.”⁵²

The neighboring states of Idaho and Wyoming have adopted comparable models. Idaho State University (ISU) and the University of Wyoming offer in-state residents access to a degree in dentistry through Creighton University in Nebraska. The students attend classes the first year in their home state and then complete their degree at Creighton University. Students attend at a discounted rate and although not required, they are encouraged to return to their home state to practice dentistry through programs offering repayment of their student loans. ISU states that approximately 70% of program graduates choose to practice in Idaho and most of the remaining students choose to practice in adjacent intermountain states.

⁴⁴ American Dental Association. (2018, April 13). *Action for Dental Health*. Retrieved from American Dental Association: <https://www.ada.org/>

⁴⁵ Minnesota Board of Dentistry. (2018, March 20). *Licensee Search*. Retrieved March 23, 2018, from Minnesota Board of Dentistry:

⁴⁶ National Indian Health Board. (2018, April). *Support for Dental Therapy in Indian Country*. Retrieved from National Indian Health Board: <https://www.nihb.org/>

⁴⁷ Koppelman, J. (2016, September 28). *States Expand the Use of Dental Therapy*. Retrieved from The PEW Charitable Trusts: <http://www.pewtrusts.org/>

⁴⁸ University of Minnesota. (2018, March 23). *Dental Therapy*. Retrieved from School of Dentistry: <https://www.dentistry.umn.edu/>

⁴⁹ Donald L. Chi, D. P. (2017). *Dental Utilization for Communities Served by Dental Therapists*. University of Washington, University of Washington School of Dentistry. Seattle: University of Washington. Retrieved from Northwest Portland Area Indian Health Board: <http://www.npaihb.org/>

⁵⁰ State of Washington. (2017, July 23). *Washington State Legislature*. Retrieved from Substitute Senate Bill 5079: <http://lawfilesexternal.wa.gov/>

⁵¹ Alaska Native Tribal Health Consortium. (2018, Paril 13). *Alaska Dental Therapy Educational Programs*. Retrieved from Alaska Native Tribal Health Consortium: <https://anthc.org>

⁵² University of Washington School of Dentistry. (2017). *RIDE*. Retrieved from University of Washington School of Dentistry: <https://dental.washington.edu/ride/>

DEFINITIONS

Dental Public Health (referred to as general dentistry): Dental public health is the science and art of preventing and controlling dental diseases and promoting dental health through organized community efforts. It is that form of dental practice which serves the community as a patient rather than the individual. It is concerned with the dental health education of the public, with applied dental research, and with the administration of group dental care programs as well as the prevention and control of dental diseases on a community basis. (American Dental Association, 2018)

Endodontics: Endodontics is the branch of dentistry which is concerned with the morphology, physiology and pathology of the human dental pulp and periradicular tissues. Its study and practice encompass the basic and clinical sciences including biology of the normal pulp, the etiology, diagnosis, prevention and treatment of diseases and injuries of the pulp and associated periradicular conditions. (American Dental Association, 2018)

Oral and Maxillofacial Pathology: Oral pathology is the specialty of dentistry and discipline of pathology that deals with the nature, identification, and management of diseases affecting the oral and maxillofacial regions. It is a science that investigates the causes, processes, and effects of these diseases. The practice of oral pathology includes research and diagnosis of diseases using clinical, radiographic, microscopic, biochemical, or other examinations. (American Dental Association, 2018)

Oral and Maxillofacial Radiology: Oral and maxillofacial radiology is the specialty of dentistry and discipline of radiology concerned with the production and interpretation of images and data produced by all modalities of radiant energy that are used for the diagnosis and management of diseases, disorders and conditions of the oral and maxillofacial region. (American Dental Association, 2018)

Oral and Maxillofacial Surgery: Oral and maxillofacial surgery is the specialty of dentistry which includes the diagnosis, surgical and adjunctive treatment of diseases, injuries and defects involving both the functional and esthetic aspects of the hard and soft tissues of the oral and maxillofacial region. (American Dental Association, 2018)

Orthodontics and Dentofacial Orthopedics: Orthodontics and dentofacial orthopedics is the dental specialty that includes the diagnosis, prevention, interception, and correction of malocclusion, as well as neuromuscular and skeletal abnormalities of the developing or mature orofacial structures. (American Dental Association, 2018)

Pediatric Dentistry: Pediatric Dentistry is an age-defined specialty that provides both primary and comprehensive preventive and therapeutic oral health care for infants and children through adolescence, including those with special health care needs. (American Dental Association, 2018)

Periodontics: Periodontics is that specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes and the maintenance of the health, function and esthetics of these structures and tissues. (American Dental Association, 2018)

Prosthodontics: Prosthodontics is the dental specialty pertaining to the diagnosis, treatment planning, rehabilitation and maintenance of the oral function, comfort, appearance and health of patients with clinical conditions associated with missing or deficient teeth and/or oral and maxillofacial tissues using biocompatible substitutes. (American Dental Association, 2018)

Prophylaxis: Prophylaxis is a preventive and therapeutic dental health treatment process by which gingival irritants, including any existing combination of calculus deposits, plaque, material alba, accretions, and stains are removed supragingivally and/or subgingivally from the natural and restored surfaces of teeth by a method or methods that are most suitable for the patient, by an appropriately licensed dentist or licensed dental hygienist.

Indirect Supervision: Wherein the dentist is in the office, authorizes the procedures, and remains in the office while the procedures are being performed by the allied dental personnel.

General Supervision: Wherein the supervision of tasks or procedures do not require the presence of the dentist in the office or on the premises at the time the tasks or procedures are being performed, but require the tasks be performed with the prior knowledge and consent of the dentist.

Undersupplied: Wherein the average annual supply of graduates trained to work in the occupation is less than the projected number of new job openings and openings due to retirements.

WORKFORCE PLANNING RESOURCES

Idaho State University Dental Education Program
Montana Healthcare Workforce Advisory Committee Strategic Plan
University of Montana Health Coach Certificate Program
University of Wyoming Dental Education Program
Western Interstate Commission for Higher Education

Appendix A. Number of dental graduates in U.S. 2012-2016 and number of graduates practicing in Montana by dental school.

DENTAL SCHOOL	2012	2013	2014	2015	2016	Graduates Practicing in MT
University of Alabama (AL)	66	62	54	53	59	1
Arizona School of Dentistry & Oral Health (AZ)	66	69	71	74	74	10
Midwestern University (AZ)	110	111	109	112	109	2
University of The Pacific (CA)	166	159	156	162	155	14
University of California San Francisco (CA)	104	107	108	111	107	3
University of California Los Angeles (CA)	99	100	111	108	107	6
Herman Ostrow School of Dentistry USC (CA)	173	176	170	159	176	0
Loma Linda University (CA)	112	116	131	120	117	9
Western University of Health Sciences (CA)	-	65	70	74	68	0
University of Colorado (CO)	90	90	90	117	118	16
University of Connecticut (CT)	47	34	46	44	35	0
Howard University (DC)	75	79	80	70	70	0
University of Florida (FL)	84	79	82	79	78	0
Nova Southeastern University (FL)	136	137	126	129	121	0
LECOM School of Dental Medicine (FL)	-	-	-	-	100	0
Augusta University (GA)	66	62	74	76	74	2
Southern Illinois University (IL)	46	45	51	45	49	3
University of Illinois, Chicago (IL)	90	99	104	104	107	6
Midwestern University (IL)	-	-	-	127	124	0
Indiana University (IN)	102	105	103	121	113	8
University of Iowa (IA)	75	72	74	84	78	10
University of Kentucky (KY)	62	56	56	53	52	2
University of Louisville (KY)	84	82	117	118	117	4
LSU New Orleans (LA)	59	67	66	62	64	1
University of New England (ME)	-	-	-	-	-	0
University of Maryland (MD)	124	127	126	127	123	3
Harvard University (MA)	40	39	34	37	35	1
Boston University (MA)	185	183	193	190	187	3
Tufts University (MA)	179	195	192	192	196	6
University of Detroit-Mercy (MI)	93	92	94	92	141	1
University of Michigan (MI)	113	108	107	111	113	7
University of Minnesota (MN)	109	107	109	108	109	38
University of Mississippi (MS)	35	35	36	33	33	0
University of Missouri Kansas City (MO)	97	103	105	102	103	3
Missouri School of Dentistry & Oral Health (MO)	-	-	-	-	-	0
Creighton University (NE)	84	87	83	86	84	42
University of Nebraska Medical Center (NE)	46	45	47	47	47	18
University of Nevada Las Vegas (NV)	82	75	73	73	77	4
Rutgers School of Dental Medicine (NJ)	108	108	122	107	112	0
Columbia University (NY)	76	79	82	78	76	1
New York University (NY)	356	350	350	354	352	0
Stony Brook University (NY)	38	36	41	39	39	1
Touro College of Dental Medicine (NY)	-	-	-	-	-	0
University at Buffalo (NY)	88	108	109	117	111	1
University of North Carolina (NC)	76	79	80	80	81	2
East Carolina University (NC)	-	-	-	50	51	0
Ohio State University (OH)	101	105	104	108	110	8
Case Western Reserve University (OH)	66	66	70	71	69	10
University of Oklahoma (OK)	56	58	56	57	58	3

DENTAL SCHOOL	2012	2013	2014	2015	2016	Graduates Practicing in MT
Oregon Health & Science University (OR)	70	74	76	77	75	42
Temple University (PA)	126	129	140	134	138	3
University of Pennsylvania (PA)	138	145	152	148	146	1
University of Pittsburgh (PA)	79	77	80	78	85	4
Medical University of South Carolina (SC)	57	56	73	70	70	0
Meharry Medical College (TN)	51	49	43	54	54	0
University of Tennessee Health Science (TN)	76	78	79	85	90	0
Texas A&M University (TX)	99	103	101	105	103	5
University Health Science Houston (TX)	79	86	82	83	97	0
University Health Science San Antonio (TX)	92	97	109	104	99	2
Roseman University of Health Sciences (UT)	-	-	-	64	77	0
University of Utah (UT)	-	-	-	-	-	0
Virginia Commonwealth University (VA)	101	101	89	104	98	5
University of Washington (WA)	64	67	65	68	67	33
West Virginia University (WV)	46	46	51	48	52	2
Marquette University (WI)	79	79	76	79	81	14
University of Puerto Rico (PR)	46	46	52	49	46	0
TOTAL	5,267	5,390	5,530	5,811	5,957	

Columns B – F (American Dental Association, 2016-17) Column G: (WIM Tracking, 2017)

Appendix B. Dental schools and number of enrollees by select states, 2016-2017.

DENTAL SCHOOL	MT	ID	WY	ND	SD
Arizona School of Dentistry & Oral Health (AZ)	-	-	-	1	-
Midwestern University (AZ)	2	5	-	1	1
University of Colorado (CO)	4	-	-	2	-
Indiana University (IN)	-	1	-	1	-
University of Iowa (IA)	-	-	-	5	1
University of Louisville (KY)	-	2	-	-	-
University of New England (ME)	-	1	-	-	-
Harvard University (MA)	-	-	-	1	-
Boston University (MA)	-	1	-	-	-
Tufts University (MA)	-	1	-	-	-
University of Michigan (MI)	-	1	-	-	1
University of Minnesota (MN)	1	-	-	4	2
Creighton University (NE)	-	8	4	1	7
University of Nebraska Medical Center (NE)	-	-	4	-	4
University of Nevada Las Vegas (NV)	-	2	-	-	-
Columbia University (NY)	-	1	-	-	-
Touro College of Dental Medicine (NY)	2	1	-	-	-
Case Western Reserve University (OH)	1	2	-	-	-
Oregon Health & Science University (OR)	1	1	-	1	1
University of Pennsylvania (PA)	-	-	1	-	-
University of Pittsburgh (PA)	-	1	-	-	-
Medical University of South Carolina (SC)	-	1	-	-	-
University Health Science San Antonio (TX)	-	1	-	-	-
Roseman University of Health Sciences (UT)	-	5	-	-	-
University of Utah (UT)	5	3	1	-	-
Marquette University (WI)	-	-	-	-	1
TOTAL	16	38	10	17	18

(American Dental Association, 2016-17)

Appendix C. Number of Montana practicing dentists by dental school graduation setting, 2017.

Dental School	# of Dentists
Creighton University School of Dentistry	42
Oregon Health and Science University School of Dentistry	42
University of Minnesota School of Dentistry	38
University of Washington School of Dentistry	33
University of Nebraska Medical Center College of Dentistry	18
University of Colorado Denver School of Dental Medicine	16
Marquette University School of Dentistry	14
University of the Pacific School of Dentistry	14
Arizona School of Dentistry and Oral Health	10
Case Western Reserve School of Dental Medicine	10
University of Iowa College of Dentistry	10
Loma Linda University School of Dentistry	9
Indiana University School of Dentistry	8
Ohio State University College of Dentistry	8
University of Michigan School of Dentistry	7
Tufts University School of Dental Medicine	6
University of California at Los Angeles School of Dentistry	6
University of Illinois at Chicago College of Dentistry	6
Texas A&M University College of Dentistry	5
Virginia Commonwealth University School of Dentistry	5
University of Louisville School of Dentistry	4
University of Nevada Las Vegas School of Dental Medicine	4
University of Pittsburgh School of Dental Medicine	4
Boston University Goldman School of Dental Medicine	3
Loyola University School of Dentistry	3
Southern Illinois University School of Dental Medicine	3
Temple University the Maurice H. Kornberg School of Dentistry	3
University of California at San Francisco School of Dentistry	3
University of Maryland School of Dentistry	3
University of Missouri Kansas City School of Dentistry	3
University of Oklahoma College of Dentistry	3
Augusta University Dental College of Georgia	2
Midwestern University College of Dental Medicine Arizona	2
University of Kentucky College of Dentistry	2
University of North Carolina Chapel Hill School of Dentistry	2
University of Texas Health Science Center at San Antonio	2
West Virginia University School of Dentistry	2
Columbia University College of Dental Medicine	1
Georgetown University School of Dentistry	1
Harvard University School of Dental Medicine	1
Louisiana State University School of Dentistry	1
Northwestern University Dental School	1
Stony Brook University School of Dental Medicine	1
University at Buffalo School of Dental Medicine	1
University of Alabama School of Dentistry at UAB	1
University of Detroit Mercy School of Dentistry	1
University of Medicine and Dentistry of New Jersey	1
University of Pennsylvania School of Dental Medicine	1

(WIM Tracking, 2017)

Appendix D. Montana dentists traveling across county lines to provide care, 2017.

County	# of Dentists with primary practice	# of Dentists travelling (+in, -out)	County	# of Dentists with primary practice	# of Dentists travelling
Beaverhead	7		McCone	0	
Big Horn	2		Meagher	0	
Blaine	1		Mineral	1	
Broadwater	1		Missoula	63	+4
Carbon	3		Musselshell	1	-1
Carter	0		Park	8	+1
Cascade	35	-2	Petroleum	0	
Chouteau	1	+1	Phillips	1	
Custer	6	+2	Pondera	1	-1
Daniels	1		Powder River	0	
Dawson	5		Powell	2	
Deer Lodge	4	+1	Prairie	0	
Fallon	1	-1	Ravalli	15	-1
Fergus	6	-1	Richland	5	+1
Flathead	49	-1	Roosevelt	1	
Gallatin	55		Rosebud	2	+1
Garfield	1		Sanders	5	
Glacier	4		Sheridan	1	
Golden	0		Silver Bow	19	-1
Granite	1	+1	Stillwater	2	
Hill	7		Sweet Grass	1	
Jefferson	4		Teton	1	+3
Judith	0		Toole	2	
Lake	8	-4	Treasure	0	
Lewis and	40		Valley	4	
Liberty	1		Wheatland	0	+1
Lincoln	10	+1	Wibaux	0	
Madison	3	-1	Yellowstone	91	-2

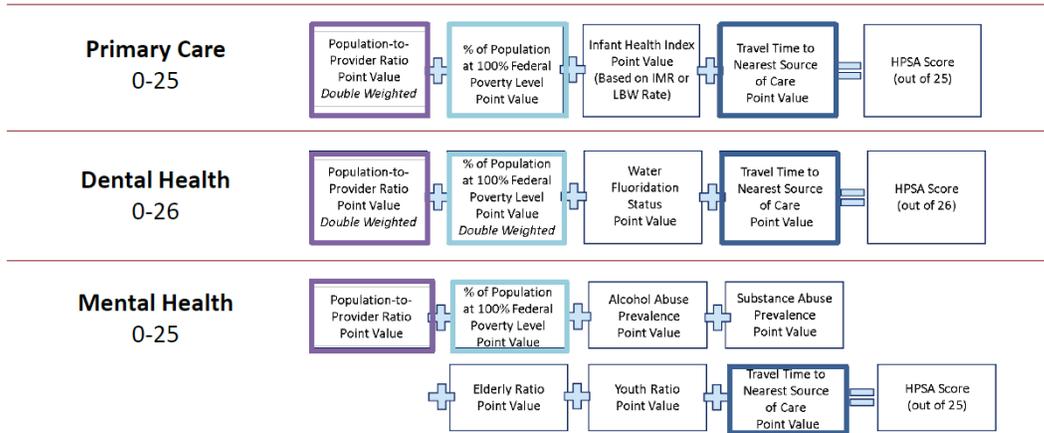
The counties that are receiving care from a travelling dentist(s) are designated in Appendix D as (+) and the counties that have a dentist(s) leaving the county to provide care are designated as (-). [County travelling to] # dentists: [County of Origin] (# dentists)

Cascade 2 : Lewis and Clark (1), Pondera (1), Chouteau 1 : Cascade (1), Custer 4: Richland (1), Yellowstone (3), Daniels 1: Richland (1), Deer Lodge 1: Silver Bow (1), Gallatin 1: Madison (1), Granite 1: Missoula (1), Lincoln 1: Flathead (1), Missoula 5: Lake (4), Ravalli (1), Park 1: Gallatin (1), Richland 3: Custer (2), Daniels (1), Rosebud 1: Fallon (1), Teton 3: Cascade (3), Wheatland 1: Fergus (1), Yellowstone 1: Musselshell (1)

Appendix E. Health professional shortage area (HPSA) scoring criteria, 2017.

HPSA Scoring Criteria

HPSA scores are based on a variety of factors and range from 0 to 25 in the case of Primary Care and Mental Health, and 0 to 26 in the case of Dental Health.



(Health Resources & Services Administration, 2018)

Appendix F. Drive time to nearest practicing dentist from counties without a dentist, 2017.

County	County Population	County Seat		Nearest city county zip code	Drive time in minutes from county seat to nearest dentist
Carter Eastern	1,180	Ekalaka, MT 59324	Dentist:	Baker, MT 59313	40
			Dentist accepting new child Medicaid:	Baker, MT 59313	40
			Dentist accepting new adult Medicaid	Miles City, MT 59301	116
Golden Valley Central	827	Ryegate, MT 59074	Dentist:	Harlowton, MT 59036	31
			Dentist accepting new child Medicaid:	Roundup, MT 59072	41
			Dentist accepting new adult Medicaid	Roundup, MT 59072	41
Judith Basin Central	1,926	Stanford, MT 59479	Dentist:	Lewistown, MT 59457	49
			Dentist accepting new child Medicaid:	Great Falls, MT 59401	67
			Dentist accepting new adult Medicaid	Great Falls, MT 59401	67
McCone Eastern	1,683	Circle, MT 59215	Dentist:	Glendive, MT 59330	50
			Dentist accepting new child Medicaid:	Jordan, MT 59337	63
			Dentist accepting new adult Medicaid	Miles City, MT 59301	93
Meagher Central	1,830	White Sulphur, MT 59645	Dentist:	Townsend, MT 59644	47
			Dentist accepting new child Medicaid:	Townsend, MT 59644	47
			Dentist accepting new adult Medicaid	Livingston, MT 59645	83
Petroleum Central	475	Winnett, MT 59087	Dentist:	Roundup, MT 59072	45
			Dentist accepting new child Medicaid:	Roundup, MT 59072	45
			Dentist accepting new adult Medicaid	Roundup, MT 59072	45
Powder River Eastern	1,773	Broadus, MT 59317	Dentist:	Miles City, MT 59301	79
			Dentist accepting new child Medicaid:	Miles City, MT 59301	79
			Dentist accepting new adult Medicaid	Miles City, MT 59301	79
Prairie Eastern	1,160	Terry, MT 59349	Dentist:	Miles City, MT 59301	40
			Dentist accepting new child Medicaid:	Miles City, MT 59301	40
			Dentist accepting new adult Medicaid	Miles City, MT 59301	40
Treasure Central	697	Hysham, MT 59038	Dentist:	Forsyth, MT 59327	30
			Dentist accepting new child Medicaid:	Forsyth, MT 59327	30
			Dentist accepting new adult Medicaid	Miles City, MT 59301	72
Wibaux Eastern	1,130	Wibaux, MT 59353	Dentist:	Glendive, MT 59330	29
			Dentist accepting new child Medicaid:	Baker, MT 59313	46
			Dentist accepting new adult Medicaid	Miles City, MT 59301	95

(WIM Tracking, 2017) Drive times were calculated using Google Maps Distance Matrix API.

Appendix G. Montana county population profiles, 2017.

County	Pop.	Growth rate (2010 – 2015)	Average Monthly Medicaid Enrollees	% Medicaid Pop.	% Elderly Pop.	% Native American Pop.	County	Pop.	Growth rate (2010 – 2015)	Average Monthly Medicaid Enrollees	% Medicaid Pop.	% Elderly Pop.	% Native American Pop.
Beaverhead	9,300	0%	760	8%	21%	2%	McCone	1,683	-3%	58	3%	22%	1%
Big Horn	13,242	3%	3,220	24%	12%	68%	Meagher	1,830	-4%	252	14%	28%	1%
Blaine	6,577	1%	1,196	18%	14%	51%	Mineral	4,251	1%	619	15%	28%	3%
Broadwater	5,689	1%	414	7%	22%	2%	Missoula	114,181	4%	10,959	10%	15%	3%
Carbon	10,408	3%	660	6%	23%	1%	Musselshell	4,582	1%	574	13%	23%	2%
Carter	1,180	1%	54	5%	25%	1%	Park	15,972	3%	1,161	7%	21%	1%
Cascade	82,278	1%	8,344	10%	17%	5%	Petroleum	475	-4%	23	5%	24%	1%
Chouteau	5,767	-1%	340	6%	19%	21%	Phillips	4,169	-2%	524	13%	21%	10%
Custer	12,135	4%	1,148	9%	19%	2%	Pondera	6,184	0%	874	14%	20%	15%
Daniels	1,760	1%	107	6%	25%	3%	Powder River	1,773	3%	59	3%	24%	2%
Dawson	9,625	8%	552	6%	17%	3%	Powell	6,840	-3%	623	9%	20%	5%
Deer Lodge	9,139	-2%	1,089	12%	21%	4%	Prairie	1,160	-2%	82	7%	30%	1%
Fallon	3,190	10%	138	4%	16%	1%	Ravalli	41,373	2%	4,191	10%	25%	1%
Fergus	11,427	-2%	954	8%	24%	2%	Richland	11,960	22%	600	5%	13%	3%
Flathead	96,165	6%	10,426	11%	18%	2%	Roosevelt	11,476	10%	2,743	24%	11%	60%
Gallatin	100,739	12%	4,945	5%	12%	1%	Rosebud	9,398	2%	1,669	18%	14%	39%
Garfield	1,314	11%	74	6%	23%	0%	Sanders	11,336	-1%	1,379	12%	29%	5%
Glacier	13,647	2%	3,404	25%	12%	66%	Sheridan	3,687	9%	216	6%	21%	2%
Golden Valley	827	-6%	88	11%	27%	2%	Silver Bow	34,622	1%	4,421	13%	18%	3%
Granite	3,240	5%	175	5%	31%	1%	Stillwater	9,486	4%	645	7%	21%	1%
Hill	16,572	2%	2,878	17%	15%	25%	Sweet Grass	3,634	0%	156	4%	25%	1%
Jefferson	11,645	2%	906	8%	21%	2%	Teton	6,104	0%	504	8%	22%	2%
Judith Basin	1,926	-6%	123	6%	24%	1%	Toole	5,087	-5%	426	8%	16%	6%
Lake	29,457	2%	4,883	17%	21%	28%	Treasure	697	-3%	57	8%	28%	3%
Lewis and Clark	66,418	5%	5,953	9%	18%	3%	Valley	7,659	3%	862	11%	22%	10%
Liberty	2,408	2%	117	5%	20%	1%	Wheatland	2,110	-3%	198	9%	25%	1%
Lincoln	19,052	-3%	2,558	13%	27%	2%	Wibaux	1,130	12%	58	5%	25%	1%
Madison	7,915	3%	374	5%	29%	1%	Yellowstone	157,048	6%	15,574	10%	16%	5%

Columns 4-5 Data: (Montana State Medicaid Program, 2017) Columns 2-3, 6-7 Data: (United States Census Bureau, 2016)

Appendix H. WIM Tracking data collection and maintenance methodology.



WIM Tracking maintains a relational health professions provider and practice database. The data is available to organizations through an online datahub. It includes an online search and report directory, workforce movement and standardized reports and a Geographic Information System (GIS) mapping tool. The comprehensive dataset is methodically detailed and proactively maintained. WIM uses a manual data maintenance routine to ensure timely upkeep of the data, rather than relying on providers or practice managers to submit practice changes. The data is inclusive of all licensed providers in active practice and micro-identified based on practicing specialty, practice type and status.

The WIM database was developed utilizing professional licensing boards to first determine the names of providers that are licensed to practice in Montana and Wyoming. From there, WIM began a labor intensive, manual tracking routine that consisted of phone calls and reviews of websites hosted and maintained by provider organizations to determine which practice location to electronically assign each provider. This digital relationship allows WIM to track providers based on his/her practice location(s). One primary practice location is assigned to each actively practicing provider and one or more secondary practice locations may be assigned to a provider. The providers that are retired, not in clinical practice or not practicing in the state are not assigned a practice location.

Data Maintenance

WIM utilizes multiple data sources to keep up to date on provider movement.

- **Phone Calls** – WIM calls practices to determine changes in active providers.
- **Paper Assessments** – WIM mails out workforce assessments to practice managers to collect information about providers and practices.
- **Licensing Boards** – WIM utilizes state licensing boards to review providers with a new or expired license.
- **NPI Data** – WIM follows the National Provider Identifier (NPI) data set for alerts regarding providers filing Medicaid or Medicare claims in a new area.
- **Press Releases** – WIM utilizes key word algorithms to receive notifications of any e-news related to providers or practices in the region.
- **Collaboration** – WIM works in tandem with workforce agencies on special data collection projects. This often includes paper assessments, phone calls, emails and website analysis.
- **Online Notifications** – Practice managers complete online data updates through the WIM website.
- **Social Media** – WIM follows medical practices that operate a Facebook page. When a practice posts about a new provider or change of address, WIM will verify the change with a phone call or review of the facility's website and update WIM profiles accordingly. When a new provider is located, WIM reviews all providers at the location to see if the new provider is replacing another provider who has relocated or retired.

WIM reviews provider profiles that are not updated through one of the above maintenance methods on a rotating basis. Dentists and primary care providers are reviewed quarterly, specialty physicians, physician assistants and APRNs are reviewed every six months and chiropractors, optometrists, podiatrists and acupuncturists are reviewed every six to twelve months.

Database Design

WIM designed the datahub and maintenance process with the following standardization:

- Providers may be associated to as many practices as relevant to his/her medical practice. The primary designation assures that a provider is only counted once (at the primary practice location) in reporting features.
- Providers are assigned to practices, allowing a practice profile to include a list of all providers actively practicing at the location.
- Previous practice locations are not deleted from a provider's profile. These locations are marked as Former and date stamped.
- Self-reported hometown and state, undergraduate and graduate medical education is under collection and included in provider profiles when known.
- Both a physical and mailing address are included for all providers.
- License numbers and NPIs are utilized for crosschecking purposes.
- Data entry errors are minimized through cascading auto-population data entry tools.
- Data is geocoded utilizing the Google Maps Geocoding API.
- When a provider relocates or retires, the provider is identified in the system's movement report.

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