

Evolution & Summative Evaluation of the Alaska Federal Health Care Access Network Telemedicine Project

EXECUTIVE SUMMARY

Providing healthcare and health programs for over 200,000 beneficiaries is a very expensive and daunting proposition under the conditions and challenges in Alaska including healthcare sites that are not connected to any road system; heavy reliance on air transportation for patients, physicians, and medical supplies; massive geographical barriers; as well as severe and often unpredictable weather. Moreover, many rural clinics and healthcare facilities are neither familiar with nor using current and unfolding technology. Isolation from other medical personnel, as well as education and training opportunities, contributes to major retention problems for many healthcare organizations. Under these conditions, federal beneficiaries living in rural Alaska have had limited access to healthcare and very little access to critical information about federal programs and benefits.

Recent advances in telemedicine technologies and support for advanced telehealth network systems opened the door for a dramatic improvement in the delivery of healthcare and health education to remote and rural healthcare settings in Alaska. This report includes the history of experience and knowledge stemming from over 25 years of telemedicine efforts, which positioned Alaska to develop and deploy the AFHCAN project, the largest telehealth endeavor to date in the world. With painstaking attention to every detail, the AFHCAN project created and deployed telemedicine “carts”—a combination of off-the-shelf hardware and specifically designed software, which utilized a web-based “store-and-forward” interface and data collection protocol. Assuming telecommunication resources were available, rural and remote clinics with carts could be networked with larger healthcare centers, which could provide them and their patients with access to physicians and specialists from more populated areas.

This report includes information from several evaluation activities:

- ◆ **Key Informant Interviews** were conducted with individuals who had leadership roles in the development of AFHCAN or were stakeholders in the field of telemedicine in Alaska. Interviews gathered information concerning the history and background of the project, gleaned the perspectives of key stakeholders on the effects and influences of the project on telemedicine in Alaska, and provided direction for other evaluation activities.
- ◆ **AFHCAN Project Use & Evaluation Data** incorporating two primary methods of data collection in its store-and-forward programming was used to evaluate the project's impact and effectiveness. This report includes an accounting of use data collected from sites using the AFHCAN carts and equipment, and user satisfaction data collected from both referring and consulting providers using the system.
- ◆ **Medicaid Data & Information** was used to examine Medicaid's role in reimbursement for telehealth claims in Alaska.
- ◆ **Health Organization Surveys** of health providers, business personnel, and technology personnel assessed if the project improved access to healthcare and health information in rural/remote areas and if the project improved the quality of care at the local village clinic and/or regional medical center. Surveys assessed the project's impact on provider skills and identified sustainability issues.

Key Informant Interviews

Initial Concerns

Key informant interviews identified four areas of concerns initially held by key stakeholders in the telemedicine field at the onset of the AFHCAN project.

- ◆ *Expense*
 - Cost of telecommunications and impact on providers
 - Access to funding
 - Complexity or user-friendliness of applications for funding
 - Length of delay between application for and receipt of funds
 - Usefulness of the Universal Service Fund
 - Whether or not there would be Medicaid reimbursement
- ◆ *Mental Health Applications*
 - Reliability of connectivity and quality of transmission
 - Utility of store-and-forward methodology
 - Acceptance by staff and people receiving services

- ◆ *Quality*
 - Lack of high quality, high bandwidth connections
 - Quality of health services delivered through telecommunication systems
- ◆ *Private Sector Access*
 - If resources available in the public sector would be available in the private sector
 - Misunderstandings due to operating differences between public and private systems

Critical Events

Stakeholders identified six critical events that occurred in the development of telemedicine in Alaska:

- ◆ Formation of the Alaska Telehealth Advisory Council
- ◆ Congressional support
- ◆ Funding from the Universal Service Fund
- ◆ Prior telemedicine experience
- ◆ Medicaid reimbursement
- ◆ Technology development

Future Issues

Stakeholders identified four major areas of future issues that would need to be addressed for the development of telemedicine in Alaska.

- ◆ *Regulatory Issues*
 - technical standards
 - subsidy funds
 - licensing, interstate
 - privacy and confidentiality
- ◆ *Sustainability Issues*
 - dependence on funding
 - availability of funding
 - manuals
 - training
- ◆ *Integration Issues*
 - private sector access
- ◆ *Expansion Issues*
 - increased applications
 - quality
 - capability of providers
 - increased users
 - increased connectivity

AFHCAN Project Use & Evaluation Data

Utilization of the AFHCAN System & Equipment

- 99% of telehealth events originated within the IHS-funded healthcare delivery system
- The video otoscope was the most widely used in the Western and Southcentral Regions, the only regions with full time audiologists, accounting for 47% of images taken with the video otoscope

Single Question/High Volume Data

- *Consulting Providers: Effect on Patient Travel*
 - 34% of consulting providers noted that telemedicine prevented patient travel
 - 8% noted it caused patient travel
 - 58% said it had no effect
- *Referring Providers:*
 - 88% of referring providers noted they were comfortable creating telemedicine cases
 - 92% reported it facilitated referrer/physician communication
 - 66% indicated it played a role in patient education
 - 79% noted it made work more fun
 - 80% indicated it improved patient satisfaction
 - 85% reported the quality of patient care had been improved
 - 77% noted satisfaction with AFHCAN equipment
 - 86% reported the software was easy to use
 - 73% disagreed telemedicine was a waste of their time
 - 73% had no problems creating telemedicine cases

Medicaid Data & Information

Medicaid had been consistently and reliably paying on telemedicine cases in Alaska since December 2002, but it appeared as if this resource was being under-utilized.

- As of September 2004, 322 claims were paid, 143 were denied, and a total of \$24,083.01 had been paid on telemedicine (store-and-forward) claims
- 31% of claims were denied compared to a 30% denial rate for all claims for physician services in a two-month sample
- Reasons for denial had nothing to do with characteristics unique to telemedicine

Health Organization Surveys

Rural Health Provider Survey

- Surveys were received from 295 rural healthcare providers
- 85% were working in health centers or village clinics without a physician on site
- Nearly 55% were community health aides
- *Users*: 51% indicated they had used the AFHCAN software or cart/attachments
 - 62% of users used the software or cart/attachments within the last 30 days
 - 43% used both the otoscope and digital camera *Often*
 - 42% used the equipment for training or educational purposes
 - 41% used the equipment to increase quality of healthcare or to obtain patient information
 - 76% indicated they were comfortable using the equipment
 - 85% noted that AFHCAN resources worked *More than adequately* (50%) or *Adequately* (35%)
 - 57% experienced technical problems with either the software or cart/attachments
 - 78% of those who contacted AFHCAN and 89% of those who contacted ACES for technical assistance rated the support they received as *More than adequate* or *Adequate*
 - 79% noted AFHCAN resources positively changed the way they did healthcare
 - 70% stated clinical practice would be impacted if AFHCAN resources were no longer available
 - 25% used the computer *Somewhat more* to *More* since the introduction of AFHCAN resources
- *Nonusers*: 49% indicated they had not used the AFHCAN software or cart/attachments
 - 43% of nonusers indicated lack of training as a reason for nonuse
 - 36% stated equipment was not set up or not connected to the network.
- Training Issues:
 - 34% of all rural respondents reported they had not received any training in the use of either the AFHCAN software or cart/attachments
 - 43% of nonusers indicated a lack of training as a reason for nonuse
 - 60% of respondents who received training indicated they needed additional training
- 53% of those indicating they did not receive encouragement reported they would use software/cart/attachments more often if they had supervisor encouragement

Business Personnel Survey

- Surveys were received from 45 individuals representing the business side of the health organizations where they were employed
- 58% were involved at some level in the decision to deploy AFHCAN resources
- Across the state, there was little uniformity in who had final decision-making authority to deploy: 33% indicated the final decision was made at the executive and board levels
- The top organizational goals for telemedicine indicated by respondents were *Access to care* and *Quality of care*; the lowest ranked goal was *Cost/economics*
- 60% of business respondents offered narrative data regarding major concerns about sustainability
 - 57% indicated concerns about not having adequate financial resources to pay for connectivity, equipment maintenance, replacement, and technical support
 - Other concerns were related to inconsistent connectivity, Internet access, “buy-in” from providers, ongoing training needs, and integration with other databases
- 64% of business respondents reported the AFHCAN resources had been used by their organizations
 - 70% of these respondents used the AFHCAN resources to send data, educate a patient, or document a patient encounter
 - 50% used it within the last 30 days
- 58% of reasons for nonuse were related to equipment not being set up or not connected to the network
- 46% of business respondents indicated that the AFHCAN resources resulted in increased patient care
 - 25% indicated the AFHCAN resources allowed them to provide higher quality healthcare
 - 21% thought patients received more attention from providers
 - 10% noted it reduced patient travel
- 47% of business respondents reported that telemedicine had value to their organizations
- 76% indicated that AFHCAN telemedicine had resulted in changes to healthcare practices in their organization
- 40% reported that their organization was currently conducting an evaluation of AFHCAN telemedicine; another 40% indicated their organization was planning to do so
- 20% indicated that all the costs associated with AFHCAN telemedicine had been identified; 47% indicated that some, if not all, costs were identified
- 37% reported that telemedicine costs were included in the organization’s budget

Technology Personnel Survey

- ◆ Surveys were received from 23 individuals representing the technology side of health organizations where they were employed
- ◆ 60% of technology respondents reported telemedicine was either *Valuable* or *Very valuable*
- ◆ 50% indicated the AFHCAN project had *Positive impact* on their organization's relationship with the private sector telecommunications industry
- ◆ 65% indicated the AFHCAN project resulted in *Significant change* or *Some change* in their organization's wide area network (WAN)
- ◆ Close to 73% of technology respondents identified three primary areas of network use:
 - 29% — store-and-forward
 - 24% — access to other health information systems
 - 20% — Internet
- ◆ 30% indicated their organization was currently evaluating AFHCAN telemedicine; another 13% indicated their organization was planning to do so
- ◆ 71% indicated areas of cost savings to their organization because of using the AFHCAN resources
- ◆ 80% of technology respondents indicated some uncertainty as to their organization's ability to sustain telemedicine without AFHCAN
- ◆ 25% indicated their organization was *Equipped* to provide ongoing orientation and training for new staff to use the AFHCAN system; 40% indicated their organization was *Somewhat equipped*

Conclusions & Discussion

Evaluation data demonstrated that telemedicine using the AFHCAN resources did increase rural and remote access to healthcare. It facilitated referrer-physician communication, enhanced patient education, improved quality of care for patients, and increased satisfaction of both providers and patients. The vast majority of providers indicated the equipment was easy to use and made their work more fun. These are not only factors that improved healthcare for patients, but also factors that should influence higher retention of healthcare personnel. It was expected that using the AFHCAN resources would reduce the need for travel, but in a small number of cases it caused travel. Informal reports from providers noted that travel in these cases was prompted by identification of conditions that might have been missed or delayed in traditional referral practices. It appeared that travel dollars were actually better distributed (i.e., identifying necessary travel while preventing unnecessary travel) and resulted in improved outcomes for patients.

Overall, evaluation data suggested that the AFHCAN project played a role in increasing the quality of healthcare for those in rural and remote areas of Alaska. Providers and key players in telemedicine efforts generally perceived that the AFHCAN project was successful. However, the expense and sustainability of telemedicine as well as lack of integration between the public and private sectors had been and continued to be primary concerns. Barriers to integration included inherent differences between public and private systems and regulatory issues, but the principal barrier to integration seemed to come down to the expense. For example, Alaskan providers in the public sector relied heavily on the Universal Services Fund (USF) to make videoconferencing more affordable and there were concerns about whether or not this funding would be available in the long term. The AFHCAN system, relying on store-and-forward technology up to this time had been less expensive in terms of transmission costs. However, even without videoconferencing, the future cost of equipment and software as well as ongoing

expenses for training, infrastructure, and maintenance were seen as prohibitive, particularly to providers in the private sector, but also to those in the public sector.

A critical event related to the expense of telemedicine and its sustainability was reimbursement from Medicaid and other payers for healthcare services. In September 2002, reimbursement regulations developed by the Alaska Medicaid program for telemedicine became effective. December 2002 was the first month of service for which claims could be submitted, and in May 2002, the first identifiable Medicaid payments for telehealth services in Alaska were distributed. Since then, Medicaid has been steadily and reliably paying on telehealth claims in Alaska, though it did not seem at the time of this report that telehealth providers had begun to fully utilize this resource. Premera Blue Cross Blue Shield of Alaska, which approved reimbursement for telehealth services around the same time as Medicaid, also appeared under-utilized. Informal reports from providers suggested that the way telehealth has been reimbursed may have been a disincentive to its use. More specifically, there may be too little financial incentive at the provider-level to take extra steps, both medical and administrative, to choose telemedicine as an option for reimbursable health care, in spite of its advantages and overall cost savings to the industry. Providers have expressed they have not received enough revenue in the process to maintain the necessary equipment and infrastructure to conduct telemedicine encounters. This potential disincentive only came to light in the process of preparing this report. The evaluation of the AFHCAN project reported here did not address the issue. It is certainly worth examining in a future study as reimbursement by third party payers is one of the critically important, fundamental needs for sustainability of telehealth services.

Although indicators from the evaluation activities in this report were positive, it was still too early to draw definitive conclusions regarding a complete picture of the efficacy and sustainability of telemedicine. That being said, the evidence in this evaluation and in a previous

study demonstrating significant time-saving in cases where children needed surgery to implant ear tubes¹ provided definitive pieces of evidence for the efficacy of the AFHCAN project.

It is important to point out that it takes time to create sustainable change at the systemic level. Based on the results of evaluation data, the promise for the AFHCAN to increase access to and quality of healthcare, particularly in rural and remote areas of Alaska, continues to be valid. The needs for continuing training for providers and technical assistance for operation and maintenance of equipment, as well as continued connectivity have been major financial and logistic challenges faced by health organizations, both in the public and private sectors. As telemedicine becomes more incorporated into healthcare delivery, one can expect there will also be increasing demands for new applications as well as continuing needs for upgraded equipment and software. Thus funding telemedicine has been the overwhelming concern of health organizations and key stakeholders in the telemedicine field. However, if healthcare providers find that telemedicine is an indispensable component of healthcare delivery in Alaska, health organizations will likely find the necessary financial resources to sustain it.

Note: The reader is encouraged to look at the Addendum of this report authored by current Director of the AFHCAN Stewart Ferguson for detailed information regarding the most recent activities of the AFHCAN. Evaluations, while extremely necessary and valuable, are still at best reflecting snapshots in time. A great deal has occurred recently, in part due to the findings of evaluation activities reported in this document.

¹ A Comparison of In-Person Examination and Video Otoscope Imaging for Tympanostomy Tube Follow-Up, a study by Chris Patricoski, John Kokesh, A. Stewart Ferguson, Kathryn Koller, Greg Zwack, Ellen Provost, and Peter Holck, published in Telemedicine Journal and E-Health, Volume 9, Issue #4, Spring 2003. The study documented a reduction in wait time from 6 months to 3 days to turn around cases.