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TeleHealth World

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Telemedicine and Telehealth Community

Telemedicine, Telehealth and Remote Monitoring for Medical, Healthcare and Wellness Applications

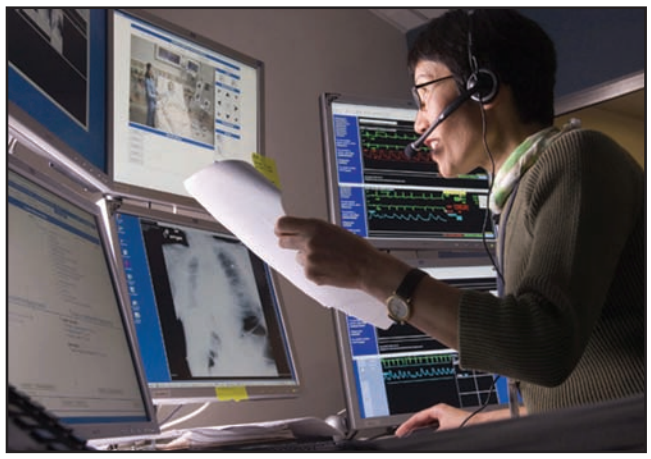
Fall 2008 Issue

eICU Program Helps Reduce Mortality Numbers

ICU patients are nearly one-third less likely to die, on average, when treated at hospitals using the eICU care delivery model, according to results released by VISICU, Inc.

Data from more than 185,000 patients treated in 2006-2007 at hospital intensive care units (ICUs) using VISICU's eICU technology show significant reductions in mortality rates. Both published data from individual hospitals, and an analysis of VISICU data collected from 156 hospitals nationwide, show that using advanced eICU technologies to link remote critical care specialists 24/7 with hospital ICU teams is a potential solution to the nation's growing crisis in critical care.

Severity-adjusted hospital mortality rates over the two-year period were 9.6 percent for 185,464 patients at 156 hospitals with the eICU Program, compared to the national hospital mortality rate of 13.5 percent. The 29 percent reduction in hospital mortality translates to 7,233 lives saved in this sample alone, and provides evidence that hospitals using the VISICU eICU Program model are achieving improved patient outcomes.



The eICU Program uses advanced technology to connect ICU patients and their bedside care teams with remote centralized eICU Centers staffed by intensivists and nurses. The Leapfrog Group documented numerous studies that show intensivist staffing reduces the risk of ICU mortality by up to 40 percent, but less than a third of patients nationwide have access to these specialists.

Approximately 200 hospitals and 40 health systems nationwide currently serve more than 300,000 ICU patients each year through eICU Centers located across 28 states. The eICU Centers are operated by organizations ranging from academic medical centers to integrated community health systems. Using advanced eICU software and hardware, one intensivist physician and two critical care nurses can support up to 120 ICU beds at a time.

Sutter Health, a 27-hospital system based in Sacramento, Calif., opened its first eICU Center in 2003 and a second in 2004. The two centers monitor more than 400 ICU beds at 24 hospitals across a wide geographic area in Northern California.

"Sutter Health's eICU Centers have assisted our ICU partners in reducing mortality through early identification and early treatment for specific diseases, such as sepsis," said Teresa Rincon, R.N., nurse director for the Sutter Health Sierra Region eICU Center. "Studies suggest that sepsis kills over 500 people every day in the United States alone. Anyone who has an infection can develop this disease. Our eICU team provides an extra set of eyes on patients and additional expert guidance for treatment in a place where patients' lives depend on how fast we can provide appropriate care."

UMass Memorial Health Care, consisting of UMass Memorial Medical Center in Worcester, Mass., and four community hospitals, has seen positive results from the eICU Center it established to cover its 112 ICU beds at three locations.

"To sustain the excellent care we already deliver in the ICU, hospitals nationwide are being encouraged to identify solutions to prepare for an aging population and ongoing shortage of intensivists," said UMass Memorial Health System Medical Director Craig Lilly, M.D.

Article continued on page 14

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Inside this Issue

Products & Services

Philips Introduces HD15 Ultrasound System *page 3*

Cyntrist to Utilize ExpressMD Solutions' Telehealth System to Improve Diabetic Care *page 4*

Optimum Lightpath Launches Lightpath Managed Video Service as Complete Ethernet Solution for Video *page 5*

Feature Articles

Tele-What?: It's Time to Re-Think the Industry's Terms *page 7*

Health Education and Intervention in a Virtual World *page 8*

Video Conferencing Increases Quality of Patient Care in Telemedicine *page 9*

Telemedicine as Support for Chronic Disease Management and How Collaborative Care is Becoming a Reality *page 10*

Departments

Industry News *page 12*
Marketplace *page 15*
Calendar of Events *page 15*
Web Guide *page 15*

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Polycom Delivers HD Video Conferencing Media Server for Small and Medium Enterprises, Distributed Video Networks

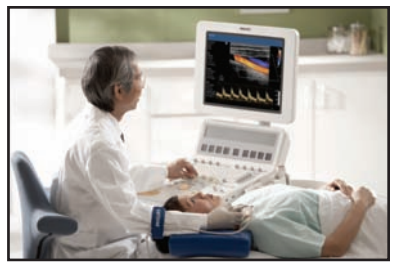
Polycom, Inc., a company focused on telepresence, video and voice communications solutions, has introduced the RMX 1000, a high-performance multipoint visual communication conferencing platform for small and medium enterprises and branch offices of large enterprises. Complementing the existing RMX 2000 for medium and large enterprise networks, the RMX 1000 enables on-demand video collaboration supporting multiple sites in the same calls with UltimateHD, high definition video, voice and multimedia content sharing capabilities.

Both the RMX 1000 and RMX 2000 media servers are made for the unique requirements of high-performance visual communication. Based on open standards, the solutions enable multipoint video calls across different network environments and between different types of video devices, transcoding the various speeds and protocols to provide an optimal experience to each system based on the capabilities of the systems in a call. The RMX 1000 supports HD video, HD content sharing (H.239 using the highest quality H.264 compression) and HD audio quality with Siren 22 Stereo, which offers the benefits of both enhanced clarity (from 22 kHz audio), and StereoSurround, which separates voices when multiple parties speak simultaneously. Like the RMX 2000, the RMX 1000 supports secure conferencing through AES media encryption and provides an optimal experience even on sub-optimal networks with Polycom's breakthrough Lost Packet Recovery (LPR) technology, which minimizes the damaging impact of network congestion and packet loss on the video call experience.

Philips Introduces HD15 Ultrasound System

Royal Philips Electronics has introduced its HD ultrasound family of products. The Philips HD15 ultrasound system provides physicians with imaging and workflow performance in a cost-effective system.

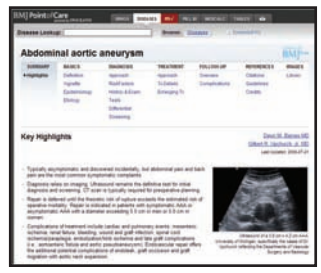
The HD15 is a new platform designed to deliver an advanced level of image clarity and broad application support for everyday use in small hospitals, clinics and private practices. The system may be used as a primary system for some users, particularly those in emerging markets who require a feature-rich system but may not need all of the features of a high-end ultrasound solution. The HD15 contains multiple usability features to improve workflow, as well as versatile capabilities for a wide range of exam types including general imaging, cardiac, vascular and OB/GYN applications. In addition, advanced features like contrast enhanced ultrasound and PureWave transducer technology allow users to perform real-time guidance and evaluation of minimally-invasive treatment procedures and provide more diagnostic confidence on technically challenging patients and pathologies.



BMJ Group Launches BMJ Point of Care Online Clinical Resource

BMJ Group (BMJ), provider of evidence-based clinical resources, has partnered with Epocrates, Inc., a US company focused on clinical information and mobile healthcare technology, to introduce an online clinical resource called BMJ Point of Care. Designed from the ground up with point-of-care needs in mind, this product features original, peer-reviewed disease diagnosis and treatment content authored by physician experts in collaboration with the BMJ Group. In addition, the product's new disease content seamlessly integrates with Epocrates' extensive drug database.

BMJ's new product is designed for institutions, including hospitals, hospital systems and medical and academic libraries in North America.



When faced with urgent patient care questions, healthcare professionals today are turning to a variety of online sources for answers, with varying degrees of success. Current point-of-care references are not designed to quickly and effectively deliver the specific types of information that busy clinicians are most often seeking, such as information on symptoms, differential diagnoses, diagnostic tests, treatment options and drug dosing plus side effects and interactions.

InTouch Health Announces Co-Marketing Agreement with Concentric Medical

InTouch Technologies, Inc. (d.b.a. InTouch Health), a company focused on remote presence healthcare solutions, has entered into a co-marketing agreement with Concentric Medical, Inc., to enable stroke patients' access to timely stroke expertise and care. Stroke is a leading application for Remote Presence and this partnership is part of a focused effort by InTouch Health in the field of telestroke to advance the standard of stroke care.

Remote Presence (RP-7) systems have been deployed in more than 100 stroke network hospitals around the country, with results including improved geographical reach of stroke specialists and more timely delivery of appropriate stroke care.

Part of InTouch Health's focused efforts in telestroke has involved the development of new product features, such as StrokeRespond, tailored expressly to extend the functionality of its Remote Presence technology for stroke experts. The second leg of this effort involves strategic partnering with leaders in the healthcare industry, such as Concentric Medical, in order to accelerate the growth of comprehensive telestroke network solutions. Concentric Medical provides devices for clot removal in acute ischemic stroke patients. The Merci Retrieval System is designed to restore blood flow in patients who suffer an ischemic stroke. More than 8,000 patients at more than 250 leading stroke centers around the world have benefited from this procedure. The companies will work together with hospitals that wish to use these technologies to create centers of excellence for treating ischemic stroke.

Cambridge Consultants Brings Its Vena Platform to the Continua Health Alliance

Cambridge Consultants has joined the Continua Health Alliance, a consortium of healthcare and technology companies collaborating to establish an ecosystem of interoperable personal health systems that will empower people and organizations to better manage health and wellness.

As a member of Continua, Cambridge Consultants offers its Vena platform, a low-cost single chip communication solution for health devices, with the capability to deliver both wired (USB) and wireless (Bluetooth) connectivity to health devices.

The Vena platform offers a software solution on a single chip that allows medical devices to communicate. Vena includes the three standards required for the Version One Device Connectivity Standards selected by the Continua Health Alliance.

Products & Services continued on page 4

It embeds the Bluetooth Health Device Profile and the USB Personal Health Device standard, well suited for the secure transport of medical data, onto a single chip. Vena also offers the IEEE11073 standards for compatible exchange of information between health devices including thermometers, weighing scales and blood glucose meters.

e-Health Offers Service Providers Opportunities to Serve More Than 7 Million People by 2012

Service providers are in a unique position to enter the e-Health space, which will grow to serve more than 7 million people in the US and Europe by 2012, according to a new white paper from Parks Associates. These consumers range from seniors with chronic conditions to younger consumers who want to self-manage their personal health.

e-Health Opportunities for Global Service Providers outlines strategies and opportunities for service providers in e-Health, a term that refers to advanced healthcare technologies and electronic delivery of medical services. e-Health offers revenue opportunities for service providers in both the enterprise and consumer markets.

The paper asserts that, while the health field is complex, with issues such as insurance and reimbursement, providers have dealt with similarly complicated service sectors. For example, digital television services required negotiating franchise and licensing fees with a variety of different players.

XTend Medical Begins Remote Patient Monitoring Program in U.K.

XTend Medical Corp., a company that delivers telemedicine solutions to the healthcare industry, has begun a Remote Patient Monitoring Program through the University of Ulster, U.K., with Dr. Kevin Curran heading up the program.

The company has begun a program in the U.K. to monitor patients remotely managing their diabetes and blood pressure. This program will be managed by Dr. Kevin Curran who states that the main focus of the program is to show how technology can assist in monitoring patients from their home in modern life with the main emphasis being to reduce costs for the healthcare systems worldwide and improve the care delivered to patients. The program is designed to assist doctors in helping patients to control diabetes through up-to-the-minute online reports of their insulin levels.

The company further announced that the current share price is not indicative of the true value and potential of the company.

TelaDoc to Provide Advanced Patient Information Sharing and Consumer "House Calls" Using the Microsoft HealthVault Platform

TelaDoc Medical Services, a service that utilizes telehealth tools and physician or patient-selected cross coverage and Microsoft HealthVault, a free Web-based platform that enables individuals to collect, store and share health information with hospitals and physicians, have released new applications to improve connectivity to medical information and telephonic access to physicians. As a result of this union of healthcare technologies, consumers can also search medical topics related to TelaDoc through Microsoft's search sites including Live Search Health, become TelaDoc members and connect to a physician within minutes—and then share that medical visit with their other care providers.

This relationship provides the connection for bi-directional sharing of patient information among TelaDoc members, their physicians and other healthcare stakeholders. With patient permission, TelaDoc physicians will be able to add the telephonic encounter information to the patient's personal health information stored in HealthVault, providing a continuous electronic channel for the patient's medical home.

Through Live Search Health, consumers gain a new, cost-effective route to access primary care physicians supported by a free consumer Personal Health Record (PHR) with global electronic information sharing via Microsoft HealthVault. When consumers search the Web for a particular health condition, not only will they find pertinent articles but they can also receive direct consultation from a state-licensed, board-certified physician.

CompuMed Signs Agreement with Any Lab Test Now to Provide ECG Systems And Services Nationwide

CompuMed, Inc., a medical informatics company serving the healthcare community with telemedicine applications and diagnostic software solutions, has signed a new and exclusive agreement with Any Lab Test Now, a franchise direct-access lab testing facility with more than 70 locations, and will provide remote electrocardiogram (ECG) interpretation systems and services at selected facilities nationwide.

CompuMed's traditional core business is providing remote ECG interpretation terminals and related services to medical facilities that may not have access to physicians trained and qualified to interpret ECG results. Traditional customers for the company's CardioGram system include correctional facilities, ambulatory surgery centers, occupational health clinics and physicians' offices. Its systems reduce healthcare costs by providing remote cardiac screening at the point of care. Another advantage is an optional feature that automatically sends ECG results to a trained cardiologist for an over-read when the results are abnormal.

Cyntrist to Utilize ExpressMD Solutions' Telehealth System to Improve Diabetic Care

ExpressMD Solutions, a joint venture formed by Authentidate Holding Corp. and EncounterCare Solutions, Inc. to provide remote patient monitoring telehealth systems and services that improve care for patients, has signed its first user contract and distribution agreement with Cyntrist, a comprehensive diabetic care company headquartered in Central Florida. Cyntrist will distribute Express MD's systems and services throughout the Southeastern US region. Initially, Cyntrist will target Alabama, Florida, Georgia, North Carolina and South Carolina.

ExpressMD Solutions' systems and services enable unattended measurement of a patient's vital signs and related health information. This patient data is securely sent over the Internet to the patient's healthcare provider for review.

Cyntrist will utilize ExpressMD's remote patient monitoring systems and telehealth services to monitor patients diagnosed with Diabetes. Patients will be able to use Electronic House Call equipped monitoring devices located in their home to record personal health data, including glucose levels and weight. ExpressMD Solutions' service will transmit the data to each patient's care provider as it is collected. By remotely receiving patient data daily, care providers can adjust treatment accordingly and provide an enhanced level of care. In addition, ExpressMD's solution reduces the need for regular office visits, reducing the cost of care.

In June 2008 the Centers for Disease Control and Prevention (CDC) reported that nearly 24 million Americans have diabetes (8 percent of the population), an increase of more than 3 million in approximately two years.

Optimum Lightpath Launches Lightpath Managed Video Service as Complete Ethernet Solution for Video

Optimum Lightpath, provider of advanced Ethernet-based communications services over its Intelligent Enterprise Network, has introduced Lightpath Managed Video service, a

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B. Which best describes your organization's primary activity in telehealth & telemedicine? *(Check one)*
❒ 15 Healthcare Provider ❒ 16 Vendor ❒ 17 Consulting ❒ 18 Education/Academia ❒ 19 Association/Events/Publisher

complete video service that provides connectivity as well as encoding and decoding of digital video. Optimum Lightpath brings its innovative mileage neutral, flat rate pricing and transport resiliency to the video market, with the launch of the service. Its unique flat rate pricing model will enable businesses to save significantly over traditional video services.

Lightpath Managed Video service is purpose-built to directly address the needs of the media sector, including production facilities, broadcasters, television stations and content distributors, as well as non-media organizations, such as healthcare facilities, municipalities and enterprises with high-resolution “broadcast quality” video requirements, such as security surveillance and video conferencing. The new offering is well suited for file-based media and content transfers, utilizing the advantages of Carrier class Ethernet’s resiliency to packet loss and jitter. Additionally, the service does not require any transport protocol conversions.

Lightpath Managed Video service is the newest addition to Optimum Lightpath’s Video Services Portfolio, which also includes Lightpath Video Transport, a dedicated Layer 2 point-to-point service designed for broadcast quality video transport. The new service electronically accepts, transports and delivers native compressed and uncompressed digital video in common industry formats including Asynchronous Serial Interface (ASI), Standard Definition Serial Digital Interface (SD-SDI) and High Definition Serial Digital Interface (HD-SDI). It also includes a fully redundant protected connection for unsurpassed resiliency and reliability.

Optional features for the service include Multiple ASI, which allows aggregation of up to four individual ASI feeds into a single IP-based Ethernet IP encoder; and Linear Service, which provides a dedicated linear service for uncompressed SDI 270, uncompressed HD-SDI video and ASI.

ATEN Technology Three-in-One Serial Device Server Supports RS-232, RS-422 and RS-485 Data Transfers

ATEN Technology, Inc., provider of keyboard/video/mouse (KVM) and remote connectivity products to centrally manage servers, network devices and IT infrastructure, has introduced a new serial device server that enables secure, remote management of IT serial devices such as servers, routers, PBX systems, telecommunications equipment, serial-based power management appliances and more.

The new Serial over the NET (SN3101) three-in-one Serial Device Server supports RS-232, RS-422 and RS-485 data transfers, as well as provides Ethernet connectivity for a wide variety of serial devices used in commercial applications. These applications include industrial control, data acquisition, access control, environment monitoring, banking, telecommunications and remote site management, among others. This all-encompassing serial data transfer system transforms the usability of legacy serial devices by enhancing them with the speed and reliability of the most current communications interfaces.

The SN3101 also features Real COM Port support which allows devices connected to this "virtual" port to appear as though they are directly connected to a COM port on a local computer. This feature adds value for users of POS terminals, barcode readers and serial printers.

The SN3101 single-port device is well suited for industrial control of programmable logic controllers (PLCs), meters and sensors, among others. The SN3101 supports versatile, diversified serial data access operations to meet a broad range of application requirements (console management, Real COM, TCP Server, TCP Client, UDP, Modbus, Serial Tunnel and Virtual Modem). This capability offers direct access from PCs to remote serial devices as if these products were located locally and reduces the typical port number and distance limitations of PC hardware. The provided Windows utility auto-discovers all SN3101 units in a local area network (LAN) and permits configuration/monitoring of one or multiple SN3101s at once, mass deployment is simple. In addition, users can receive event notification for proactive monitoring and response due to the unit's support for SMTP and SNMP traps.

Products & Services continued on page 6

In addition, the unit offers secure data transmission, centralized access control and Modbus Ethernet-to-Serial support. The SN3101 offers a variety of "over IP" methods to control serial devices, from browser login to a stand-alone serial network device management AP program to Telnet/SSH terminal access. Recognizing the importance of secure data transmission to operations, the SN3101 provides 128-bit SSL serial data encryption for TCP Server, TCP Client, Virtual Modem and Serial Tunnel operation modes. Administrators can authenticate user logins and authorize individual user rights via RADIUS, LDAP, LDAPS and Microsoft Active Directory servers. The SN3101's support for Modbus Ethernet-to-serial data transmission provides a bridge that seamlessly integrates Modbus devices (PLCs, DCSs, HMIs, etc.) into any serial network.

Microsoft HealthVault and RelayHealth To Connect Doctors and Patients

Microsoft Corp. has entered a strategic collaboration with RelayHealth, McKesson Corp.'s connectivity business, to accelerate and improve the relationship between doctors and patients. Together, Microsoft HealthVault and RelayHealth will enable affordable patient connectivity with doctors' offices and hospitals so patients can have security-enhanced, easy online access to medical care, information and records.

HealthVault will provide physicians using RelayHealth's Software as a Service (SaaS) platform with the technology to facilitate enhanced online patient service and communications. Physicians can easily employ the RelayHealth service, which includes electronic prescribing, through a Web browser as the initial step toward clinical automation of their practice. The service is also designed to integrate with electronic medical record systems already in use. For patients, the combined solution allows access to their personal health information and an online interaction with their personal physician.

RelayHealth's core services enable patients to schedule healthcare appointments online, request prescription refills, pay bills, obtain results and even visit their doctor online using security-enhanced webVisit consultations for non-urgent care. HealthVault is a consumer health platform that allows people to collect, store and share health information with family members and participating healthcare providers.

"Together, Microsoft and RelayHealth will make it easier for consumers and doctors to exchange information that is a part of our everyday lives, such as ordering and filling prescriptions, receiving lab results and other important exchanges that impact our health and well-being," said Peter Neupert, corporate vice president of the Health Solutions Group at Microsoft. "Using the Internet to better connect patients and providers is a big step toward engaging people in their health decisions and ultimately improving the quality of patient care."

SaskTel and Alcatel-Lucent Launch LifeStat Remote Monitoring and Health Management Enabling Effective Management of Chronic Illnesses

SaskTel and Alcatel-Lucent have released LifeStat Remote Monitoring and Health Management, a service that records and transmits daily blood glucose and blood pressure readings, automatically creating confidential, easy-to-use reports that can be viewed online by the client, their caregivers and the client's healthcare professionals. The ongoing development and support of the LifeStat platform and applications will be managed by SaskTel and Alcatel-Lucent through their Salveo project, which is based in Saskatchewan.

The Salveo project is funded by SaskTel and Alcatel-Lucent. A key focus of the Salveo project is the development of applications that will help keep people healthier and save costs in the healthcare system.

SaskTel will market and sell the LifeStat service directly to consumers and healthcare providers in Canada, while Alcatel-Lucent will market and actively sell the Salveo platform to its global customers outside of Canada under the name Alcatel-Lucent Health and Wellness Application.

Future LifeStat applications will include monitoring and reporting for chronic illnesses such as congestive heart failure, Chronic Obstructive Pulmonary Disease (COPD) and asthma.

AT&T, Covisint and Microsoft to Deliver Nationwide Health-Information Exchange Connecting Patient and Provider Communities

AT&T, Inc., Covisint, a subsidiary of Compuware Corp., and Microsoft Corp. have entered an eHealth initiative, a nationwide information exchange, to enhance the health care experience for patients and practitioners alike.

The new eHealth information exchange is a revolutionary approach designed to reduce costs and improve the quality of care while putting patients in control of their medical records. It allows consumers using Microsoft HealthVault, a software- and service-based platform for storing and accessing personal health information, to share information with authorized physicians and health care providers connected to AT&T Healthcare Community Online.

A Virtual Private Network (VPN)-based portal, AT&T Healthcare Community Online is founded on two AT&T patents that enable electronic health care data exchange among existing systems of health care providers and physicians. AT&T Healthcare Community Online offers managed services, applications and authentication services and promotes the widespread adoption of health-information technology by providing authorized doctors, hospitals, pharmacies, labs and patients with access to test results, prescription records, best practices and medical histories.

The new eHealth information exchange, enabled by Covisint's On-Demand Healthcare Platform and layered on AT&T's patented eHealth solutions and Multiprotocol Label Switching (MPLS) network, shares information electronically and in a security-enhanced way across the continuum of care, from patient to provider communities such as HealthVault, health-information exchanges and insurers.

The new exchange platform brings together the key elements required to establish comprehensive interoperability and collaboration communities for national, state and local health-information exchanges, enabling such applications as:

- Prescribe pharmaceuticals online.
- Provide clinical messaging among healthcare providers.
- Sharing high-density images, including X-rays, MRIs and CT scans.
- Exchanging patient-aggregated information via portable health records, which provides patient pro files, medical history, prescriptions, etc.
- Uploading of data from home health devices such as blood pressure meters, glucometers, etc., allowing for remote diagnostics and chronic disease monitoring and management.
- Streamlined clinical and administrative process.

This platform is scalable and may be rapidly deployed to large and small health-information exchanges as a hosted and managed service by subscribers to AT&T Healthcare Community Online. In addition, AT&T's connectivity offerings, combined with Covisint's platform, enable health care organizations to quickly establish high speed Internet and VPN connectivity to the extended health care community.

After broad-based communities are connected, authorized community members will immediately be able to access clinical applications, share health information and collaborate on specific medical cases.

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Tele-What?: It's Time to Re-Think the Industry's Terms

By Jan K. Wuorenma,Vice President, Partner Development
American TeleCare, Inc.

Our industry is in position for significant growth. Using telecommunications technology to connect with patients in real time is vital for taking on the fundamental challenge confronting the nation's health care system. That critical challenge? The baby boom generation is aging into its chronic disease years. As the complexity and total burden of illness escalate, we will not have enough health care professionals to care for them. By 2020, the number of Americans living with at least one chronic disease will climb to about 157 million, up by 25 percent from 2000. 2020 happens to be the year when the physician shortage in the US is projected to reach 200,000 and when the predicted shortage of registered nurses could total about 340,000.

Clearly, we must achieve tremendous improvements in productivity, most of all in the process of effectively matching the care needs of high-complexity, high-cost patients to the expertise and resources required to care for them. Our industry's technology solutions are indispensable to enable new systems of care that establish and sustain ongoing monitoring and constant care of patients at the highest levels of health risk, timely detection of potential acute events and proactive intervention with the requisite knowledge and skill to attain positive clinical and financial outcomes.

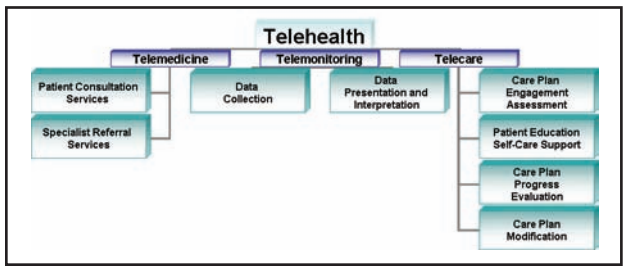
However, we are confusing the key stakeholders whose understanding and support are essential for our success. Policy makers and payers cannot discern the differences between telemedicine, telemonitoring, telecare and telehealth, because we tend to use the terms interchangeably or without consistent differentiation. An admission: mea culpa – I am at fault myself.

I am convinced that to fulfill its potential our industry needs to re-think and better standardize definitions of these terms. Based on more years of experience than I care to admit, I would like to set forth suggested definitions that I hope will be clear and useful.

Telemedicine is the term we most commonly use. The nomenclature problem is rooted in the "medicine" in telemedicine. Telemedicine is often used as a general, catch-all term, but medicine is quite specific. The practice of medicine is the diagnosis and direct treatment of illnesses. It is what takes place routinely during patients' office visits. Telemedicine should be reserved to refer specifically to the diagnosis and direct treatment of illnesses when the patient and provider are not in the same location: an office visit without the office. Thus, telemedicine consists of patient consultation and specialist referral services as described by the American Telemedicine Association (ATA):

Telemedicine – Patient Consultation Services: Using telecommunications to provide medical data (which may include audio, still or live images) between a patient and a health professional for use in rendering a diagnosis and treatment plan.

Telemedicine – Specialist Referral Services: A specialist assisting in rendering a diagnosis. This may involve a patient seeing a specialist over a live, remote consult or the transmission of diagnostic images and/or video along with patient data to a specialist for viewing later. Given its high volume and frequency of use, teleradiology should certainly be noted as a specific component of specialist referral services.



Telemonitoring, or remote patient monitoring, is more straightforward. It involves deploying devices to remotely collect and transmit patient data to a monitoring station for interpretation. It is important to include and utilize patient-reported information (for example, responses to questions on current symptoms and self-assessment of perceived health, and functional status) as well as vital signs and physiological measurements (such as weight and blood pressure). We should also considering differentiating "intelligent monitoring." This includes two particular elements:

Telemonitoring – Intelligent Data Collection: Proactive, scheduled prompts and individualized instructions for data collection and transmission. The data collected is individualized to each patient's needs and situation and reflects a clinician's thought process for completing a holistic assessment of the patient.

Telemonitoring – Intelligent Data Presentation: Automated application of clinical scoring algorithms that summarize health risks associated with a patient's vitals, physiological measurements and responses to questions according to individualized key indicators and levels as pre-determined by clinicians for individual patients. The presentation of the information is designed to enable a clinician to quickly and accurately make a decision on whether or not a patient needs contact or intervention on any given day.

Telecare can be a very useful term for our industry. Telecare can be used to refer to all the remote services that are provided, or should be provided, in between patients' visits with their care team (whether in the office or by teleconferencing) in order to stay connected with patients and monitor progress in carrying out their plans of care:

Telecare – Care Plan Engagement Assessment: On a daily basis, patients make decisions, and those decisions can affect their health outcomes. Thus, this element of telecare is focused on determining the extent to which patients understand and are taking an active role in managing their health and following their plan of care. The goal is to keep patients actively and effectively engaged.

Telecare – Patient Education and Self-Care Support: Provide ongoing patient education and timely information on self-care relevant to the situations, conditions and needs of individual patients. Education and self-care instruction should be integrated into and reinforced in the routine activities of telecare.

Telecare – Care Plan Progress Evaluation: Evaluating patients' responses to care plans and monitoring their success, or difficulty, in adhering to their plan of care. Doing so helps pinpoint problems and opportunities for support.

Telecare – Care Plan Modification: Using the results of vital sign and symptom monitoring, as well as other data collected, to change care plans as appropriate. For example, altering the type of monitoring that occurs or changing medication dosages based on the changing needs of the patient.

Telehealth, according to the ATA, is intended to encompass a broad definition of remote health care services enabled by telecommunications technology. It should be used in this way. But we do not do so with the consistency necessary to make it stick as the highest level, general term. We should.

The "health" in telehealth conveys a more holistic, patient-centered meaning than the "medicine" in telemedicine. After all, what we are striving to do is to restore patients to health and to maintain their health.

Telehealth, therefore, encompasses telemedicine, telemonitoring and telecare. This understanding of telehealth is especially important as we deal with the challenge of the growing number of high-cost, high-complexity patients with one or more chronic conditions. We have to deploy all the elements of telehealth to achieve the best possible clinical, health status and financial outcomes for these patients who are at highest risk.

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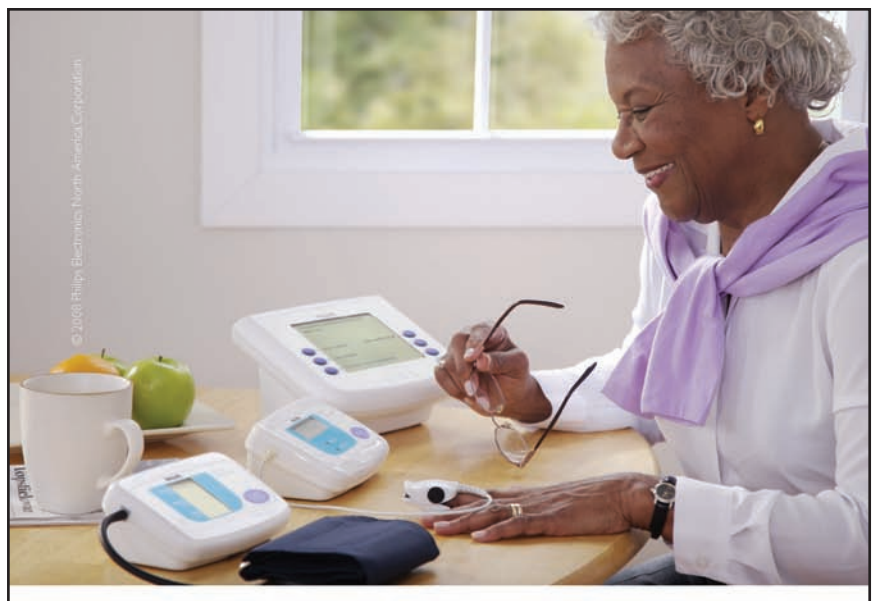


Health Education & Intervention
In a Virtual World

By DeeAnna Merz Nagel, Co-Founder
Online Therapy Institute

What do IBM, the Centers for Disease Control and Prevention, Palomar Medical Center West, Cigna and the National Library of Medicine have in common? They all have a presence in a virtual world called Second Life. Second Life is a 3D online world created by Linden Lab, a company founded in 1999 by Philip Rosedale to create a new form of shared 3D experience.

For the past two years, John Lester an employee of Linden Labs (known inworld as Pathfinder Linden) has offered a presentation at the Annual Summit on Behavioral Telehealth at Harvard Medical School. He has spoken of people with disabilities finding a voice, support and social connection in Second Life. Similar stories have been reported by CNN, CBS and ABC regarding social support and therapeutic interventions in Second Life for people with Aspergers, Cerebral Palsy and Multiple Sclerosis. University research is being conducted across the globe utilizing virtual world technology to assist people with everything from phobias to skills of daily living. Mental Health practitioners who offer services via traditional online delivery systems such as chat and e-mail are now venturing into virtual worlds and setting up psychotherapy practices. With Second Life's search feature, one can look up any health and wellness related topic and be teleported instantly to the locale. Once at the destination, a live greeter may offer assistance in the form of an avatar or information may be offered via signs, blog feeds, exhibits, streaming video or podcasts.

Second Life offers a platform for companies, organizations and government agencies to provide education, advocacy and intervention. With the expansion of the World Wide Web into the virtual arena, the possibilities are endless and many have seized this vast opportunity to educate their public. This listing of health related entities is but a sampling of the offerings now available in Second Life.

In February of this year, IBM debuted the IBM Virtual Healthcare Island. The island offers information about the challenges facing the healthcare industry and the role that technology will play in transforming the healthcare delivery system. The island is futuristic in style and visitors can walk, fly or use transporters to visit island stations. This 3D environment helps people experience how healthcare is being revolutionized by enabling health information to be deeply networked and easily exchanged.

The Centers for Disease Control and Prevention (CDC) has had a presence in Second Life since 2006. The CDC offers information about a variety of health topics. The building is nicely designed and posters hang on virtual walls much like information disseminated on a Web site. The difference is the added 3D experience and interaction with others known as avatars.

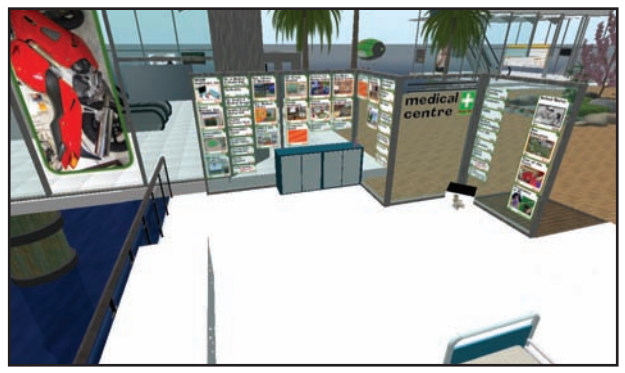
DeeAnna's avatar visiting the CDC in Second Life.

A new medical center is scheduled to open in San Diego in 2011, but has already had a grand opening in Second Life in 2008. The Palomar Medical Center West is available to tour inworld. Technologies the facility hopes to utilize can be tested in the virtual world now. For instance, avatar patients can test out RFID-enabled bracelets that can not only track patients but can automatically guide them to the appropriate area of the hospital based on particular health services that have been scheduled. In real life, a patient scheduled for day surgery will be directed automatically via elevator to the correct floor. Palomar's facility in Second Life offers demonstration opportunity. Additionally, Palomar plans to host events and meetings to educate healthcare leaders, policy makers and others about the impact of technology on healthcare delivery.

Cigna Healthcare deployed an island for health education recently. Avatars can walk through 3-D interactive displays with their avatars, play educational games, listen to seminars on nutrition and health, and receive virtual health consultations via chat and voice. Visitors to Cigna's Web site can sign up for Second Life. The Cigna Virtual Healthcare Community provides a cost-effective way to reach people about health and wellness issues.

Continuing on this short tour of virtual healthcare, the National Library of Medicine is involved in health projects that bring consumer information, advocacy and intervention to our virtual doors. Healthinfo Island, funded by the Greater Midwest Region of the National Network/National Library of Medicine offers the provision of consumer health information services in a virtual environment. Within Healthinfo Island one will find a consumer health library and a medical library as well as displays and exhibits called virtual outposts offered by the National Institutes of Health and a new Accessibility Center which has the goal of encouraging awareness of vision, mobility, learning and other types of disabilities.

Healthcare providers of tomorrow learn new skills in virtual classrooms in Second Life. Many colleges and universities host classes and seminars inworld. Teaching techniques include lecture via live feed, PowerPoint presentations and live demonstrations. Imagine a teaching hospital in Second Life. The time has come.



Medical Centre's extensive resource listings

Second Life is a dynamic virtual platform that offers multiple possibilities from instruction to intervention. With Second Life, health and medical courses can be taught through formal university affiliations or private industry. Health and wellness can be promoted by offering information via a 3D presence and as an extension to existing information portals such as Web sites. Interventions such as avatar therapy can be delivered inworld. Advocacy and support can be offered to and on behalf of people with disabilities ranging from mental health to mobility issues.

This tour of healthcare in a virtual world ends with an extensive resource inworld. The Medical Centre located on the International Schools Island offers point and click resources. The resources are displayed as information signs on the wall and avatars can teleport to various locations from the Medical Centre. This list of resources is quite extensive and offers a wide lens to the health related issues that are available in Second Life.

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Video Conferencing Increases Quality of Patient Care in Telemedicine

By Joseph E. D'Iorio, Health Care Manager
Tandberg

When dealing with a medical emergency, a patient's chances of survival are greatest within the "golden hour," a race against time. Whether it's a stroke victim with only a small window of time before severe brain damage occurs, or a child in need of a pediatric critical care specialist, the need for specialized knowledge is vital in order to make a timely diagnosis that could be the difference between life and death.

Because of a global shortage of skilled health care workers and the constant need to increase the quality of patient care, there is a growing demand among health care providers and hospitals to bring in remote experts or language translators via video conferencing to help patients in need of immediate care. In addition, video technology is enabling hospitals and universities to increase access to cost-effective remote medical education, to not only improve the knowledge of current health care providers, but to prepare the next generation.

The integration of video conferencing into these programs has been a critical component in helping many patients, and has enabled health care providers to communicate with remote specialists in order to make critical diagnoses faster. Hospitals and other health care providers are using video conferencing to make advancements in treatment procedures and in turn, save time, and more importantly, lives.

Video Neurology Speeds Critical Care

In the US, the availability of critical care neurologists falls well below the need of hospitals; therefore, many specialist physicians avoid calls because of the poor pay and high concurrent demands on their time for advanced therapeutic care. For victims of stroke, time of treatment is critical, especially for those who qualify for treatment with the clot-busting drug known as tPA, which must be administered within three hours of the onset of symptoms.

Specialists On Call (SOC), a provider of highly-trained specialist physicians on call 24-7 to urban, suburban and critical access hospitals via video conferencing, uses the technology to get critical care neurologists and other specialists to patients' bedsides within 15 minutes of arriving at the Emergency Department (ED).

"Our goal is that through video technology, we become the window into the ED, so that ED doctors will call us for any of their critical care needs, neurology, psychiatry, pediatrics, etc," said John Moynihan, CTO of SOC.

The national average of patients receiving tPA for clot-related strokes is only 5 percent, largely because of the delay in recognizing the symptoms and getting to the ED and a capable neurologist in time. Among the patients of SOC, the average number receiving tPA is 10 percent to 15 percent as the SOC physicians can respond faster through the use of video. Without video conferencing, the hospital is faced with calling in a physician that may not be available in time.

Karen Deli, SVP of Operations at SOC said, "We are seeing approximately 300 consults a month, and about 60 percent of those are stroke patients. Recently, one of our doctors administered tPA to three patients across three states in one 8-hour shift. We're doing amazing things medically because the video technology enables us to get to the patient so much faster."

"For all of our clients, we are the most effective solution to their on-call needs. And, because our neurologists can handle the on-call needs of multiple hospitals, the cost of our service is spread out versus each hospital paying temporary neurologists the full fare," Deli said.

Delivering Health Care and Education To Underserved Areas

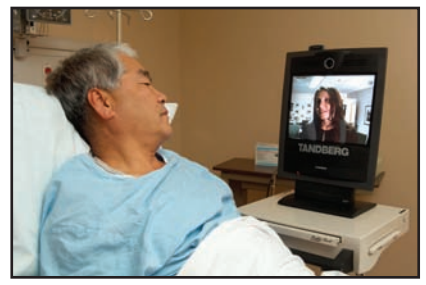
In 1996, Arizona legislators were faced with inequitable delivery of medical care among the state's rural communities, its prison populations and its numerous tribal nations. To address this issue, as well as concerns about rising health care costs, the state legislature approved funding to establish pilot projects demonstrating the efficacy of telemedicine in delivering better health care to Arizona's medically underserved areas. As a result, the University of Arizona Health Sciences Center created the Arizona Telemedicine Program (ATP). ATP is a multidisciplinary, university-based program that provides web-based technologies for expanding and enhancing health care and distance-education to communities throughout Arizona.

"We have handled over 600,000 patient cases, mostly radiology, but many other specialties as well," said Dr. Ronald Weinstein, chairman of Pathology, University of Arizona Health Sciences Center.

Using video conferencing equipment, the ATP offers extensive broadcasting of continuing education to all of its sites. More than 15,000 hours of medical education has been completed through the program. In addition, the program operates a telemedicine training center for health care professionals throughout the state. Since its inception in 1996, the ATP has grown from eight sites to 171 sites, in 71 communities and 55 healthcare organizations.

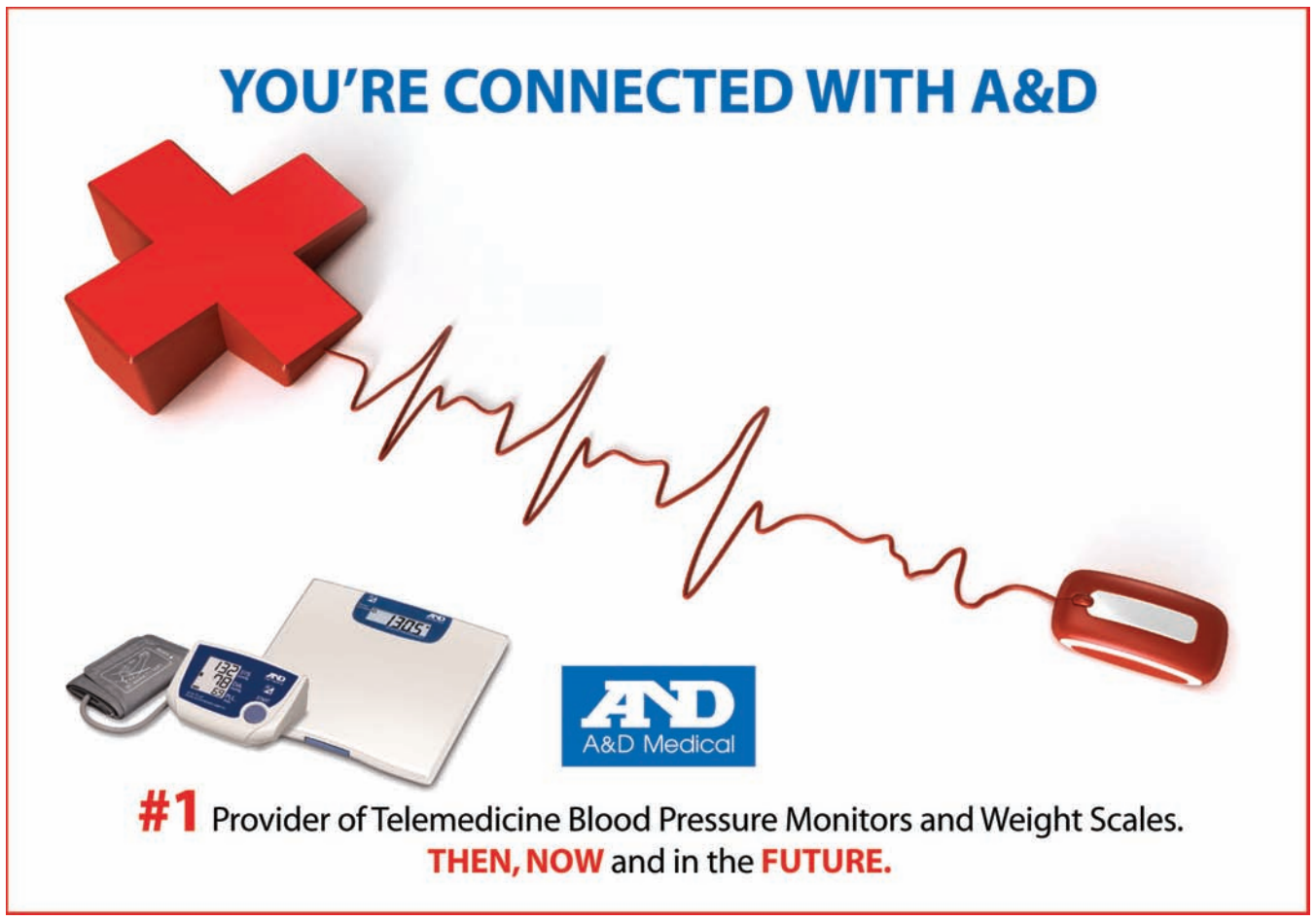
Breaking the Sound Barrier Through Video

Deaf Link, Inc. supplies businesses, hospitals and government agencies with on-demand access to American Sign Language (ASL) interpreters via Internet-based video conferencing. Deaf Link provides the Deaf and Hard of Hearing with clear, accurate and timely communication access via video to sign language interpreters, 24 hours a day.



One in 10 Americans are deaf or hard of hearing, representing approximately 30 million Americans. The Americans with Disabilities Act of 1990 mandates businesses and government agencies provide, at their own cost, "effective communication" for those who are deaf and hard of hearing. To comply with this act, many businesses, government agencies and health care facilities utilize on-site interpreters when requested. Typically, this involves a waiting period for the patient and high cost for the health care provider as the interpreter travels, often long distances, to the location.

Article continued on page 10



Telemedicine as Support for Chronic Disease Management And How Collaborative Care is Becoming a Reality

By Julia Davey, RGN Community Respiratory Nurse Specialist
Central Surrey Health

COPD: A Burden to Society

Chronic Obstructive Pulmonary Disease (COPD) is one of the most common respiratory conditions in adults in the developed world and poses an enormous burden to society both in terms of direct cost to healthcare services and indirect costs to society through loss of productivity. Statistically in England and Wales, nearly 1 million people are diagnosed with COPD half as many again are thought to be living with undiagnosed COPD (1) and recent analysis estimated that the NHS spends £818 million annually in the UK (2).

COPD is thought of as the "Cinderella" disease in medicine and has received scant attention in comparison to heart disease, asthma and lung cancer (3). Attitudes are beginning to change and to support this the Government announced in June 2006 that a National Service Framework (NSF) for COPD should be developed following the recommendations published in the CMO's Annual Report 2004. It recognized that chronic ill health and death due to COPD is preventable in most cases and it is hoped that the NSF will go some way to addressing this. (The NSF for COPD will be published in 2008 and implementation will take place from 2009.)

Despite this backdrop of difficulties and barriers the COPD Community Service, which covers a catchment area of 50 square miles with a case load of 300 end-stage COPD patients, is now witnessing significant improvements in patient care including the reduction in the severity of exacerbations, hospitalization, maintained lung function and subsequent quality of life for COPD sufferers. Nurses are now able to spend more time with sick patients at home, educating them and encouraging use of appropriate medication at the appropriate times; encouraging them to remain as mobile as possible; what to do in the event of an exacerbation and who to call for advice; checking inhaler technique or nebulizer technique if appropriate; checking lung function as required; giving advice as regards diet and nutrition as some of these patients find it difficult to eat and breathe adequately either during or following a meal and exacerbations are now mainly self-managed with support from the team. The patients who are willing and able (which is the majority of them) have an emergency pack of oral corticosteroids and antibiotics to initiate at the onset of an exacerbation.

COPD Services: Goals and Objectives

In 2001, I was employed as a Community Respiratory Nurse Specialist, primarily to see patients who were unable to attend hospital appointments, and act as a liaison between primary and secondary care. As the case load increased to 150 patients and with more than 70 requiring home visits on a regular basis, it was becoming increasingly problematic to monitor patients effectively and subsequently keep them out of hospital, simply because of the difficulty in searching for up-to-date information in the patients' paper notes.

A change of approach was required and in 2004 the COPD Community Service was initiated by East Elmbridge & Mid Surrey PCT to address these issues. The aim of the service was to provide high quality personalized care to patients in the home setting therefore reducing the over-reliance on secondary care. There was also a desire to change the emphasis from a reactive, crisis management service to a more proactive preventative partnership approach and promote multidisciplinary collaboration.

As there had previously been no service at all I had "carte-blanche" to set any objectives but one of the main targets was to make life easier for the housebound patients so that there were no wasted and unnecessary journeys to hospital for follow-up appointments. At this time it was clear that hospital admissions were often as a result of panic and lack of support, or minor infections that could have been resolved in the home setting. Length of stay was also often prolonged, resulting in super-imposed infection in many cases. Patients and their carers had no idea about their disease progression or that they were entitled to certain benefits from the DSS if they were unable to cope at home with activities of daily living. We had a desire to change this situation and ensure that patients became better informed about their medical condition and financial entitlements.

We were also faced with having to try to accommodate the ever-increasing caseload with no extra resources in the way of staff and the stable patients were not being seen frequently and we had no way of knowing how they were without systematically contacting them by telephone. One benefit, however, was nurse subscribing, meaning that a prescription could be given to the patient instantly rather than having to contact a GP and maybe having to wait for 24 hours. Little consolation in terms of all the other issues we were faced with at that time!

With limited resources and only me as the Respiratory Nurse Specialist, the following objectives were set:

- People with severe disease were to be seen at home. (This included patients unable to get to the hospital for appointments, either because they are too ill, or transport is a logistical problem. Most of these patients are receiving continuous oxygen therapy and are having to wait to see a consultant).
- Patients and their carers were to be fully informed about their disease by the nurse and given advice on self-management for exacerbations and educated about the use of oxygen and safety precautions.
- Patients and carers were to be taught to recognize changes in their condition and be encouraged to contact the respiratory nurse or GP directly during daytime hours. Out of hours contacts would be the same as normal i.e. via their GP.
- 'Patient empowerment' was to be promoted to encourage patients to take an interest in their own disease and day-to-day care.
- Reduce inappropriate patient admissions to hospital.

To achieve the objectives we had to find a more effective way to monitor patients by finding suitable technology that could be set up in the patient's home while enabling the development of an electronic patient record. In 2004, a system called Excelicare Direct a software program developed by AxSys Technology was reviewed. The system was being used at Glasgow Royal Infirmary for the home monitoring of patients with Rheumatoid Arthritis. Through the use of this computerized telephone monitoring system staff could detect any deterioration in the patients' condition without having to physically see them. This fulfilled the criteria required for the COPD patient group in that the system would enable a more effective way to monitor patients and maintain contact without having to actually visit them. It also meant that we could give quicker advice to patients and access to medication needed in an exacerbation to help avoid hospital admission.

How the System Works

Excelicare went live in Central Surrey in September 2004 and now provides a patient-centric, telemedicine solution for the remote assessment and monitoring of 250 registered COPD patients. It has been set up to ensure that the correct treatment protocols are followed while documenting the clinical care pathway for each patient. The British Thoracic Society Guidelines for COPD are implemented and a clinical pathway for COPD has been formulated.

Continued from Page 9

For example, a medical testing appointment that requires communication at several stages throughout the day between a deaf patient and medical practitioner would result in significant costs to the medical facility as the presence of an interpreter would be required for the entire period.

Many who are deaf or hard of hearing rely on friends or family members to communicate and interpret on their behalf. Important pieces of information may not be properly communicated by well-intentioned relatives who are not fully conversant in ASL. For matters that are of a personal nature, communication may not take place at all.

For the past three years, Deaf Link has provided healthcare facilities with effective "on-demand" interpreter services using certified ASL interpreters operating from a communication center facility and linked to their clients via Internet-based video conferencing. To ensure confidentiality, Deaf Link's communications center is secure and HIPAA compliant.

The Future of Telemedicine

Telehealth and telemedicine are at a tipping point. A 2004 report by the Commerce Department's Office of Technology Policy listed annual growth rates for telemedicine as high as 20 percent. Vast improvements in video conferencing image quality and the ubiquity of broadband are providing hospitals and health care providers with access to remote expertise, training and interpreter services from organizations such as Specialists on Call, The University of Arizona and Deaf Link, Inc., helping to increase quality of service and improve costs. As video conferencing technology continues to develop along with the quality of patient care, bringing specialized health care to those in need will be accomplished more quickly and without the cost of traveling to a provider in another state or country.

Joe D'Iorio currently serves as TeleHealth Specialist for Tandberg where he oversees development of Telemedicine applications for various organizations, including healthcare providers. He has worked with Telemedicine programs worldwide on the design and operational requirements of the medical devices used in doctor-patient environments.

Contact: www.tandberg.com

The telemonitoring works by patients placing a call to the Excelicare system as and when their symptoms change. The patient dials a dedicated number and enters their secure PIN number and date of birth which identifies them to Excelicare and opens their individual patient record. The system welcomes the patient by name and delivers a personalized questionnaire over the telephone, relating to their signs and symptoms. The patient responds by pressing the appropriate touch-tone keys and all responses are recorded into forms in the patient record as Excelicare has the power to interpret a patient's response. After the call, a report is created which generates an alert if it has detected deterioration in the patient's condition.

This alert is automatically sent to the Respiratory Nurse via a text message. The nurse then calls the patient to give appropriate advice or, if necessary, make a home visit. After an incident, the nurse will enter her clinical notes directly into the system and clear the alert. This provides support for the patient for 15 hours per day. The service after 6 p.m. is advice only until 11 p.m. An on-call service is planned for overnight and weekends with close liaison with the South Coast Ambulance Service.

Today's Model of Care for COPD Patients

• There is a change in emphasis from crisis management to preventative partnership.

• The patients find the system acceptable, although nothing will take the place of a personal visit (these findings were confirmed in a survey which was carried out to assess patients' feelings about the telephone system).

• Home visits frequency is decreased allowing more patients to be managed by the same number of nurses. (Accepted caseloads for Community Matrons is 60 patients per member of staff and we had 150 patients between 1.6 WTE Staff).

• Use of electronic monitoring is an adjunct to home visiting. Home visits are still carried out but the patients phone in on a regular basis when they are unwell.

• Embedded rules and alerts in the Electronic Patient Record ensure that manual intervention occurs when required from 08:30 a.m. to 5:00 p.m.

• Type and extent of data capture at home is not restricted. (The system does not restrict what information you wish to enter and we have designed our own electronic program to suit the needs of the service).

• Empowers patients to become more actively involved in their own treatment.

• Provides them with speedy access to their nurse for advice and care.

• Minimizes the inconvenience, cost and time incurred in travelling to clinics for investigations or to see the consultant.

Results and Benefits

Results published demonstrate that considerable improvements have been made since the establishment of COPD Services (Activity and Productivity Report EEMS COPD Clinical Managed Network May 2007) and to-date those benefits include:

• The maximum response time for answering an alert is now 15 minutes, the normal response time is five minutes.

• The severity of exacerbations has been reduced which is helping to maintain lung function and subsequent quality of life.

• Since starting the Respiratory Service in 2001, hospital admission for patients seen at home has fallen by 40 percent and the average length of stay in hospital has been reduced to 5.9 days representing a 26 percent reduction in bed days. Measured annually from admission data provided by the Acute Trust.

• The target of saving 10 percent of admissions every year from 2007 is now achievable.

• Considerable cost savings have been made through the Outpatient Nurse-led clinics. In the first eight months of the Service starting $51,716.34 was saved for the PCT by moving the clinics to Community Hospitals from the Acute Trust.

• Consultations made by phone or e-mail have increased.

• The system supports integrated care and enables establishment of clinical networks. The clinical network, consisting of a multi-disciplinary team, meets every eight week to discuss patient care and future plans.

• Quality data can be entered from any site and care can be delivered from anywhere – data can be entered at home or in Community Clinics if patients are able to attend.

• More patients can be managed without having to increase the number of staff.

By introducing patient-centric telemedicine, there has been substantial improvement in healthcare delivery and we are currently in the process of conducting another patient satisfaction survey to help confirm our findings. The physicians in the Acute Trust have also stated that there is a noticeable decrease in hospital admissions and that those patients who do need admission tend to be really ill with multiple co-morbidities. The Respiratory Nurses are under less pressure, although of necessity the administrative work has increased. By having an electronic patient record it has been possible to implement and monitor 'best practice' whilst maintaining clinical effectiveness of intermediate care and clinicians benefit in that it allows close, accurate monitoring of patients without increasing the load on clinics whilst improving the overall outcome of treatments.

The Future

Excelicare is easily transferable to other disease areas and telemedicine may be the future for modern medicine, especially for the management of chronic disease. I also think it is important to encourage nurses to embrace the use of technology and learn new skills if the Electronic Health Record is to fulfill its promise in the National program for IT (NPfIT).

A multidisciplinary COPD Network Group has also been set up which meets every two months to support nursing practice and improve patient care and a clinical record is now in place for each COPD patient, this is the first in England. The on-going target is to treat the majority of COPD patients at home to offer them support, and ultimately, a dignified death at home rather than in an acute hospital bed.

A future expansion of the service would see Excelicare linked to the acute sector to give other clinical staff instant access to patients' up-to-date records. It would seem eminently sensible to have all health care professional associated with the care of patients accessing similar data. We are already working on creating links with other systems such as PACS so we can scan images direct into Excelicare, import other documents like sleep studies and possibly X-rays. This will give us a complete patient record which will enable GP's and Consultants access to the record.

Telecare fulfills the government agenda of moving care into the community, and whilst there will always be a need for acute hospitals for patients with complications and severe co-morbidities, simple COPD can be managed very well in the Community. As more resources become available, Community Hospitals with an assessment unit can be of great value to patients who need intravenous therapy, unless the community nurses are trained to give intravenous therapy in the home. Arterial Blood Gases can be performed in a Community Assessment Unit, or Capillary Gases performed in the patients' homes to titrate Long Term Oxygen Therapy and fulfill the requirements of the British Thoracic Society.

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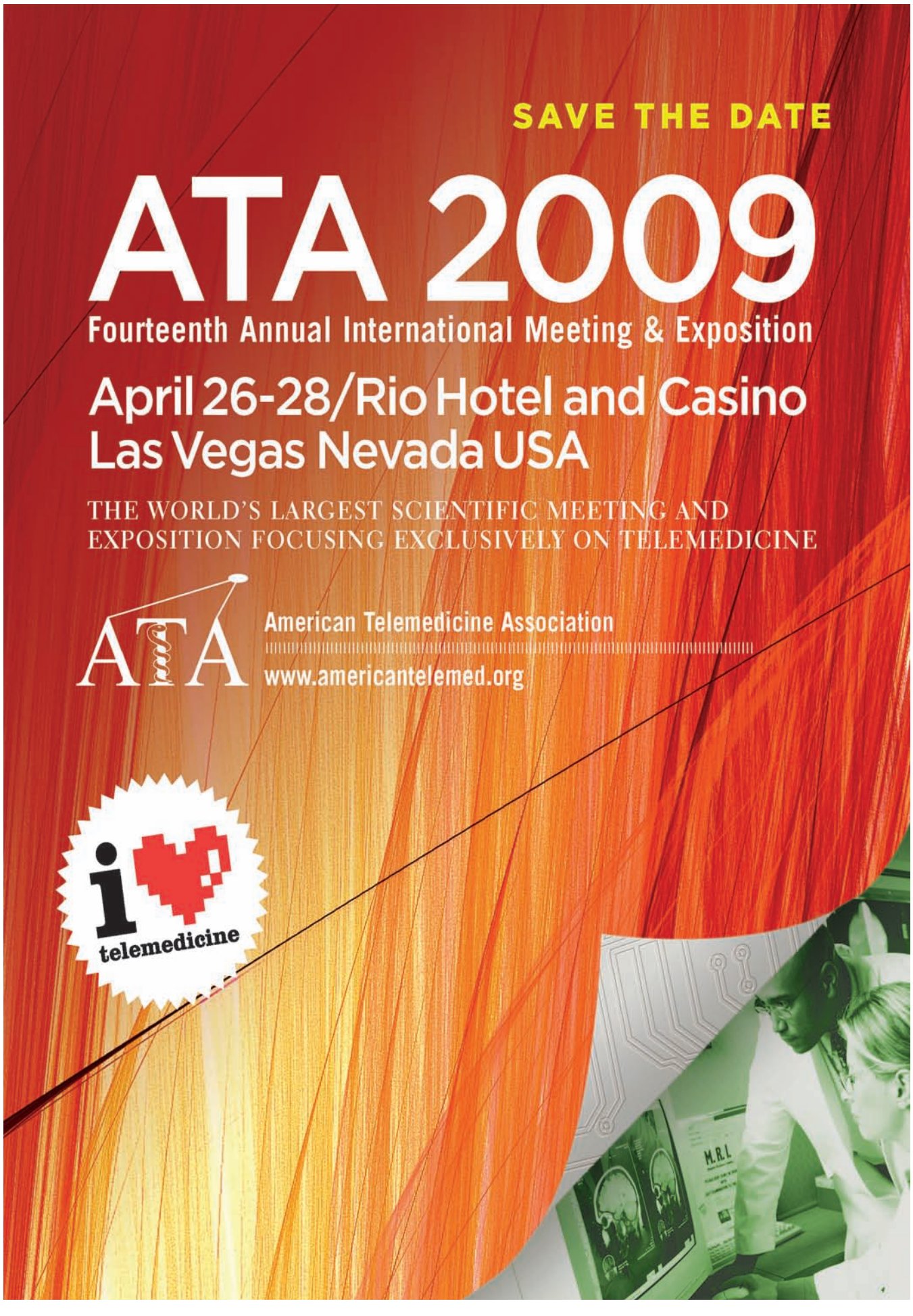
Hill Country Memorial Hospital Chooses NCP Engineering as Provider of VPN Client Software

NCP engineering GmbH, provider of endpoint security and VPN solutions, has become the sole provider of VPN client software for Texas-based Hill Country Memorial Hospital. The organization adopted the NCP Secure Entry Client for its powerful encryption and stable IPSec tunnel to comply with HIPPA regulations regarding off-network handling of patient names, conditions and other personal data.

The bundled NCP Secure Entry Client provides Hill Country Memorial Hospital a single software solution for their Windows mobile devices that integrates data encryption, a dynamic personal firewall, Friendly Net Detection and one-time password token and certificate support through a public key infrastructure (PKI). The firewall allows Hill Country Memorial Hospital to set policies for ports, IP addresses and segments and applications. The Friendly Net Detection forces the network to identify itself to the device, preventing data packet transfer until a safe network has been detected. Configuration and policy logic are set and managed centrally or through the NCP Secure Entry Client itself.



Microsoft HealthVault, RelayHealth To Connect Doctors and Patients

Microsoft Corp. has entered a collaboration with RelayHealth, McKesson Corp.'s connectivity business, to accelerate and improve the relationship between doctors and patients. Together, Microsoft HealthVault and RelayHealth will enable affordable patient connectivity with doctors' offices and hospitals so patients can have security-enhanced, easy online access to medical care, information and records.

HealthVault will provide physicians using RelayHealth's Software as a Service (SaaS) platform with the technology to facilitate enhanced online patient service and communications. Physicians can easily employ the RelayHealth service, which includes electronic prescribing, through a Web browser as the initial step toward clinical automation of their practice. The service is also designed to integrate with electronic medical record systems already in use. For patients, the combined solution allows access to their personal health information and an online interaction with their personal physician.

RelayHealth's core services enable patients to schedule healthcare appointments online, request prescription refills, pay bills, obtain results and even visit their doctor online using security-enhanced webVisit consultations for non-urgent care. HealthVault is a consumer health platform that allows people to collect, store and share health information with family members and participating healthcare providers.

REACH Call, Inc. Expands Coverage to Seven States

REACH Call, Inc., provider of 100 percent Web-based solutions for remote treatment of medical conditions such as stroke, has announced that more than 60 hospitals in seven states are using its turn-key telestroke and telehealth service.

REACH was conceived several years ago as a way to quickly and remotely treat stroke patients, who often must be treated within three hours to minimize long-term effects. Rural hospitals in California, Florida, Georgia, New York and South Carolina have installed REACH in a hub-and-spoke model, where neurologists at the larger "hub" hospital provide consulting services to smaller "spoke" hospitals for remote stroke evaluation. Along the way, the hospitals noticed that the REACH Web-based telestroke and telehealth services also would be well suited for connecting with other types of specialists.

Cardiocom Receives 2008 Patient Monitoring Product Innovation of the Year Award from Frost & Sullivan

In recognition of its product and service leadership in the remote patient telemonitoring market, Frost & Sullivan presented Cardiocom Multi-Disease Management with the "2008 North American Patient Monitoring Product Innovation of the Year Award."

Cardiocom's founders have leveraged their experience in medical device manufacturing to create a home monitoring company that designs, manufactures and supports all of its products internally.

To achieve this, Cardiocom has its own in-house research and development team and manufacturing operations, along with a full call center staffed by registered nurses. This initiative for vertical integration by Cardiocom has been key to its success.

Cardiocom's solutions are more than just biometric monitoring devices. The products and services operate as an integrated system for specific disease states. By

incorporating state-of-the-art monitoring technology with targeted, personalized care management services and advanced rule-based software, Cardiocom offers its clients maximum patient management.

Cardiocom has maintained profitability for the past six years and is expected to continue on that path in the years to come.

New National Chronic Disease/Telehealth Project To Bolster Best Practices for Four Major Diseases

The National Association of Home Care & Hospice (NAHC) announced the Philips National Chronic Disease/ Telehealth Best Practice Project.

The project will be sponsored by Philips Telehealth Solutions and co-sponsored by NAHC and Fazzi Associates, a home care consulting, benchmarking and best practice research firms. This project will bring together leading telehealth/chronic disease home care practitioners from every state and national medical experts in the four major chronic diseases. Their goal will be to jointly develop best telehealth practices for dealing with patients with these diseases.

The four diseases to be addressed by the project are chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), hypertension and diabetes. "There is no surprise why this project is focusing on these four diseases," said Val Halamandaris, president of the National Association of Home Care & Hospice (NAHC). "According to a November 2007 study by Johns Hopkins University, 90 percent of Americans over the age of 65 have one or more chronic diseases, 70 percent have two or more. These four diseases represent the most prevalent diseases addressed by home care agencies."

"There is another reason," added Michael Lemnitzer, senior director, Philips Telehealth Solutions. "During Philips National Study on the Future of Technology and Telehealth in Home Care, we discovered that agencies that used telehealth with a disease management program had better financial outcomes and better quality outcomes. What we didn't explore was what the best telehealth practices were for serving these populations. The goal of this study is to find the answers to that question."

Iowa Medicaid Demonstration Finds Tel-Assurance Remote Monitoring Platform Improved Health Status and Saved $5 Million

Pharos Innovations, a company focused on assisting clients to achieve next-generation clinical and financial performance improvement through a device-free remote monitoring platform, has released results from the Iowa Medicaid Congestive Heart Failure Population Disease Management Demonstration. The demonstration, conducted between October 2006 and October 2007, confirmed that Pharos Innovations' Tel-Assurance remote monitoring platform reduced the need for costly acute care services, saving Iowa Medicaid nearly $3 million. In addition, the demonstration confirmed an additional $2 million costs had the interventions not been applied, for a total of $5 million savings versus trend.

The demonstration results, which were compiled by the project steering committee and validated by a comprehensive evaluation plan accepted by the Disease Management Purchasing Consortium (DMPC), source of contracting assistance in disease and population management, include:

- Nearly $3 million savings from reduced healthcare service utilization for the participant group, compared to a $2 million increase for the matched cohort group.
- A 24 percent reduction in admissions, compared to a 22 percent increase for the matched cohort group.
- A 22 percent decrease in total bed days, compared to a 33 percent increase for the matched cohort group.
- A two-times increase in the size of care managers' case loads because of pro gram efficiencies.

Iowa Medicaid Enterprises (IME). The Iowa Chronic Care Consortium (ICCC) and Pharos Innovations partnered for this demonstration. It was launched to evaluate the impact of Tel-Assurance, a scalable, cost-effective and proven remote monitoring platform, in reducing cost and improving quality, self-management and care coordination for Iowa Medicaid members with heart failure.

The one-year study used a one-year baseline and compared program participants to a matched cohort group. Because of the demonstration's success in saving money and improving care, Iowa Medicaid will extend the use of the program beyond the demonstration.

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Continued from Cover

"We have seen reductions in mortality, length of stay and cost per case wherever we have implemented the eICU model. It's the future of critical care medicine, and it can only expand from here."

Recent research by Avera Health, a rural health system based in Sioux Falls, S.D., that operates 233 facilities in five states, found that mortality dropped 29 percent and patient length of stay decreased up to 46 percent when comparing severity-adjusted data on mortality and length of stay from one year before and two years following implementation of their eICU Program.

"We calculated an annual reduction of 4,146 ICU days and 572 hospitals days for the four facilities we studied, which translates to millions of dollars saved to our system," said Avera McKennan Chief Medical Officer David Kapaska, M.D. "This improvement can be attributed to improved workflow, antibiotic protocols, glycemic control and avoidance of a range of complications – all made possible by the daily reports and best-practice guidelines provided to our clinical staff through the eICU Program."

Colorado to Have One of the Largest Healthcare Information Networks in the Nation

With an award from the Federal Communications Commission (FCC), Colorado will have one of the largest healthcare information networks in America. A consortium led by the Colorado Hospital Association (CHA) will develop the Colorado Telehealth Network.

The FCC award provides up to $4.6 million in federal funds over three years. When combined with a similar FCC award to the Colorado Behavioral Healthcare Council, $9.8 million will be made available for the initiative. In addition, a 15 percent match from participating healthcare providers will supplement the initiative.

The network will enhance the delivery of health services, help control costs and make care more affordable, reduce travel time for consumers, reduce the potential for medical errors and enable healthcare providers to share critical information.

The goals of the Colorado Telehealth Network initiative are threefold. One is to share the benefits of telemedicine access to primary and specialty care patients who normally would have to travel large distances to receive care. Second is to ensure that healthcare facilities are able to use available technologies and expand their efforts in the area of health information technology. Third is the coordination of care in a public health emergency by allowing healthcare providers to share critical information.

The FCC will cover 85 percent of the cost of building the network, including design and engineering, network hardware, and installation of the network for public and not-for-profit hospitals and clinics. Healthcare facilities participating in the program include hospitals, clinics, university and research centers, behavioral health sites and community health centers. To date, 72 Colorado hospitals, 118 health clinics and 184 mental health centers have signed on to participate in the statewide fiber optic broadband network.

Montefiore's CMO and Health Hero Network Create Partnership to Move Health Care into the Home in the Bronx

CMO, the Care Management Company – a subsidiary of Montefiore, a health-care system that serves over 400,000 individuals in the Bronx, New York – has chosen Health Hero Network as a provider of home telehealth technology services for CMO's care- and disease-management programs, including its CareGuidance Medicare demonstration. Health Hero Network is a subsidiary of the Bosch Group, a corporation based in Stuttgart, Germany. Initially, the partnership will focus on individuals with complex chronic conditions, including a Medicare demonstration program the CMO has designed to improve patient support, quality of care and reduce Medicare costs. These individuals tend to be elderly and frail, and have diverse health care and social support needs. The partnership is ultimately aimed at using interactive, network-based technologies that will enable CMO and Montefiore to broadly address the needs of its population proactively, preventively and cost-effectively.

Philips and University Medical Center Utrecht Sign MOU to Collaborate on Innovations in Major Disease Areas

Royal Philips Electronics has signed a memorandum of understanding (MOU) setting out a long-term research partnership with the University Medical Center (UMC) Utrecht, the Netherlands' biggest university hospital. Philips and UMC Utrecht will seek to develop new solutions for the diagnosis, monitoring and treatment of major disease areas.

Philips and UMC will develop collaborative research projects in medical imaging applied to brain disease, cancer, cardiovascular disease, musculoskeletal disease and pulmonary disease. A key area of focus outlined in the MOU is image guided oncology interventions. Philips and UMC Utrecht expect the agreement to result in new treatment methods that will ultimately lead to an improved quality of healthcare delivery.

TeleHealth Services Acquires Assets of Hospital Interactive Patient Education Systems Competitor, Pathware, Inc.

TeleHealth Services, provider of integrated communications solutions for the healthcare market, has acquired substantially all Instant HealthLine assets of Pathware, Inc. (formerly SVI Healthcare, Inc.) and has assumed responsibility for servicing and supporting Pathware's Instant HealthLine (IHL) customers as of August 11, 2008.

Pathware/SVI provided the IHL interactive on-demand video systems that deliver education, entertainment and other patient-oriented information to bedside televisions and computers in hospitals. TeleHealth will continue to service the customers through its industry-leading TIGR education-on-demand support personnel. With the addition of Pathware/SVI's approximately 150 customers, TeleHealth Services will service and support more than 400 patient interactive education systems in US hospitals.

US Market for Patient Monitoring Equipment, Accessories and Supplies Worth $8.6 Billion by 2013

According to a new technical market research report, Patient Monitoring from BCC Research, the US market for patient monitoring devices, accessories and consumables was worth nearly $6.2 billion in 2007. The market is projected to grow to almost $6.5 billion in 2008 and $8.6 billion by 2013, representing a compound annual growth rate (CAGR) of 5.7 percent.

The market is divided into major segments of devices and disposable sensors and consumables. The patient monitoring devices segment has the larger share of the market, and was valued at $3.6 billion in 2007 and an estimated $3.8 billion in 2008. This is expected to increase at a CAGR of 6.2 percent to reach $5.1 billion in 2013.

Disposable sensors and other consumables have the smaller market share. Worth $2.6 billion in 2007 and an estimated $2.7 billion in 2008, this segment is projected to grow at a CAGR of 5.1 percent and reach $3.4 billion in 2013.

The patient monitoring devices segment is further broken down into categories of bedside/tabletop, telemetry, personal, implantable and wearable monitors. While handheld and wearable monitors make up the largest part of the market segment, at 66.6 percent in 2007, their share of the market is expected to decline to 61.9 percent by 2013. Meanwhile, bedside and tabletop monitors should increase their share of the market from 30.7 percent in 2007 to 35.9 percent by 2013.

There is also a trend toward the use of networked as opposed to stand-alone monitors. Networked monitors accounted for 35.3 percent of the market in 2007, a share that is expected to grow to 46.2 percent by 2013. Wirelessly networked (i.e., telemetry) monitors should increase from 13 percent of the market to 15 percent.

Major applications for patient monitoring technology include hospitals, medical transport, military, workplace and home use. Home users are the largest market for patient monitoring devices. The hospital market is the next largest end-user segment, but is growing relatively slowly, due to consolidation among hospitals and the emergence of alternative providers of health care, such as outpatient surgical centers. Nursing homes and other long-term care facilities are the third-largest market for patient monitoring devices.

Projected US Market for Patient Monitoring Equipment, Accessories and Supplies, Through 2013 ($ Millions)

	2007	2008	2013	CAGR % 2008-2013
Monitoring Devices	3,620.3	3,799.6	5,127.7	6.2
Disposable Sensors and Other Consumables	2,550	2,679.7	3,439.3	5.1
Total	6,170.3	6,479.3	8,567	5.7

Calendar of Events

October 2008

11-10
AHIMA 2008 Convention & Exhibit
Seattle, Wash.
American Health Information Management Association
www.ahima.org

12-15
NAHC
Fort Lauderdale, Fla.
www.nahc.org/meetings/home.html

19-22
MGMA 2008
San Diego, Calif.
www.healthcare-informatics.com

25-29
APHA 2008
American Public Health Association Annual Convention
www.apha.org

27-28
5th Annual Connected Health Symposium
www.connected-health.org/events/symposium-2008.aspx

November 2008

8-12
American Medical Informatics Association Annual Symposium
Washington, DC
www.amia.org

17-21
Rehabilitation Engineering Research Center on Telerehabilitation Virtual State of the Science Conference
www.rerctr.pitt.edu

30-12/5
RSNA 2008
Chicago, Ill.
Radiological Society of North America
www.rsna.org

December 2008

8-10
4th Annual World Healthcare Innovation & Technology Congress (WHIT 4.0)
Washington, DC
www.worldcongress.com

April 2009

4-8
HIMSS 2009
Chicago, Ill.
www.himss.org

14-16
6th Annual World Health Care Congress
Washington, D.C.
www.worldcongress.com

26-28
ATA 2009
Las Vegas, Nev.
www.americantelemed.org

Web Guide

www.cardiocom.com

Cardiocom is a leader in interactive telehealth monitoring and management, connecting health professionals with their patients. Cardiocom addresses CHF, COPD, Diabetes, Asthma, ESRD, CKD, Hypertension, Obesity and other chronic conditions. Cardiocom is an award winning, vertically integrated company with hardware and software development, manufacturing, and clinical call center services.

www.hommed.com

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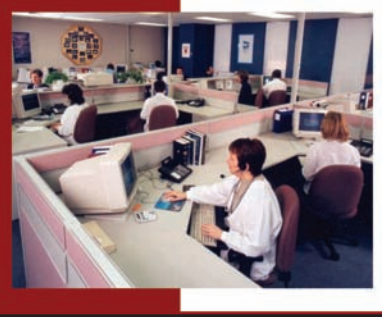

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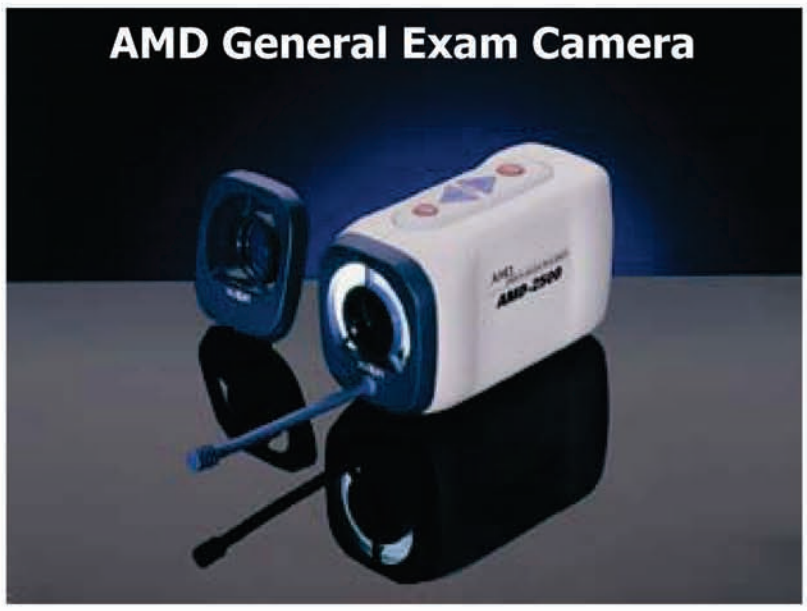

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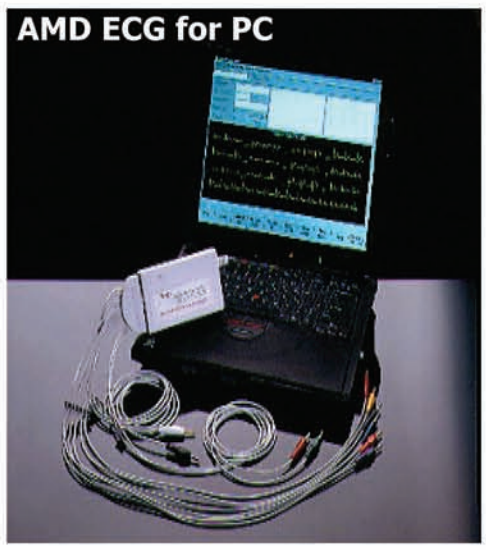

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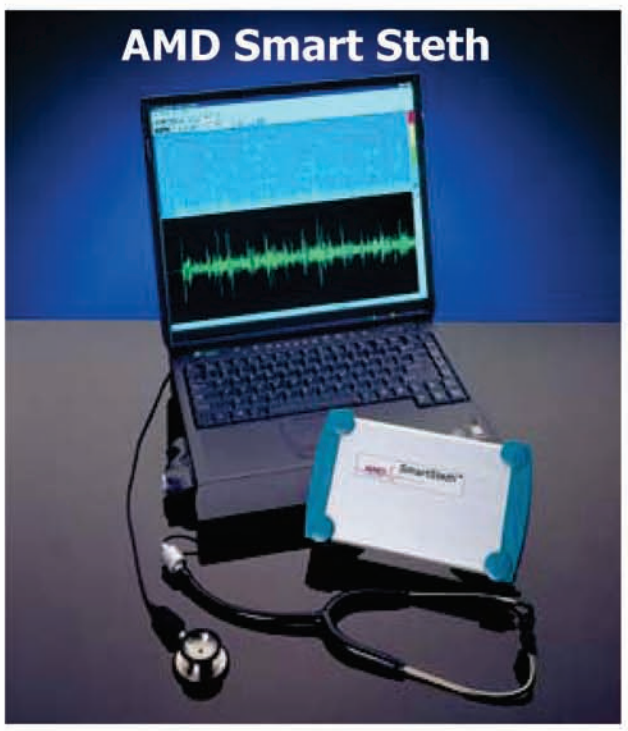

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