A New Priority for Healthcare Connectivity

"TELEHEALTH"

BY: DENNY LORDAN, SENIOR TELEHEALTH CONSULTANT
INLAND NORTHWEST HEALTH SERVICES/NORTHWEST TELEHEALTH

On July 21, 2004 HHS Secretary Tommy Thompson released the first outline of a 10-year plan to transform the delivery of health care by building a new health information infrastructure, including electronic health records and a new network to link health records nationwide. At the same time, he announced a number of new action steps to help advance health information technology immediately. In his report titled "The Decade of Health Information Technology," the Department of Health and Human Services outlined a "Framework for Action" with aggressive strategies for creating portable electronic health records, improving connectivity and promoting telehealth.

The national vision for health care is focused on the consumer — the patient, with an emphasis on reducing medical errors and improving quality by limiting variations in practice. Consumers will have control over their care and their medical information. Health information will move with the consumer throughout the health system nationally. Health care will not be limited to physical visits, but will be delivered electronically through telehealth and advanced information systems. Telehealth is generally the use of interactive videoconferencing to provide cost-effective delivery of patient care, education and administrative and business needs over long distances. The ultimate result of this effort will be to allow clinicians to spend more time on patient care, improve access and increase patient safety.

In promoting connectivity and the sharing of data, the goal recognizes that federal agencies are major collectors of information, without being very good about sharing that information. The strategy would be to promote interoperability between federal agencies. Through a building block approach, local and regional health information infrastructures are being created that promote electronic data sharing in the community where clinicians are practicing. There would then be connections made between communities and regions, to support the transfer of health data outside of the local practice area. An increasingly mobile population and a scarcity of specialist resources in rural communities necessitate this exchange of information.

Healthcare shouldn't be singled out in this rapidly advancing age of information technology. During the recent development of the Department of Homeland Security, we were made aware that many of the agencies involved also had difficulty sharing vital information. They surely had the most advanced information networks, systems and firewalls but were essentially islands of information. At a time when the nation's security is dependent upon availability and flow of information, integration is an essential component of information dissemination.

Health informatics, TeleHealth, homeland security and bio-terrorism are quickly becoming synergistic in their similar needs, delivery mechanisms and capabilities. With the need for education, syndromic surveillance, and the creation of regional networks growing rapidly, collaboration among new partners is becoming a growing trend. This capability affords the ability to better understand the status of the population across the country. The Southern Governor's Association recently performed an exercise in multiple states where TeleHealth networks were simultaneously brought on-line to test their ability to communicate in case of a homeland security event. More and more TeleHealth networks around the country are moving toward the creation of a "network-of-networks." Opportunities abound for applications in healthcare, security, education and communication.

Almost 400 community, regional, state and federal partners participated in the region's response to bio-terrorism drill.

In Washington State, the Department of Homeland security and Northwest TeleHealth, a division of Inland Northwest Health Services (INHS), recently conducted a disaster preparedness tabletop exercise that simulated a terrorist attack involving the use of biological weapons. The tabletop focused on decision-making, interagency coordination, and public communication critical to the region's response to bio-terrorism. The exercise was conducted with community, regional, state and federal partners. Almost 400 people in 11 communities of Eastern Washington and Northern Idaho actively participated in the drill. This area of the Pacific Northwest is comprised of extremely remote and frontier communities separated by great distances. *"We brought together City and County leaders, Fire Service, Law Enforcement, EMS, HAZMAT, Public Safety Communications, Business and Industry, Local Public Health Jurisdictions, Hospitals and leaders from our State and Federal agencies"* said Region 9 Homeland Security Coordinator Dave Byrnes. The exercise afforded smaller communities the opportunity to benefit from well-developed emergency response programs scalable to rural environments. The greater benefit came in the realization that different agencies could coordinate their planning and response with a new set of communication tools at their disposal through a growing web of TeleHealth networks.

Northwest TeleHealth was created at a time when the two competing hospital systems in Spokane, Washington collaborated to build a unified hospital information network. Prior efforts to interface best-of-breed clinical applications were abandoned in favor of a single platform with the ability to host a single electronic medical record throughout the network of 35 hospitals in Washington and Idaho. The consolidation was one of many which ultimately formed Inland Northwest Health Services (INHS) which operates all of the collaborative ventures of the two competing

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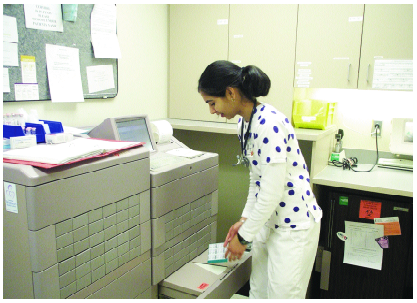
systems. These collaborative efforts sought to reduce duplication of expensive programs and FTE's such as independent air ambulance services and information systems which lacked the ability to share common patient data. Leveraging this success, INHS developed a 50-site TeleHealth network to the same 35 regional hospitals while adding mental health centers, corrections facilities, Native American health centers, community clinics and physician offices. INHS also operates a Northwest MedStar, a critical care air transport service, St. Luke;s Rehabilitation Institute, Community Health Education Resources and regional outreach services. Today INHS serves a 4-state area and is the largest medical hub between Seattle and Minneapolis with its computer system hosting a master patient index of over 2.4 million patients.

The TeleHealth network leveraged grant funding from the Office for the Advancement of TeleHealth, Rural Utilities Service and a number of other state and federal agencies. Much of this funding was used to develop several innovative pilot projects such as TelePharmacy and TeleER designed to support rural community needs. The funding also provided state-of-the-art telehealth systems that communicate over shared telecommunications circuits with hospital information systems. An IP (Internet Protocol) based infrastructure supports the coexistence of medical data, telehealth, imaging and internet access throughout the INHS network.

Hospital-based TelePharmacy was developed to provide a solution to a growing pharmacist shortage in rural communities while offering the ability to reduce expensive medication errors. The program's first pilot hospital in Othello, Washington currently has no on-staff pharmacist with pharmacy services being delivered remotely through telehealth and a shared hospital information network. Accessing rural patient records, urban pharmacists can verify physician orders, consult and advise nurses and physicians, oversee the restocking of automated dispensing machines and support occasional needs in specialty areas such as pediatrics, coagulation and geriatrics to rural communities without such resources. In most communities with limited pharmacist availability, the program provides "prospective order verification" where medication errors can be caught before administration. By limiting potential adverse drug reactions, controlling inventory, standardizing formularies and procedures, telepharmacy can improve costs and expand the availability of 24 X 7 services. The program is now being emulated in Alaska, Oregon, Idaho and Montana

TeleER was developed to recognize a need to provide a higher level of emergency support to regional medical facilities. Working with urban trauma specialists, INHS instituted a pilot project to establish a video conferencing link between rural



Pharmacy services delivered remotely through Telehealth and a shared hospital information network allow urban pharmacists to oversee the restocking of automated dispensing machines.

emergency rooms and a major trauma center. A step above traditional telephone consultations, visual capabilities greatly enhance the specialist's ability to correctly diagnose patient condition. In a recent case, a wound care specialist at an urban trauma center was able to diagnose a case of Necrotizing Fasciitis (flesh eating bacteria) requiring the patient to be immediately airlifted for hyperbaric oxygen treatment. Additional capabilities available through digital imaging and readily available medical record information

offer the specialist integrated tools to enhance diagnostic capabilities. Another recent case allowed a trauma specialist to visually identify a rare blood condition known as ITP at the point when the patient's platelet count was near zero. The patient was stabilized after platelets were airlifted to meet the ambulance in route to Spokane.

Telehealth staff designed a system that included a fixed camera in the rural trauma bay giving multiple views of the patient as well as a private room for the provider to consult, out of earshot of patient and family. The greatest advantage was the system design that allowed the urban trauma specialist to remotely control rural hospital cameras allowing medical staff to focus on stabilization of the patient. The design also allowed the integration of digital imaging, access to medical records and lab results, as well as specialized examination cameras needed for wounds and skin conditions.

Urban hospitals are not the only beneficiaries of advanced medical informatics and technology. As applications evolve and are married with the newest technology, INHS extends its planning to include rural hospitals in its evolution. Rural hospitals are now experiencing the benefits of wireless bedside charting, computerized physician order entry, and broadband connectivity. Rural and urban physicians are able to download their inpatient hospital charts and latest results into their PDA saving valuable time and effort as they care for their patients. Physicians can remotely access patient data and imaging from their office or home with the ability to manipulate remotely stored images with a standard web browser.

Secretary Thompson's vision for health information technology has been in development in Washington State over the last 10 years. INHS continues to build upon the integration of technology and delivery systems to improve patient care, reduce medical errors, and deliver patient data to the point of

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care while improving connectivity throughout the region. The INHS collaborative effort could not have

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succeeded if strong competitors hadn't envisioned a better way to share information and resources. This foundation was the launch pad for innovative new programs like Northwest TeleHealth, continually building upon earlier strengths and offering solutions to a national challenge for health information technology.

Contact Denny Lordan, Senior Telehealth Consultant, Inland Northwest Health Services/Northwest TeleHealth, 157 S. Howard, Suite 500, Spokane, WA 99201, (509)232-8121.