MOBILE TELEMEDICINE FOR IMPROVED PATIENT OUTCOMES

Acano in Healthcare
Mobile devices are transforming the way physicians, nurse practitioners and physician assistants work. More than 80% use smartphones today and 90% are expected to use smartphones and tablets in 2014, according to a recent Epocrates survey\(^1\). Current uses are myriad, from Electronic Health Record (EHR) applications to research to displaying x-rays and educational graphics for patients.

At the same time, many studies reveal that telemedicine improves patient outcomes. For example recent research from UC Davis Children’s Hospital\(^2\) found telemedicine consultations “significantly improved outcomes for patients treated in rural pediatric emergency departments that lack pediatric specialists. They also found a physician was more likely to adjust the patient’s diagnosis and course of treatment after a face-to-face video conference with a specialist.”

Vineet Arora\(^3\), an internal medicine doctor, reports that a top reason the iPad Mini is the new “must-have for doctors and future-doctors” is that it fits in a white coat pocket. The convergence of telemedicine with mobile devices that can be easily carried by not only doctors, but caregivers, patients and their families, opens up hundreds of new telemedicine applications to improve patient outcomes. Mobile telemedicine is not an entirely new concept, but the technology to make it affordable, accessible and secure has not been available until now.
The Challenge

Telemedicine has been used to improve and even save lives for decades. But its adoption has been slowed by several factors, including accessibility to the specialized equipment and affordability.

Today healthcare providers are more mobile than ever. The Epocrates survey concludes: Data suggest that the moments of greatest influence, however, are increasingly spent with a mobile device in hand. That survey included 1,063 primary care practitioners, cardiologists, oncologists, psychiatrists, nurse practitioners and physician assistants with an average 13 years experience.

In addition, the report indicated a growing trend toward “Digital Omnivores”. In many cases, healthcare providers are using multiple devices including tablets, smartphones and tablets. (See graphic)

Yet these healthcare providers do not have a telemedicine solution that fits this mobile way of working. Traditional telemedicine systems are too unwieldy and expensive. Software solutions, which hold the promise of being more accessible, have not been secure, are proprietary, or are poor quality.
The Solution: Widely-Accessible Mobile Telemedicine

Bringing telemedicine together with tablets and smartphones will change healthcare. More physicians, including specialists, can be available without being physically located near a patient or even a hospital or office. That means more expertise can be disseminated, more quickly. Knowledge can keep current with discoveries, and the benefits of sharing experience can reduce learning curves. In short, accessible mobile telemedicine can improve patient outcomes.

The technology is finally available to support this anytime/anywhere expertise exchange:
- Integration of previously incompatible technologies, including Microsoft Lync and videoconferencing systems.
- iPad and iPhones that are becoming ubiquitous and fit in a white coat pocket; and the apps that make them easy to use.
- The rise WebRTC, a technology that allows quality face-to-face video without a plug-in or download.
- Virtual consulting rooms that afford privacy even while allowing those invited to join from any location.

Acano in Healthcare

Acano is at the forefront of integrating incompatible technologies and deploying WebRTC. Acano provides one user interface across devices that fit in a white coat pocket, like smartphones and tablets, as well as PCs. And healthcare coSpaces provide virtual consulting rooms.

At its core, Acano provides any healthcare provider, patient and family member with the ability to join a video, audio or web call at any time and from any device:

Unlimited virtual consultation rooms

People join into a virtual consultation room, what Acano calls a “coSpace”.

- It might be one room per patient where doctors, patients and family members can meet.
- It could also be a room where colleagues across a hospital network meet to discuss a specific healthcare topic.
- Each doctor may have their own coSpace to invite anyone they would like on any topic.
- And/or any other way of setting up healthcare coSpaces to best serve the healthcare provider.
Choice of video or audio

Anyone can join a coSpace using:

- Audio, from a smartphone, deskphone or any audio device
- Video, using a smartphone
- Video, using a tablet
- Video, using a PC
- Video, using a dedicated video conferencing device, including telemedicine equipment

In addition, the “digital omnivores” that use multiple devices have the ability to access a coSpace from each of their devices, or a couple at a time. For example, a healthcare provider could speak using a smartphone while reviewing a patient visually on an iPad.

Accessible to anyone that is invited

Acano coSpaces can be accessed either through an Acano software app that can be downloaded onto a PC and/or from the Apple App store for an iPhone or iPad. The Acano client is ideal for healthcare providers that need regular access to their virtual consultation rooms.

Using a technology called WebRTC, Acano coSpaces are also accessible to anyone who is sent a web link by a coSpace owner. No client download is needed, just a Chrome browser. This is ideal for healthcare providers and a patient’s family that are brought into a coSpace occasionally.

A coSpace is always available, so both access methods can be used on an ad hoc basis, no scheduling required.

Encryption by Default

Acano has encryption by default. It is designed for the highest level of security, using "clean slate" technology and a secure development lifecycle, to meet the needs of the US Federal government and enterprise customers.
Opening Up Hundreds of New Applications

Telemedicine that is mobile, scalable, and affordable opens up hundreds of new applications never before dreamed possible.

Acano customer MedCom sees a vast number of applications for coSpaces in the Danish healthcare system. MedCom is a publicly funded, nonprofit cooperation, owned and financed by the Ministry of Health, Danish Regions and the Local Government Denmark. MedCom facilitates the cooperation between authorities, organizations and private firms linked to the Danish healthcare sector.

According to Peder Illum, Acano covers video room-to-video room telehealth needs and “gives us the possibility to think ‘out of the box’ through an unlimited number of Acano coSpaces, which basically are virtual meeting rooms where health professionals can discuss treatment.”

Illum continues, “Acano coSpaces could enable high quality communication between patients/citizens and doctors and municipalities using only web browsers on their own PCs, while still maintaining high security through encryption. It could even be possible for distant family members to visit hospitalized patients. Acano gives us a frame to implement this on a potentially very large scale.”

Example Applications

Here are just a few applications Acano coSpaces makes possible:

Telepsychiatry.

Telepsychiatry for Populations with Limited Access to Healthcare

Telepsychiatrists at St. Elizabeth’s Health Center found that low-income patients with limited access to healthcare were far more likely to receive the medical care that they needed by enabling them to connect in from their homes. The center’s appointment no-show rates dramatically decreased. Acano coSpaces enable psychiatrists to connect directly to their patients via audio, video or web conferencing. This increases the likelihood of a successful remote psychiatry session, as it gives the patients multiple ways that they are able to connect.
Engaging Additional Participants on an As-needed Basis
Acano coSpaces also enable psychiatry sessions to no longer just be point-to-point. As the counseling session progresses, a patient’s relatives can join from their homes or workplace and provide support to their family member. A student’s guidance counselor can connect in from their school. In an emergency, Acano enables a more junior psychiatrist to pull in a more senior counselor to assist with a troubled patient.

Emergency Departments (ED) Telepsychiatry

A study prepared for the California HealthCare Foundation\(^5\) found that “ED psychiatry programs appear to provide quick and specialized care to patients with the risk of psychiatric emergencies and have the potential to assist in reducing crowding in EDs and lowering costs.”

Prenatal Care.

Hospitals like Cedars-Sinai and Texas Health Presbyterian Hospital\(^6\) provide parents with the ability to see their premature babies in the neonatal intensive care unit (NICU), even to speak to them to begin bonding when they are unable to hold them.

With Acano, a Baby coSpace can be set up for each tiny patient. Moms and dads can enter the coSpace at any time to see and talk to their baby securely from an iPad or their own PC from another floor, home or work. The doctor can join from his office, and the nurse from the nursing station.

Oncology.

University of Maryland’s Greenebaum Cancer Center (UMGCC)\(^7\) use room-to-room telemedicine equipment to connect specialists to discuss patient cases. Specialists in medical, surgical and radiation oncology collaborate to discuss treatment plans and diseases like breast and lung cancer. Community-based physicians also join the video-enabled meeting to access the specialists to discuss patients in their communities. The plan was to “remove all the barriers to the academic village”.

However, the expansion of the program\(^8\) to other specialties has been slowed by the hardware cost and interoperability amongst the suggested vendor’s requirements.

With Healthcare coSpaces, each specialist could join from their office laptop or iPad using an Acano client or Microsoft Lync. Interoperability would also no longer be an issue.
Community physicians could also join from their existing devices, even from the patient’s bedside, making it possible to expand the reach of expert healthcare to every community.

**Telesroke.**

A report from the Department of Neurology, Mayo Clinic Hospital⁹, states that telemedicine programs have demonstrated increased rates of rt-PA administration within three (3) hours of the onset of stroke symptoms. The report continues, “A 5% increase in rt-PA use nationwide would result in... approximately 4000 of those patients avoiding long-term disability and conferring a net cost savings to the healthcare system of more than $100 million annually.”

The ASA supports the use of telemedicine in its recommendations for the implementation of telemedicine within stroke systems of care, 2013, stating, “Telesroke networks should be deployed wherever a lack of readily available stroke expertise prevents patients in a given community from accessing a primary stroke center...”.

What Acano brings is the ability to establish larger networks with ready access to expertise more affordably. In the hub and spoke telemedicine model, smaller hospitals connect with hub hospitals. Experts within the hub hospitals could be accessed via their tablets as they manage local patients. In the third-party consult model, neurologists on call gain flexibility and can manage more calls.

**Post-op.**

The surgeon meets the patient’s family in a consultation room, with the patient’s remote family members joining over video in the Family coSpace that is set up for each patient. The parents have joined by clicking on a link in an email.

The surgeon then meets with the entire patient care team at once in a Patient Care coSpace to discuss aftercare. The patient’s physician may be on the phone, physical therapists may be on video from their iPads, and residents and nurses are gathered in a video-enabled conference room across campus.
Grand Rounds.

The patient care team meets regularly on video to discuss progress and view patient examinations while a telemedicine cart is rolled from room to room to chat with the assigned nurse and family. The team leaves notes in the coSpace to ensure everyone is aware of treatment changes. The coSpace is maintained even after the patient returns home and until care ends.

Conclusion

Acano takes telemedicine and makes it mobile, scalable, and affordable. The rapid rise of tablet and smartphone use by healthcare providers coupled with the mobility and multi-person meeting capabilities of Acano is set to radically change today’s telemedicine. The new applications and ability to reach a much wider audience are ready will improve patient outcomes.
References

1

2013 Epocrates Mobile Trends Report


2

Telemedicine Improves Patient Outcomes


3

Using the iPad Mini in the hospital: One doctor’s experience

http://www.kevinmd.com/blog/2013/01/ipad-mini-hospital-doctors-experience.html

4

Health IT and Health Disparities


5

Telepsychiatry in the Emergency Department

http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/T/PDF%20TelepsychiatryProgramsED.pdf

6

iPads Help New Moms Bond with Their Infants in the Neonatal Intensive Care Unit


7

New Telemedicine Program Brings Top-Notch Cancer Care to More Marylanders

8

*Maryland Telemedicine Expansion on Hold*


9

*Cost Analysis Review of Stroke Centers, Telesroke, and RT-PA*