Chapter XIV

Alaska Federal Health Care Access Network: Deploying Telemedicine Services in the 49th State

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Executive Summary

The case describes the development of the Alaska Federal Health Care Access Network (AFHCAN), a consortium providing telemedicine in Alaska. Given the state’s vast geographical areas, the lack of infrastructure in the remote villages, and the extreme climate, AFHCAN faced particular challenges in ensuring access to quality health care across its target area. Using federal funds, a consortium of federal, military, and private organizations developed an intuitive, easy to use, custom-developed software and an integrated (cart-based) hardware platform. Low utilization levels following the initial deployment, prompted an organizational change from delivering a software/hardware product to delivering a turn-key system (including training). The system has been successfully deployed to 260 sites in the state. Users with limited computer literacy levels and even with limited English language skills are able to use the systems successfully. Overall, both patients and health providers report high levels of satisfaction with the system.
Background

If one were to purposely design the ideal testing environment for telemedicine applications, it would probably look a lot like the State of Alaska. Vast areas, sparsely populated by an ethnically-diverse mixture of peoples, harsh weather conditions, and extreme life challenges combine to make this the case. Providing access to quality medical care in such an environment requires a partnership of government, military, for-profit enterprises, and non-profits. Through a seven-year effort, a consortium of government, for profit, and non-profit organizations deployed in Alaska the largest telemedicine network in the world. There are challenges remaining, but they seem much less daunting than the initial deployment.

By the time the first Russian explorers arrived there in the early 18th century, Alaska had been inhabited for tens of thousands of years by a mix of Eskimo and Indian people, living off the land through a combination of hunting, fishing, and gathering of local plants. By the end of the 18th century, Alaska was already an important source of fur for Russian traders. Throughout the second half of the 18th century and the first half of the 19th century, Russians established settlements and built forts and churches, forging inland mainly in the Western Alaska. Later on, in 1867, the United States (US) of America purchased Alaska from the Russians. Eventually, in January 1959, Alaska became the 49th state to join the U.S. (Alaska Blue Book, 1994). This history is still reflected in the wide cultural and ethnic diversity in the state.

Alaska has one seventh of the area of the United States of America, but it was home to only slightly more than 627,000 people at the last census (Alaska, 2000), only 0.2% of the U.S. population. About half of the population lives in the three main urban centers, within relatively easy access to modern health care facilities. The other half lives in remote areas, mainly in tiny villages, many of which have fewer than 100 inhabitants. A third of the state area is north of the Arctic Circle, and the mountains in the state include 17 of the 20 highest peaks in the U.S. Most of the villages are not on the road system, and can be reached only by airplane and seasonally by boat. Roads in Alaska are few, and only connect some of the major population centers. Often, these roads are closed in winter for extended periods due to snowfall, avalanches, or other extreme weather.

The power grid largely follows the road system. Most of the isolated villages off the road system have their own power generation facilities. Because of the small scale of the operations, as well as the extreme weather, power delivery is rather unreliable, and power outages are frequent and often long lasting. Backup power is expensive, because transportation costs are high to bring generators and fuel to the villages.

The plumbing infrastructure is also outdated. Most of these villages are built on the tundra, a soft soil with high water content. The top layer of the soil melts in summer and is frozen in winter, making it difficult to build heavy structures for year long usage. In fact, the soil can even melt in winter due to heat loss from the bottom of heated buildings. For this reason, most buildings have no foundation, but rather are built on stilts. Consequently, flush toilets and running water are rather uncommon in rural Alaska, although they are becoming more widespread.

The population itself is highly diverse, including in addition to the usual racial mix in the United States a large number of descendents of the ancient inhabitants of the area, collectively known as Alaskan Natives. This single designation is misleading, because Alaskan Natives...
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