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**The Lack of Access Can Affect Oral Hygiene**

Approximately 87,000 of the 120,000 Alaska Natives live in rural communities (Sekiguchi, et al.). Several rural areas, such as villages, are remote and have no accessible roads (ibid). Therefore, people either have to travel by plane, boat, ATV, or snow-machines to get to those villages (ibid). Thus, it is difficult to get dental health workers transported to these remote areas. As a result, rural areas lack access to professional care, and oral hygiene there is less efficient than urban areas.

Lack of access to professional dental care is a significant contributor to the disparities in oral health that exist in the Alaskan population (Nash and Nagel, *American Journal of Public Health).* Two major factors that contribute to inadequate access to care are the geographic isolation of villages in Alaska and the inability to attract dentists to practice in rural areas (ibid). According to the article, “Cultural Context in the Effort to Improve Oral Health Among Alaska Native People,” “Alaska's remote villages face daunting transportation challenges that severely curtail residents' access to medical and dental professionals” (Wetterhall, et al.). Some dentists from the lower- 48 volunteered for brief visits to the rural areas, but only a few were attracted to stay all year- round in villages (ibid). Many of those villages had 800 or less residents; hence there are not many housing opportunities for the dentists that want to stay (ibid).

The American Indians/ Alaska Native (AIAN) ethnicity take up most of the population in those rural areas that lack access to professional care, thus leading to many oral diseases (Nash and Nagel, *American Journal of Public Health*). The AIAN population has the highest tooth decay rate compared to any other population in the United States (ibid). 81 percent of AIAN children between the ages 6- 14 had a history of tooth decay, which is twice the general average in the United States (ibid). Dental caries are tooth decay and cavities (Reducing Oral Health Disparities). 78 percent of AIAN children and 90 percent of AIAN young adults have dental caries (ibid). Many of these people that have dental caries is due to the fact that they do not have access to care, thus they cannot get treated for the diseases they obtained over time.

Many oral diseases originate because the diseases go untreated because they do not have a professional caregiver (Sekiguchi, et al.). According to Nash and Nagel, 68 percent of AIAN children have untreated dental caries (Nash and Nagel, *American Journal of Public Health*). Tooth decay is the most common disease in children, even more common than asthma (Report shows disparities). Hence, tooth decay is already common in children, but significantly more common in AIAN children because the majority of them live in rural areas. According to the article, “An Oral Health Survey of Head Start Children in Alaska: Oral Health Status, Treatment Needs, and Cost of Treatment,” children residing in rural areas had higher rates of dental caries than the urban areas (Jones, et al.). The proportion of rural children needing dental care is 59 percent and 27 percent for urban children (Jones, et al.). Therefore, the need for professional oral caregivers is a lot higher in rural areas than urban areas. Also, average teeth an urban child needed treatment on are about 0.7 teeth and the average for rural children is about 2.8 teeth to get treatment on (ibid). Thus, rural children need treatment almost four times more than an urban child.

Studies show that sugars are the most important factor in developing dental caries (The role of diet). Sugars are naturally occurring or added (Sugars and dental carries). According to the journal, “*American Journal of Clinical Nutrition,”* sugars affect the caries process, including the form of fluid, sequence of eating, salivary flow, and presence of buffers (ibid).The saliva is a natural self- defense against dental caries because it lubricates the mouth and gums, which reduces the growth of bacteria and provides minerals, such as calcium to the teeth surfaces (Griffin, et al.). If increased production of oxygen species and not much buffers are present, then the host cells and tissues of the teeth are destroyed, leaving sugars to destroy the teeth even more (The role of diet). Thus, people have some self- defense to protect themselves against oral diseases, but the body cannot do it entirely, people have to take care of their teeth as well. According to Carrolla, massive sugar and combinations of acids had a profound effect on oral health (Alaska takes aim at soda). A report shows that more than half of the state’s Alaska Natives surveyed drink at least one can of soda a day and one-fifth drink at least two cans a day (ibid). The acids and sugars from soda can seriously damage or destroy teeth for life (ibid).

According to the journal, “*Nation’s Health*,” “Oral health implies much more than healthy teeth" (Krisberg). The mouth is both a cause and reflection of individual and population health and well- being” (Report shows disparities). Oral disease cannot only have an impact on oral hygiene, but also other aspects of general health (Griffin, et al.). Untreated teeth will not resolve its’ self (Griffin, et al.). The pain from untreated teeth can profoundly affect sleeping habits and daily life activities (ibid). According to Nash and Nagel, “ One-third of children report missing from school because of dental pain, and 25- percent report avoid laughing or smiling because of the way their teeth look” (Nash and Nagel, *American Journal of Public Health*). Therefore, children’s low self- esteem can lead to depression.

According to the article,” Improving the Oral Health of Alaska Natives,” one- third of Alaska Native adults have periodontitis, which is a higher rate than the general population of the United States (Sekiguchi, et al.). Periodontitis is the inflammation of gums around the teeth (ibid). Half of the periodontists cases in adults of the Unites States come from tobacco (Griffin, et al.). According to O’Donnell, she sees more people using more tobacco in villages and there is not much pressure against it to stop usage (O’Donnell). O’Donnell also claims that she did not see much social pressure against smoking, but media is slowly making that better (O’Donnell). The use of tobacco can leave calculus, which is plaque hardening on the teeth, and that it may destroy the bone around the teeth (O’Donnell).

Periodontitis can destroy the surrounding tissues around the teeth and ultimately lead to tooth loss (Griffin, et al.). According to the article, “Burden of Oral Disease Among Older Adults and Implications for Public Health Priorities,” people need about 20 teeth to have functional chewing and because people need that much teeth they may have to get dentures (ibid). Studies show that even dentures are 30 percent to 40 percent less efficient than natural teeth (ibid). Since tooth loss impairs chewing efficiency, it reduces the ability to eat a nutritious diet and the enjoyment of food (The role of diet). People with tooth loss would prefer to eat easier- chewable food, which are usually foods rich in saturated fats and cholesterol, also leading to obesity (Griffin, et al.). Tooth loss can also reduce social confidence, lower self- esteem, anxiety, and impair social function (The role of diet). Many people care about the way they look.

Cost for care can also have an effect on why people have oral health problems. According to the article,” An Oral Health Survey of Head Start Children in Alaska,” the potential cost of treatment for the 1,475 children enrolled in the Alaska Head Start programs would be $601,624 with sedation and transportation costs included (Jones, et al.). Also, the Alaska Tribal Health System holds the Native tribes directly responsible for the dental care of its members, as well as the arrangements for that care (Sekiguchi).  A lot of villages are small and cannot support full- time general dentists, let alone specialists, so most of the time patients have to be transported for treatment, often at a great cost (ibid).

There are many ways Alaska is trying to prevent health disparities, such as the Dental Health Aid Therapists model (DHAT), expanding dental school enrollments, increasing awareness of the importance of oral hygiene, and sending dental teams to the rural areas (Wetterhall, et al.). The DHAT model was created in 2000 to bring all year-round oral health services to under-served areas (Krisberg). The DHAT model is used to train people at mid-levels to do dental services (ibid).

The main services DHAT apply are preventive services (Krisberg). DHAT not only give preventive services but also oral exams, relief pain and infection, and extract diseases and non-restorable teeth (ibid). The therapists are then able to provide primary care to children under the general supervision of a dentist (Nash and Nagel, *Journal of Dental Education)*. Since DHAT were able to do these services, the majority of DHAT got good feedback (Wetterhall, et al.). The DHAT got a good feedback because studies showed that since some people did not see them as a dentist, they lost the fear of going to see the dentists (ibid). Studies shown say that people who adopt an optimistic mindset of the dentist would see the dentists more often (Laughing in the Face). Therefore, people who did not want to see the dentists got over their fear and were able to get the procedures done, that they needed for their oral care. Although the DHAT practiced safely and within their scope of practice, they had some controversy because they were trained in New Zealand and not in the United States (Krisberg).

Expanding dental school enrollments is a preferable alternative to increase the number of dentists being educated in the dental schools (Nash and Nagel, *American Journal of Public Health).* Schools are expanding because about 20 years ago there was not a dental hygienist school here in Fairbanks and now there is a school that contains about 6 students (O’Donnell). Currently, in the tribal communities there is only one dentist for every 2,800 individuals in the tribal health clinics compared to the one dentist for every 1,500 individuals in the general population of the United States (ibid*).* There are only about 80 AIAN dentist and only 70 are employed in villages (ibid).

Most importantly, poor oral health is largely preventable (Griffin, et al.). Awareness of oral hygiene is very important because people need to know the status of their own teeth to prevent or control oral diseases (Griffin, et al.). A good way to prevent dental carries is to use fluoride, self-applied through toothpaste, professionally applied, or through community water systems (ibid). Fluoride is a major contributor to the decline in tooth loss over the past 50 years (Griffin, et al.). A report showed that communities that have people drinking fluoridated water had 15 percent to 40 percent less tooth decay (Report shows disparities). According to the article,” The role of diet and nutrition in the etiology and prevention of oral diseases,” “Fluoride undoubtedly protects against dental caries, reducing caries in children by up to 50 percent, but it does not eliminate or remove the cause” (The role of diet). Therefore, using fluoride in the first place can protect teeth from getting diseases, reducing the need for care.

According to O’Donnell, some native corporations send dental providers to their region of Alaska, but not all native corporations send teams (O’Donnell). Thus, corporations are trying to protect their people in their region by providing a limited access to professional care. O’Donnell works with one of the native corporations that send their dental teams to only the interior region and she said that they stay at the schools of the villages to see all the children, while they are in school (ibid). The main focus of the dental teams is children, so they could catch oral diseases early and prevent them from digressing (Krisberg). The villages that do receive care from these dental teams are typically seen only one to two weeks of the year (ibid).

 Although, dental teams make it to the villages, they often don’t have time to see the entire villages, which makes it extremely difficult to see adults because they are second priority (ibid). Nagel noted that,” The oral health status of Alaska Native adults is difficult to track” (ibid). Since, not many adults can be seen while the dental teams are in town, they have to travel to another place that can provide care for them (ibid). The adults then must rely on the Indian Health Service to help transport and pay for such services (Nash and Nagel, *American Journal of Public Health*).

To conclude, studies shown say that the AIAN population is the highest in oral diseases because most of them take up the population in rural areas (Nash and Nagel, *American Journal of Public Health*). The reason people in rural areas have the most dental carries is because of the lack of access to dental professionals (Wetterhall, et al.). Oral health has improved in rural areas, but is still far worse than in urban areas (Eberhardt and Pamuk). Oral diseases can affect more than just the mouth, but also the rest of the body, whether or not if it is mentally or physically (Report shows disparities). There are many ways people are trying to resolve the problem of lack of access, such as sending professionals and making people more self- aware (ibid). All in all, rural oral health would be improved if they had more access to care.

Works Cited

“Alaska takes aim at soda.” *Nation’s Health* Vol. 31 .Issue 6 (2001): p7. *EBSCO Host*. Web. 29 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=14&hid=106&sid=d1a67776-0815-4d44-b52a-f80596c10292%40sessionmgr12&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=4696125>. The strength of this source is that it tells that soda is a big contributor to tooth decay. The weakness of this source is that it doesn’t tell about other causes to tooth decay.

Eberhardt, Mark S., and Pamuk, Elsie R.. “The Importance of Place of Residence: Examining Health in Rural and Nonrural Areas.” *American Journal of Public Health* Vol. 94.Issue 10 (2004): p1682-1686. *EBSCO Host*. Web. 29 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=7&hid=106&sid=d1a67776-0815-4d44-b52a-f80596c10292%40sessionmgr12&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=14653782>. What I got from this website is that the health has improved in rural areas but it is still far worse than people who live in urban areas.

Griffin, Susan O., et al. “Burden of Oral Disease Among Older Adults and Implications for Public Health Priorities.” *American Journal of Public Health* Vol. 102 .Issue 3 (2012): Issue 3. *EBSCO Host*. Web. 29 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=29&hid=106&sid=d1a67776-0815-4d44-b52a-f80596c10292%40sessionmgr12&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=71914631>. Strength of this source is that it talks about oral health all around. I don’t really see and weaknesses.

Jones, David, Candace Schlife, and Kathy Phipps. “An Oral Health Survey of Head Start Children in Alaska: Oral Health Status, Treatment Needs, and Cost of Treatment .” *Wiley online library*. N.p., 1 May 2007. Web. 3 Feb. 2012. <http://onlinelibrary.wiley.com/doi/10.1111/j.1752-7325.1992.tb02249.x/abstract>. What I got from is website is that the potential cost for treatment for oral health in the 1,475 students enrolled in Alaska Head Start would be $601,624.

Krisberg, Kim. “Alaska program brings essential oral health to the under-served.” *Nation’s Health* Vol. 35.Issue 8 (2005): p17. *EBSCO Host*. Web. 29 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=13&hid=106&sid=d1a67776-0815-4d44-b52a-f80596c10292%40sessionmgr12&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=18483344>. The strength of this source is that it tells about what they are trying to get done in the villages. The weakness of this source is that it doesn’t say much about what kind of diseases are in the villages.

“Laughing in the Face of Dental Fear May Ease Worries.” *Health Magazine* 22 Feb. 2012: n. pag. *Health.com*. Web. 21 Mar. 2012. <http://news.health.com/2012/02/22/laughing-in-the-face-of-dental-fear-may-ease-worries/>. What I got from this source is that patients who adopt an optimistic mindset cope with dental treatment significantly better and the would visit the dentists regularly than people in fear.

Nash, David, and Ron Nagel. “A Brief History and Current Status of a Dental Therapy Initiative in the United States.” *Journal of Dental Education*. American Dental Education Association , 2005. Web. 3 Feb. 2012. <http://www.jdentaled.org/content/69/8/857.short>. What I got from this website is that Alaska Native Tribal Health Consortium began developing dental health aides, under the provisions of the Congressionally authorized Alaska Community Health Aide Program.

Nash, David A., and Nagel, Ron J.. “Confronting Oral Health Disparities Among American Indian/Alaska Native Children: The Pediatric Oral Health Therapist.” *American Journal of Public Health* Vol. 95.Issue 8 (2005): p1325-1329. *EBSCO Host*. Web. 29 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=5&hid=113&sid=5a29fd32-1322-46ce-a17e-99f05393ca76%40sessionmgr10&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=17783294>. The strength of this source is that it tells a lot about children oral health in Alaska. A weakness of this source is that it doesn’t talk much about the adults.

O’Donnell, Barbara. Personal interview. 13 Mar. 2012. What I got from this interview is that she sees more people using tobacco and that there is more pressure to use it. She also said that there isn’t much social pressure against it, but media is slowly making it better.

“Reducing Oral Health Disparities: A Focus On Social and Culture Determinates.” *BioMed Central*. N.p., 2012. Web. 3 Feb. 2012. <http://www.biomedcentral.com/1472-6831/6/S1/S4>. What I got from this website is that tooth decay is five times more frequent in Alaska native children than among the U.S. population of children between 2-4 years old.

“Report shows disparities in access to oral health care. .” *Nation’s Health* Vol. 30.Issue 6 (2000): p1. *EBSCO Host*. Web. 29 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=35&hid=106&sid=d1a67776-0815-4d44-b52a-f80596c10292%40sessionmgr12&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=3426844>. Strength of this source is that it tells about a connection between oral health and overall health. A weakness of this source is that it doesn’t explain some things very well.

“The role of diet and nutrition in the etiology and prevention of oral diseases.” *Scielo Public Health*. World Health Organization, July 2005. Web. 29 Feb. 2012. <http://www.scielosp.org/scielo.php?pid=S0042-96862005000900015&script=sci\_arttext&tlng=en>. The strength of this source is that it tells a lot about oral diseases. A weakness of this source is that it doesn’t pertain to Alaska.

Sekiguchi, Eugene, et al. “Improving the Oral Health of Alaska Natives.” *American Journal of Public Health* Vol. 95.Issue 5 (2005): p769-773. *EBSCO Host*. Web. 29 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=4&hid=113&sid=5a29fd32-1322-46ce-a17e-99f05393ca76%40sessionmgr10&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=16920364>. What I got from this website is that a lot of native villages have oral health problems and that it’s major cause is because of the lack of access.

“Sugars and dental caries.” *American Journal of Clinical Nutrition* Vol. 78.No. 4 (2003): n. pag. *American Journal of Clinical Nutrition*. Web. 20 Mar. 2012. <http://www.ajcn.org/content/78/4/881S.long>. What I got from this source is that consumed sugars are added or naturally occurred. Sugars affect the caries process, including the form of fluid, sequence of eating, salivary flow, presence of buffers, and duration of exposure.

Wetterhall,, Scott, et al. “Cultural Context in the Effort to Improve Oral Health Among Alaska Native People: The Dental Health Aide Therapist Model.” *American Journal of Public Health* Vol. 101. Issue 10 (2011): p1836-1840. *Ebscohost*. Web. 17 Feb. 2012. <http://web.ebscohost.com/ehost/detail?vid=4&hid=24&sid=ebca69f1-524e-4585-b073-80c2b36e2dcd%40sessionmgr12&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=f5h&AN=66670235>. A strength is that it talks strictly about rural Alaska. I can’t find a weakness.