

REMOTE VIDEO MEDICAL INTERPRETER BANK PROJECT SAN JOAQUIN GENERAL HOSPITAL

Problem Statement

The access to quality healthcare services for America's limited English proficient (LEP) patients has been a longstanding challenge to U.S. healthcare providers. The U.S. Census of 2000, notes that over 21 million people speak English "less than very well" with 11 million households linguistically isolated [1].

In Northern California, safety-net healthcare providers, who serve low-income and uninsured population are overwhelmed in their effort treat these immigrant populations. The numbers alone are staggering. Between 30% and 60% of the patient populations of the county healthcare systems in San Joaquin, Contra Costa and San Francisco are LEP. Their patient base includes wide variation in languages with at least 20 languages in regular encounters, including Spanish, Vietnamese, Cantonese, Mandarin, Russian, American Sign Language, Hmong, Mien, Farsi, Hindi, Korean, Arabic, Amharic, and others.

San Joaquin County has an extensive immigrant population, which is limited English proficient (LEP), including an extensive Spanish speaking population and increasing numbers of immigrants from Asian and Pacific Island nations. The communities facing the obstacles to quality care related to language access are, typically immigrants and their families, of diverse ethnicities and ages, presenting with the full range of health care problems. California has both the largest number and the highest percentage of immigrants of any state in the nation. Census data estimates that 24% of the California population is foreign born and this is projected to grow to 34%, or 16,756,000, by the year 2025 [1]. Approximately 10% of California's population is comprised of Asian Pacific Islanders . Of these, 43% of Asians and 17% of Pacific Islanders "do not speak English very well." [1] Nearly one-quarter of the state's Latinos, who comprise about 30% of the population, speak "little or no English." [1]

Medical service provision in San Joaquin County is challenged by almost 59,000 residents born in Latin American countries and more than 40,000 born in the Asian and Pacific region. More than 90,000 San Joaquin County residents identified that they speak English "less than very well" [1]. These residents are seen predominately at safety-net health service providers of San Joaquin County, especially San Joaquin General Hospital, because of their high concentrations in the low-income economic bracket and employment in industries such as agriculture, which traditionally do not offer health insurance.

A recent study conducted by a community organization Mujeres Unidas y Activas (United and Active Women) cited the problems faced by members of their community in accessing health services at a local public hospital. An example of individual testimony included this poignant story; "They had given me an appointment for 6:00 in the morning. We arrived on time at the reception desk to ask what was going on. When my husband said I had a headache, they sent me to the emergency room because I had had an aneurysm a few years before. I waited there until 9:30 at night. They did some tests on me, but the main problem was there were no interpreters available. I hadn't

eaten since the night before and I told them I was hungry, but they just said “No Spanish. Wait a minute please.” [2].

According to the Institute of Medicine report on Racial and Ethnic Disparities, language barriers can “affect the delivery of adequate care through poor exchange of physician instruction, poor shared decision-making, or ethical compromises” and result in decreased adherence to medication regimes, poor appointment attendance, and decreased satisfaction with services.” [3]

Groundwork for Proposal

This projected collaboration has a critical foundation of more than five years of pioneering videoconference-based medical interpreter systems. This foundation has included the first clinical trials of the use of Videoconferenced Medical Interpretation (VMI) led by Health Access Foundation. Demonstrating strong ties with the leadership of two major public hospital systems in Northern California, Health Access Foundation organized the clinical trials of VMI at San Francisco General Hospital and Highland Hospital (a part of the Alameda County Medical Center system).

Since the release of that report, Health Access created a comprehensive implementation proposal for Alameda County Medical Center (ACMC), including all of its facilities (a long-term care facility and scattered community based primary care clinic sites). Over the last two years, Health Access Foundation has led the implementation of this plan at ACMC and a partial implementation of VMI utilization at San Francisco General Hospital. Connectivity within the hospital Wide Area Network (WAN) environment has proven to be easy and reliable. These experiences present a strong foundation to develop an implementation plan among multiple healthcare providers

While these results have proven the possibilities of introducing videoconferencing technology into day-to-day utilization by a hospital system, it has not yet demonstrated the possibilities of the shared economies of scale, which can only be achieved by a multiple hospital bank of shared interpreters.

IP based end-points for videoconferencing have undergone extensive testing at each of the participating hospital sites, led by the Health Access Foundation technology team. A wide variety of videoconferencing endpoints have been tested in laboratory and real clinical settings to determine the optimal configurations for video and audio quality, reliability, mobility, and ease of use.

Finally, an important project, funded through a Technology Opportunities Program grant, based at Michigan’s Metropolitan hospital has tested the utilization of remote medical interpreters between several local community sites utilizing videoconferencing technology. The Michigan project has successfully demonstrated the real feasibility of exchanging interpretive services between medical providers using this technology.

These experiences clearly indicate the importance and growing future of the use of medical interpreters through videoconferencing technology. What has yet to be tested and demonstrated is the system-wide exchange of medical interpreter services between large-scale users of medical interpreters.

The hospital systems preparing to implement the Remote Video Medical Interpreter Bank expect to manage more than 100,000 LEP patient encounters per year through their projected cooperative.

A Remote Video Medical Interpreter Bank

The model design for this project is a service of medical interpreters shared among multiple hospital and clinic providers. Interpreters will be in stationary sites at multiple locations among the various providers (including some in a call center configuration), equipped with videoconferencing technology. They will be trained to a common standard accepted among all of the medical providers. Calls from videoconferencing units throughout the hospital systems and clinics will be initiated and managed through IP video call center technologies to route calls to an available video based interpreter. Software to automate the dispatch and tracking functions of this process are critical to the ability organize the dispatch and assignment of hundreds of calls a day to the appropriate interpreter. In addition, identification and tracking of every session is critical in creating the ability to bill each system to ensure equitable participation in the venture.

The projected information and communication technologies anticipated for consideration in this planning process: are video endpoints; using broadband connections to carry IP video calls; IP video call center technologies; and the necessary routers to connect various enterprise wide-area networks to a regional call center.

Our proposed technological solutions for video conferencing interpretation, includes the use of Tandberg 1000 video endpoints and Cisco networking and video telephony call center equipment. In several years of testing, Tandberg 1000 has remained our endpoint of choice for video medical interpretation use. The audio and video are of high quality and the Tandberg 1000 is easy to use in a medical setting. We hope that with the grant we can leverage Tandberg to customize the 1000 to best-fit video medical interpretation. While the Tandberg enhancements will be important, the most significant development for our five medical center collaboration, is that Tandberg and Cisco Networks have entered into a partnership to make video telephony a part of Cisco's IP-PBX telephony systems. The first step in this partnership has been that Tandberg equipment can now be used as a "video phone" in Cisco's IP-PBX environment. The newly released Call Center 4.0/IP Call Center provides telephone-like functions such as call forwarding, automatic call distribution to agents, etc. for video calls between Tandberg systems (and Cisco compatible phones). We propose to build a Video Interpretation Call Center around these technological solutions.

Operationally, interpreters in the medical centers with Tandberg videophones would log into a single regional system (Regional Cisco IP Call Center). This login would put the interpreters into two queues, one for a priority in one's "local" medical center's language queue, and the other into the regional language queue. Video calls made from Tandberg videophones by requestors, would be routed to the Regional Interpretation Call Center. Here the video call would be automatically distributed based on a requestor's inputted "local" medical center identified code. Based on that code, the call would first to see if one's own medical center interpreters were available, and if a "local" interpreter were not available, the search would be to the interpreters in the

regional language queue. If there were no response at the regional queue, then the call would be automatically forwarded to an “overflow/ backup” of contracted non-medical center interpreters. Electronically, records would be logged for all calls, and appropriate accounting of services could be reconciled from those records.

All projected technologies for IP based videoconferencing utilize the H.323 family of standard multimedia protocols. Tandberg video endpoints support H.323. It is likely that we will the use of the popular Cisco proprietary SCCP standard for video and voice IP-PBX and Call Distribution functions. The SCCP protocol is supported by Tandberg in its partnership with Cisco. The data captured in call monitoring by the Cisco IP-PBX is SQL accessible. This enables easy data sharing across the enterprises should the need for distributing detail call records is required.

Project Stages of Implementation

The project plan for the creation of a Remote Video Medical Interpretation Bank calls for a three year process, with the first 12 months concentrating on laying a very careful groundwork for implementation, the second 18 months focused on implementation and the final six months on the summation of lessons and conclusion of the project. The goals of each stage and projected activities are listed below:

1) Planning Stage – 12 months

The planning stage is expected to accomplish the following elements as the groundwork for the implementation of the Remote Video Medical Interpreter Bank.

For the design of Interpreter Services:

- The collection of data on current language service utilization for each provider, including each identified threshold language, services requesting service, days of the week, shift, and projected time of utilization. This data will be collected through the combination of data from all medical interpretation staff and billing information for all contracted language service.
- The collection of data regarding bilingual designated staff, number and specifics of languages represented, job classifications of bilingual staff, and staff perceptions regarding the real availability of bilingual staff for interpretive services outside of their specific work unit.
- Review of each provider’s existing protocols for the request of interpreter services and identification of best practices which might be commonly adopted by all providers
- Creation of commonly accepted standards for medical interpretation qualifications and training between the participating providers

The technical groundwork for implementation will focus on the “proof of concept” working model of video and audio telephony over IP, linked with IP based call center technologies and a technical implementation plan to manage and route a regional medical interpreters bank. To produce this “proof of concept” we will:

- Test IP based videoconferencing use between firewall protected enterprise systems to ensure viability of these technologies
- Test IP based video/audio call center technology to test viability to manage IP video and voice telephone calls. This would include essential call center functions such as automated queuing by language; skills based routing, agent supervision tools, call transfer, hold, tracking and billing functions.
- Test IP based video/audio call center technology to test viability to direct IP video calls in an automated call distribution (ACD) to interpreters across all enterprises (i.e. from participating enterprise systems and to participating enterprise systems)
- Recommend to Tandberg and other videoconference vendors a “best design” for a video medical interpretation device. This might include recommendations for attached carts and an embedded numeric touchpad.

To prepare for the creation of governance structure and business plan for a sustainable system of shared medical interpreter services among San Joaquin safety-net health care providers and participating Northern California public hospitals the planning stage will conduct the following activities:

- Review current financial data and utilization patterns of participating medical providers to evaluate current expenditures for interpreter services
- Create a service delivery model, which can best utilize existing interpreter resources among the participating medical providers,
- Create a plan for additional resources to be added creating the optimal economies of scale for language utilization.
- Evaluate outside contracting services as a potential secondary bank of interpreter services to respond to overflow requirements

After an examination of utilization patterns and creation of an optimal staffing pattern of resources within the partnership and opportunities for external contracted partners, we will create a new business model for the pooling of existing resources. The business model will include mechanisms for ensuring equitable compensation for the “sale” of each organizations interpreter services and a fair payment scale for the “purchase” of interpreter services from the pool, and the rates for potential sale of excess interpreter services to other hospitals and healthcare systems. Included in the business model would be the creation of tracking and billing mechanisms for the flow of all interpreter services. Also included in the business plan will be the identification of the ongoing responsibility for the upkeep, maintenance and replacement of videoconferencing equipment at each provider. The business plan will demonstrate the on-going sustainability of the Remote Medical Interpretation Bank, through the shared contributions of participating providers and through the potential sale of excess language capacity to other hospital and healthcare systems. The legal groundwork for this cooperative business will be created by the end of the first year.

2) Implementation Stage – 18 months

- a) Bring a skeletal version of the entire complement of physical sites on line and demonstrate test calling between them to test, and perfect seamless connectivity, map scripts for IP call center management, and effective routing and tracking systems in place (projected to take place for 4 months)
- b) The business plan and new organizational model for the cooperative will be taken to each organization for endorsement and agreement for financial support during the first six months of the implementation phase. By the completion of the implementation phase, the new organization will be funded and staffed and prepared to take over the management of the bank when the full exchange of services comes on line.
- c) Implementation of VMI installation by all providers in a sequenced process over ten months. Beginning with San Francisco General and San Joaquin General, then moving to community providers in San Joaquin and to Contra Costa County providers. (Implementation models have already been created for this purpose). All providers will traffic interpretations only within their WAN and among their staff for this period. San Joaquin General will share interpretive service with other San Joaquin providers during this period. Implementation plans include the 1-hour training of key physicians, nurses, and clerical staff expected to utilize VMI technology and acquire interpretive services through the new procedures.
- d) Entire system comes on line with the sharing of interpretive services across entire grid. (projected to take place over a 4-month period).
- e) New enterprise will initiate service at the end of this period, beginning to take on the functions previously held by project staff.

3) Conclusion Stage – 6 months

This stage will conclude the efforts of the Remote Video Medical Interpretation Bank project. Critical data regarding the outcomes of this new model will be collected, including the numbers of interpretations recorded, the productivity of staff interpreters, and the scale of interpretive services able to be provided with the same level of funding by each provider, and the satisfaction of LEP patients and their health care providers. This data will be compiled in the preparation of final reports, which will complete the project.

A new entity to manage and operate the Bank will have been created and will be in operation managing the newly created Remote Video Medical Interpreter Bank. The evaluator will be compiling the results of the project and the hosting entity will prepare reports for the project funders.

Projected Outcomes

The projected outcomes of the Remote Video Medical Interpretation Bank are as follows:

- 1) The equipping of all participating providers with working videoconferencing endpoints in medical encounter sites for the purpose of the provision medical interpretation.
- 2) The establishment of stationary medical interpreters among participating medical providers, offering interpretive services through videoconferencing.
- 3) The creation of a regional IP telephony/PBX call center, which can manage, route, and track the utilization of video calls between medical providers and interpreters.
- 4) The creation of a new entity, which is funded and staffed, which will manage the ongoing activity of the Remote Video Medical Interpreter Bank with a sustainable business plan.
- 5) To create and implement an optimized plan to provide most cost effective use of staff interpreters and outside interpretive services, including the increased coverage of staff interpreters for pm and weekend coverage of emergency rooms and inpatient care in three to four key languages and improved coverage in remaining high concentration languages during typical outpatient hours.
- 6) Operational IP Video call center, which will manage more than 10,000 calls in its first quarter of operation.

Qualifications of Key Staff

The lead consultant to manage the Remote Video Medical Interpretation Bank Project will be furnished through a consulting contract with Health Access Foundation. The lead consultant and project director will be **Melinda Paras**, past Director of Communications, Policy and Planning for the Alameda County Medical Center. Paras served as a senior executive of the Alameda County Medical Center and has led language access efforts in California public hospital systems through the Videoconferencing Medical Interpretation Project for the last 5 years . Prior to her role at ACMC, Paras was the Executive Director of Health Access, a Health Commissioner for the City and County of San Francisco and past President of the Board of Trustees for the Alameda County Medical Center. Health Access will also furnish services the services of **Bruce Occena**, M.P.H., M.B.A, the chief implementation leader of VMI technology currently underway at two public hospitals in the S.F. Bay Area.

In his role as Chief Information Officer for Health Access, **Raymond N. Otake**, J.D., has functioned as the lead technical advisor on language access issues for Health Access Foundation. Mr. Otake, has been the Technical Director of the Videoconferencing Medical Interpretation Project, including the testing and evaluation of new technology and its application to the issues of language access.

Key personnel for the project from San Joaquin General hospital include **Susan Watson** R.N., who will serve as the senior administrator to the project from San Joaquin General Hospital. Ms. Watson is the Senior Deputy Director of San Joaquin General Hospital and heads the Ambulatory Care services for the hospital system. The project will also be staffed by **Pardeep Sidhu**, a Department Applications Analyst from San

Joaquin General Hospital. He is a project analyst with project management and IT experience. Mr. Sidhu will be responsible for analytical and IT support to the project, including the tracking of the extensive in-kind donations of the applicant and project partners.

Replication Opportunities

Hospitals and healthcare providers in virtually every urban setting of the United States face the enormous challenge to provide medical interpreter services for LEP patients. In addition, healthcare providers in even areas of smaller concentrations of immigrant communities remain confronted with patients who are unable to communicate with their physicians because of language differences.

The opportunities for replication are provided through two different forms, first once the system of connecting, sharing, and billing various healthcare providers has been established, additional systems could join the cooperative. In addition, other healthcare systems or regional concentrations of healthcare providers will consider creating a similar model for operation in their region, focusing on the specific languages in high demand in their areas.

Other Available Federal Funding

The Remote Video Medical Interpretation Bank project does project seeking additional federal funding for this project, from the Agency for Health Quality Research, Transforming Healthcare Quality Through Information Technology (THQIT) funding stream. These funds would be directed to a wide-scale health outcomes research project seeking quantification of specific improvements in healthcare which are projected to occur as a result of the implementation of this project; such as the reduction in medical errors; improvements in patient compliance with prescribed regimens; improvements in patient safety; and measurable positive clinical outcomes.

The THQIT funding stream places significant restrictions on the utilization of monies for the purchase of hardware and software, which are necessary for the full implementation of our proposed project. Any projected funding received from this or any other federal grant for this project would not be attributed to the local matching funds for the TOP proposal.

Evaluation

Ms. Beatriz Solis, M.P.H. will lead the evaluation of the Remote Video Medical Interpretation Bank project. Ms. Solis is the Director of Cultural and Linguistic Services at the Los Angeles Care Health Plan, where she is an expert in the delivery of services to the LEP populations and an experienced health program evaluator, project manager, and researcher in issues of minority health. Her CV is attached (see appendix p.14).

The evaluation process will be assisted by the program design, which calls for the extensive collection of baseline data as a responsibility of the program staff during the initial stages of the project. In addition, supplemental evaluation mechanisms to study clinical improvements in health outcomes will be sought by the project.