

American Indian Accessibility to Preventative Healthcare

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Abstract

Using network distances and drive times, we examined the accessibility of 71 American Indian Reservations to the nearest health services facilities equipped with screening and other preventive tools that treat some of the major diseases affecting American Indians.

Key Points

- We identified 332 health care facilities in the SURTCOM study area.
- Health care facilities by location:
- o 82% (272 facilities) are located in census-designated rural areas.
- o 18% (60 facilities) are located in census-designated urban areas.
 Services offered at health care facilities:
- o 19% (64 facilities) have nutrition programs.
- o 82% (272 facilities) have diabetes-treatment programs.
- o 7% (23 facilities) have cardiac programs.
- By reservation:
- o The mean distance and drive time to nearest facility with a nutrition program was 61 miles and 68 minutes.
- o The mean distance and drive time to nearest facility with a cardiac program was 202 miles and 218 minutes.
- o The mean distance and drive time to nearest facility with a diabetes program was 47 miles and 54 minutes.
- o Mean distances and drive times were influenced by extreme outliers. For example, the Klamath tribal headquarters is 724 miles from the nearest IHS cardiac program.
- o For cardiac programs and diabetes programs the nearest facility is often in a different state.
 59 reservations (83%) were closest to a nutrition program in their home states.
 - Only 22 recompetions (220/) were closest to a nutrition program in their nome state
 - Only 23 reservations (32%) were closest to a cardiac program in their home states.

 Only 26 reservations (37%) were closest to a diabetes program in their home states.
- By state:
- There were a total of 121 IHS health care facilities in the 9-state SURTCOM area.
 - 40 facilities (XXX%) had nutrition programs
- Only 7 facilities (XXX%) had cardiac programs 59 facilities (XXX%) had diabetes programs
- o Washington state had both the highest number of reservations (28 reservations) and the most health care facilities (35 facilities).

Background

Health disparities among native populations have been documented for 500 years (Jones, 2006) with these populations being at greater risk for a number of diseases including diabetes, coronary heart disease, myocardial infarction, and obesity (Indian Health Service, 2017). Though 46% of American Indians reside in urban areas (Dewees, Marks, 2017), it may be that these health disparities are due to the rural nature of many tribal lands, with rural Indians being the ones subject to diminished health (Holm, Vegltanz-Holm, 2010). Like native populations, rural and non-native populations face similar health disparities (Eberhardt & Pamuk, 2004). Rural areas are characterized by reduced access to a wide range of resources (Jones, López-Carr, Dalal, 2013) and this reduced access likely plays a role in the greater health disparities of both rural and native populations.

Though proximity (or distance) is often treated as being synonymous with access to resources, access is a multidimensional concept. Theories of access take into account prices, rights, reciprocity networks, ability of resource providers to accommodate needs of resource uses, and the social acceptability of the resource in a community, among other factors (Bernard et al., 2007; Penchansky & Thomas, 1981). Indeed, proximity may not even be the most influential factor in health care access (Buzza et al., 2011). Buzza and team (2011) note that distances to health care facilities are mediated and/or moderated by: (1) patient financial constraints; (2) the type of care required (routine, specialty treatment, or diagnostic services); and (3) emergency services. Likewise, Arcury et al., found that the ability to travel (whether it be through having a driver's license, interpersonal networks, or public transportation) was associated with increased visits to health care facilities (Arcury et al., 2005). Further complicating the concept of access is the quality of transportation infrastructure, which is inconsistent across tribal communities (National Congress of American Indians, 2013). On the one hand, poor road conditions may exacerbate the effects of distance on access. On the other, many tribes manage transit programs to help residents travel to and from health care facilities (National Congress of American Indians, 2013).

This poster documents the first steps of a larger research project exploring access to health care across tribal communities. We identify and summarize distances (in miles and drive times) between health care facilities and tribal headquarters.

Conclusions/Discussion

These data present a glimpse into the services provided by the Indian Health Service in both rural and urban settings. Though, non-IHS-affiliated facilities may exist in the same areas, those data have not yet been collected. The next step in this project is to identify non-IHS facilities in proximity to reservations. And the ultimate goal of this project is to measure the dimensions of access to health care as defined by Penchansky & Thomas (1981) and Bernard et al. (2007) to determine the role distance to services plays in the health disparities experienced by native populations.

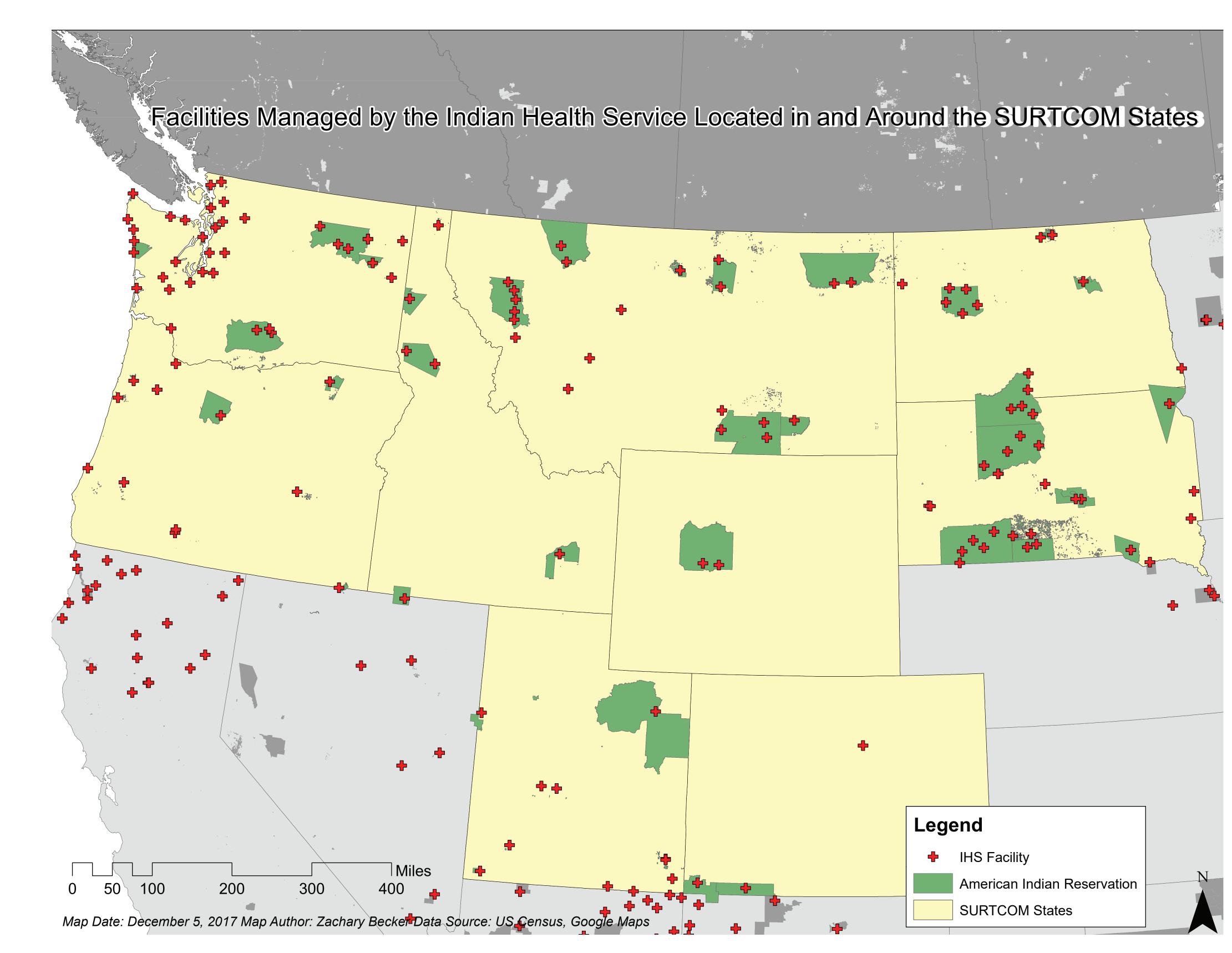


Figure 1: All Indian Health Service facilites located in and around the SURTCOM Study area

Methods

This research is funded through the Small Urban Rural and Tribal Center on Mobility (SURTCOM), a United States Department of Transportation University Transportation Center representing Montana State University, North Dakota State University, and Eastern Washington University. The SURTCOM study area includes 71 federally recognized American Indian Reservations that share historical, cultural, and regional characteristics.

Network distances (miles) and drive times (minutes) from all reservations to locations of interest were obtained using Google Maps (maps.-google.com). The addresses for each reservation's tribal headquarters were used as starting points for the Google routing queries. Medical services offered by each facility were determined by services listed through the Indian Health Services website (https://www.ihs.gov/), as well as each individual facility website. All Google Maps queries were conducted between February 19, 2018 and March 14, 2018.

A major advantage to using Google Maps is its availability, which is contingent solely on having access to the Internet and web browsing software. It is also quite easy to use. Another advantage of Google Maps is that it calculates drive times based on posted speed limits, which in turn are a reflection of road or geologic conditions (such as quality of paving, changes in elevation, number of twists and turns along the route, etc.). Thus roads with challenging conditions require slower speeds. Under these circumstances the number of miles between a reservation and a destination may be low but the actual drive time may be very high. Though Google Maps is a powerful tool, its routing algorithm is a proprietary secret that is often changed without informing end users of those changes. Thus an exact replication of this study would rely on using the same routing algorithm or algorithms employed by Google Maps between February 19, 2018 and March 14, 2018,

cknowledaments

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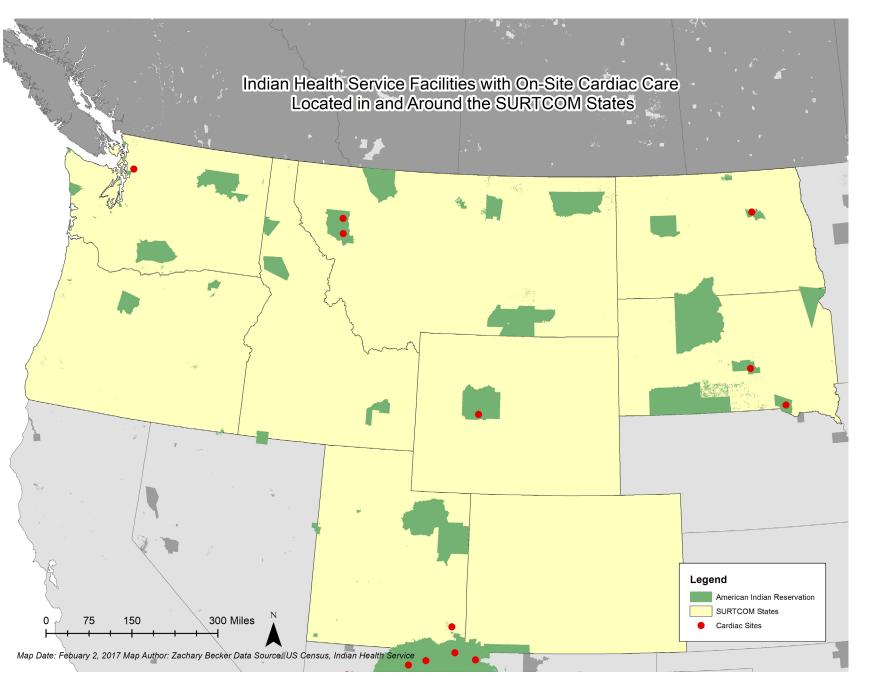


Figure 2: All IHS facilities with a Cardiac Program

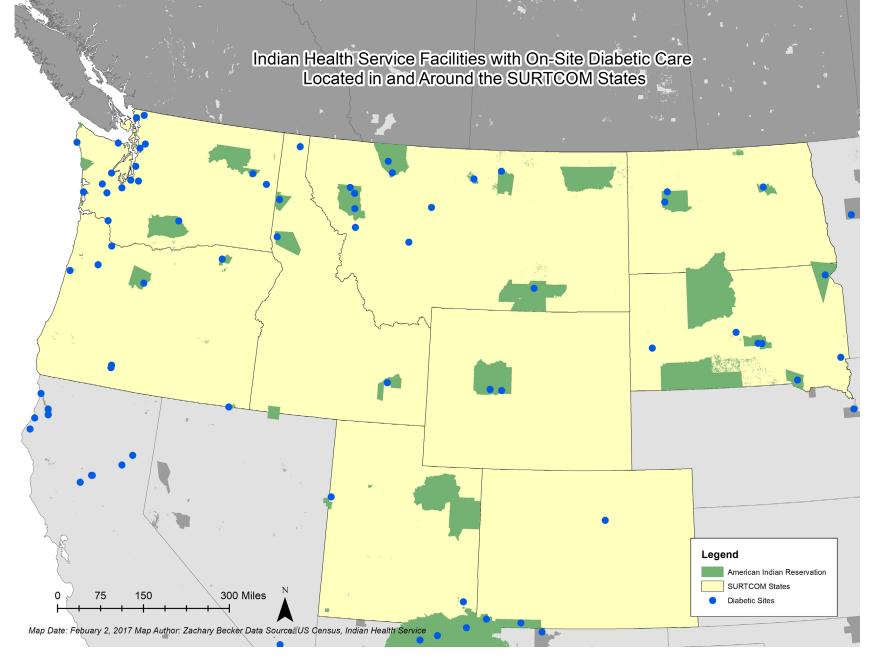


Figure 3: All IHS facilities with a Diabetic Program

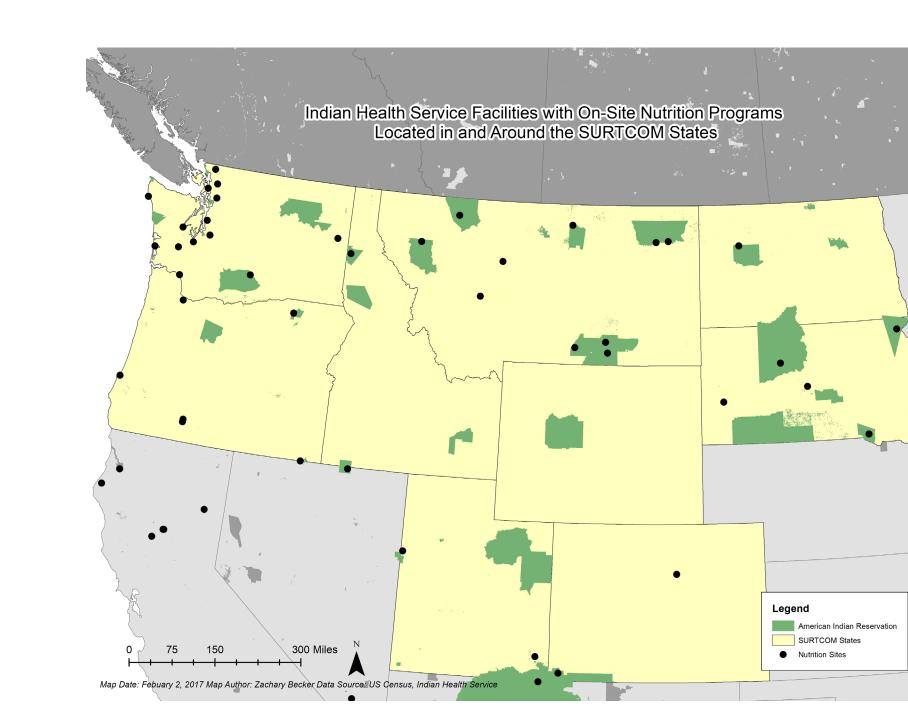


Figure 4: All IHS facilities with a Nutrition Program

		Nearest facility w/ nutrition program			Nearest facility w/ cardiac program			Nearest facility w/ diabetes program		
	# of Reservations	# of nearest facilities in state	Mean distance in miles (SD)	Mean drive time in minutes (SD)	# of nearest facilities in state	Mean distance in miles (SD)	Mean drive time in minutes (SD)	# of nearest facilities in state	Mean distance in miles (SD)	Mean drive time in minutes (SD)
Colorado	2	2	41 (58)	47 (65)	0	130 (112)	136 (122)	1	0 (1)	2 (1)
Idaho	5	2	97 (113)	97 (103)	0	281 (130)	305 (132)	0	1 (1)	2 (2)
Montana	7	7	27 (28)	33 (32)	1	188 (201)	200 (200)	1	64 (97)	65 (87)
North Dakota	4	3	120 (83)	118 (77)	0	148 (163)	159 (178)	0	32 (42)	37 (41)
Oregon	11	7	58 (56)	70 (64)	0	328 (195)	325 (180)	3	70 (64)	75 (65)
South Dakota	8	8	43 (43)	45 (43)	0	179 (151)	172 (138)	2	46 (57)	51 (58)
Utah	5	3	195 (134)	189 (121)	0	137 (113)	141 (119)	0	71 (92)	71 (90)
Washington	28	27	33 (33)	44 (40)	22	170 (121)	203 (127)	19	44 (66)	56 (69)
Wyoming	1	0	233 (NA)	268 (NA)	0	288 (NA)	314 (NA)	0	39 (NA)	50 (NA)
Total	71	59	61 (76)	68 (74)	23	202 (155)	218 (152)	26	47 (66)	54 (66)

Figure 5: Average drive times and distances to nearest facility from reservation per state



Figure 6: The Healing Lodge, IHS facility, Spokane, WA

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