

# Emerging Trends in Health Care: Telemedicine Webinar

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## About the Speaker



Alan Ayers is Vice President of Strategy and Execution for Concentra Urgent Care, based in Dallas, Texas.

Concentra operates over 300 walk-in occupational and urgent care medical centers, over 250 medical clinics located within employer worksites, and provides ancillary services including mobile medicine, environmental health, and national laboratory and pharmacy services.

Ayers supports the Urgent Care Association of America (UCAOA) with content development, planning and evaluation in matters related to practice management, speaks at UCAOA conferences, and is a regular contributor to the *Journal of Urgent Care Medicine*.

Ayers graduated from the University of North Carolina at Chapel Hill and holds masters degrees in Business Administration and Accounting from the University of Mississippi and the Ohio State University. His consulting background includes clients like Bank of America, McDonald's, and Wal-Mart. He resides in Denton County, Texas and is an FAA-licensed commercial pilot.

## Telemedicine Defined

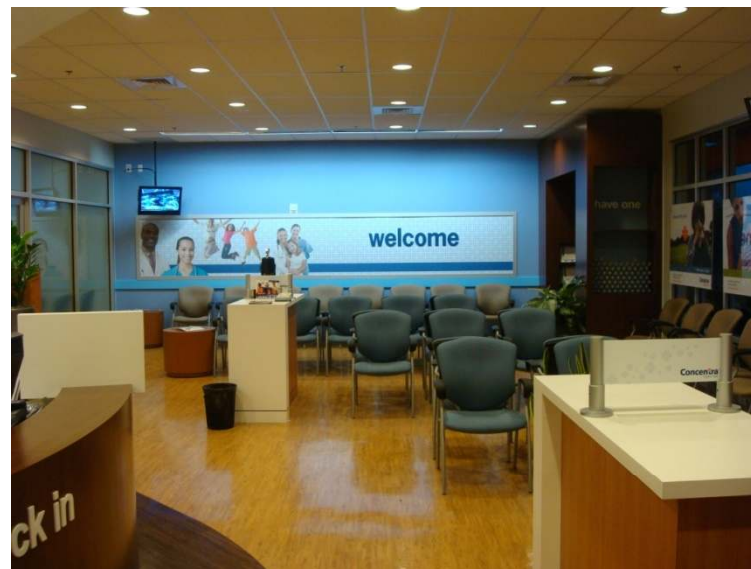
- Standard definition: *Physicians using technology to treat patients remotely*
- Telemedicine is also known as “virtual medicine”
- There is no standard service offering for “telemedicine” – it can consist of anything from telephone/e-mail exchange to a full virtual medical examination

***Question is whether telemedicine is a REPLACEMENT for urgent care, or a SUPPLEMENT to urgent care.***

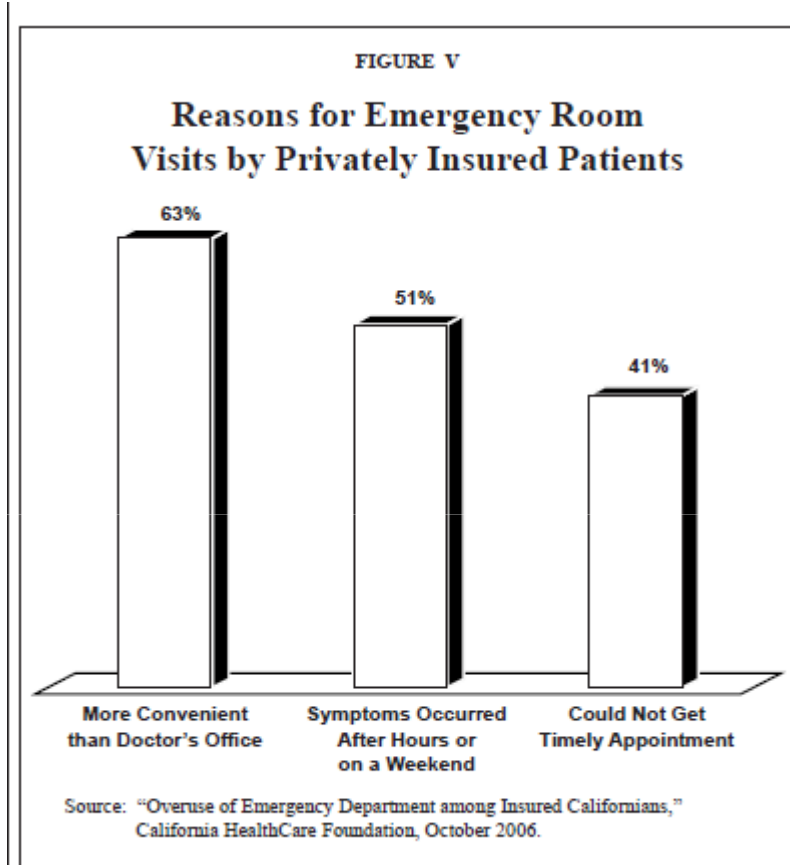
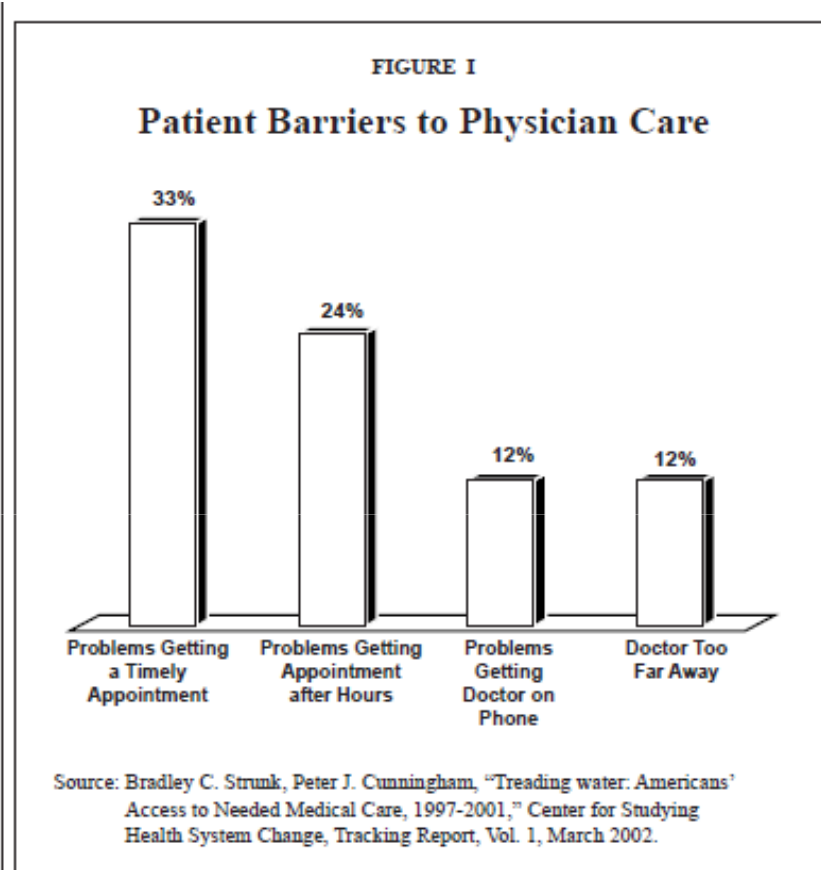


## Why does telemedicine matter to urgent care operators?

- Payers are exploring telemedicine as a cost-saving way to deliver low acuity, episodic care. Insurance companies are already steering patients away from urgent care and other facilities to telemedicine solutions. Diffusion of telemedicine may drive down reimbursement for office visits or require referral and pre-approval.
- Telemedicine provides a business opportunity to expand urgent care's scope of services—reducing the risk and capital involved in serving patients at off-site locations and by offering on-site access to specialist services.
- Urgent care operators may increase the efficiency and quality of care offered in their centers by utilizing telemedicine to support providers with training, oversight, and consultations.
- Patients who become comfortable using telemedicine solutions for primary and specialist care may develop new expectations of “access and affordability” and migrate away from walk-in urgent care in favor of “virtual” providers (or in favor of competing providers who deliver information through preferred electronic channels/formats).



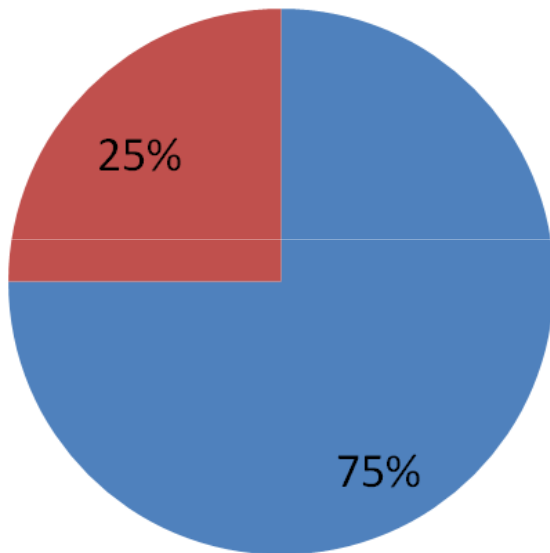
## Affordability and Access Challenges in Health Care



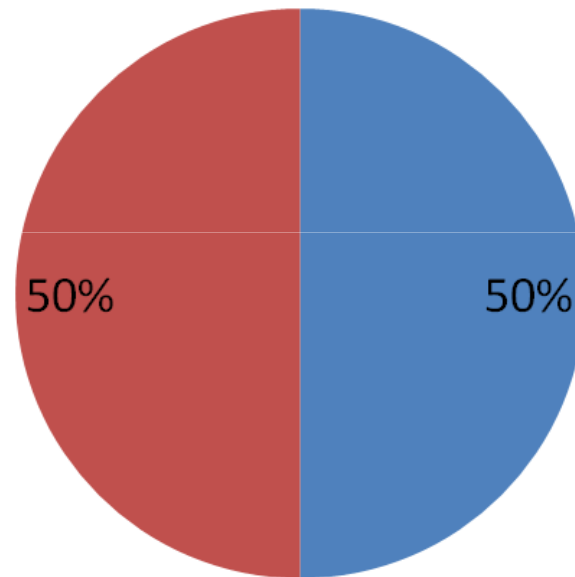
*The Obama Administration's trillion-dollar health insurance reform bill and \$787 billion stimulus package promise to provide funding for initiatives that claim to reduce the delivery costs of health care.*

Like urgent care, telemedicine's value proposition is increased affordability and accessibility to basic medical care.

**75-percent of primary care encounters could be treated by telemedicine.**



**50-percent of emergency room encounters could be treated by telemedicine.**



*Source: SwiftMD, 2010.*

# Patients and providers are already using the Internet for health care information.

Over 160 million Americans used the Internet to obtain medical information in 2009 including sites like:



## WebMD.com

- Consumer information on specific medical conditions, articles/features, wellness tips, community/support groups
- “Symptom checker” identifies possible conditions
- Provider information includes clinical reference, CME, drug interactions, medical record and portal services.
- Over 20 million visitors per month



## HealthCareBlueBook.com

- Comparative pricing of medical procedures by Zip code
- Useful to self-pay patients for negotiating prices
- Data based on insurance claims history



## DestinationRX.com

- Background information on prescription drugs including interactions, images, and generic equivalents
- Compares prices at retail pharmacies
- Compares Medicare prescription drug plans



## HealthGrades.com

- Search for providers by specialty and geographic area
- Free ratings of doctors and hospitals, including reviews from other patients
- Complete background check available for \$13

## Telemedicine expands the Internet to the delivery of medical services.

The emerging technologies of telemedicine enable patients to use the Internet to obtain medical care, typically at locations and times convenient to them. Applications already in use include:



Patients sit at a telemedicine diagnosis station in a health center located at a remote manufacturing plant, prison, oil rig, or other facility without ready physician access. During a “face to face” video encounter, diagnostic equipment connected to the system takes the patient’s vitals and supports the provider in the physical evaluation.



Chronically ill patients monitor selected vitals and communicate the results to their providers.



Remote physicians monitor hospital patients while specialists and hospitalists consult with other providers on diagnoses and/or treatment plans.



Many physicians are already engaged in telemedicine on a limited scale.

- Nearly 40% of physicians are working with patients online (Manhattan Research, 2009)—up from 15% from 2004.
  - Among physicians not currently communicating with patients using an online secure messaging service, 24 percent intend to start in the next 12 months.
  - The most common activities for communicating with patients online are:
    - Answering clinical questions
    - Discussing symptoms and treatment options
    - Determining whether an office visit is necessary
- The global telemedicine market is set to reach \$18 billion by 2015 and \$27 billion by 2016, according to 1-800MD.



*Examples of devices used in the remote monitoring and diagnosis of patients .*



## Prison: The Birthplace of Telemedicine

Telemedicine got its start in the mid- to late-1990s as a way for state prison systems to link inmates in remote facilities to specialists at academic medical centers—reducing both transportation costs and risk of escape.

Today, the federal government and 25 states utilize telemedicine services in their prison systems.

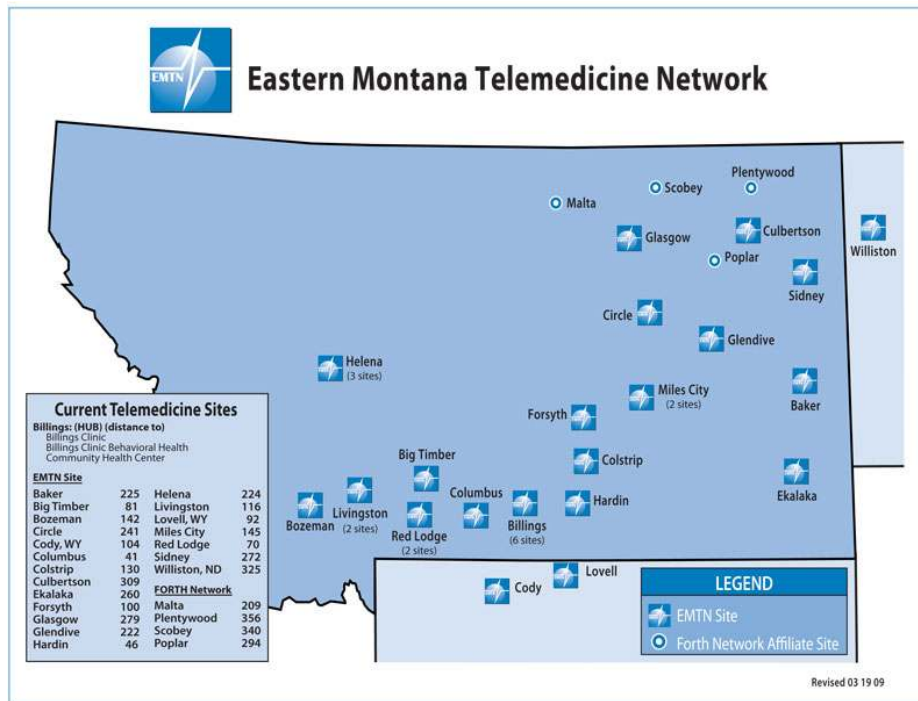
Telemedicine is conducive to the prison environment due to:

- Captive population with ongoing health care needs
- Rural locations without ready access to regular medical services
- Single payer with simplified reimbursement
- Shortage of qualified specialists

***The same factors that make telemedicine conducive to prisons also apply to remote work locations including manufacturing plants, power plants, farms and processing plants, and off-shore oil rigs.***



## Delivery of Rural Care: Eastern Montana Telemedicine Network



The Eastern Montana Telemedicine Network began in 1993 as a cooperative effort between Billings Clinic and five rural healthcare facilities in eastern Montana to research the potential of interactive videoconferencing in improving access to medical specialty and mental health services.

Today EMTN is funded by two federal grants and has 26 partners in 19 communities throughout eastern and central Montana and northern Wyoming:

- 15,728 clinical teleconferences to date
- 1,200 patient encounters annually
- 65% of consultations are in mental health
- Remainder span specialties: ENT, cardiology, diabetes, emergency medicine and radiology
- 96% of patients would have been referred to providers outside their community
- Over \$600,000 in patient out-of-pocket costs saved

## Academic Research in Telemedicine

To some extent, almost every U.S. medical school has incorporated telemedicine, or extended care monitoring, into its curricula. Some have established full programs in this emerging area:



**Introduction**


**Oklahoma State University**

- The first U.S. school to mandate telemedicine training for all its graduates
- Linked to 24 remote locations across Oklahoma – the state's largest telemedicine network

**UNIVERSITY of CALIFORNIA**


**University of California**

- Already-established program at its medical school in Davis
- Building a telemedicine research center at its medical school in San Diego
- Telemedicine is the centerpiece of a new, enhanced medical curriculum



**University of Virginia**

- Established program within its medical school with over 18,000 patient encounters
- Applies telemedicine technology to serve patients within its teaching hospital



**TEXAS TECH UNIVERSITY  
HEALTH SCIENCES CENTER**

**Texas Tech University**

- Started in 2007, the Advanced Telemedicine Project serves 30 communities in a territory of 108 counties—22 of which have no physician and 12 of which have no physician, nurse practitioner, or physician's assistant.
- System connects rural patients to specialists they would otherwise travel hours to see.
- Installations to serve Medicaid populations—costing \$60,000 and typically located in school nurses offices—are funded by grants from Texas Health & Human Services Commission.

## Recent Research Findings

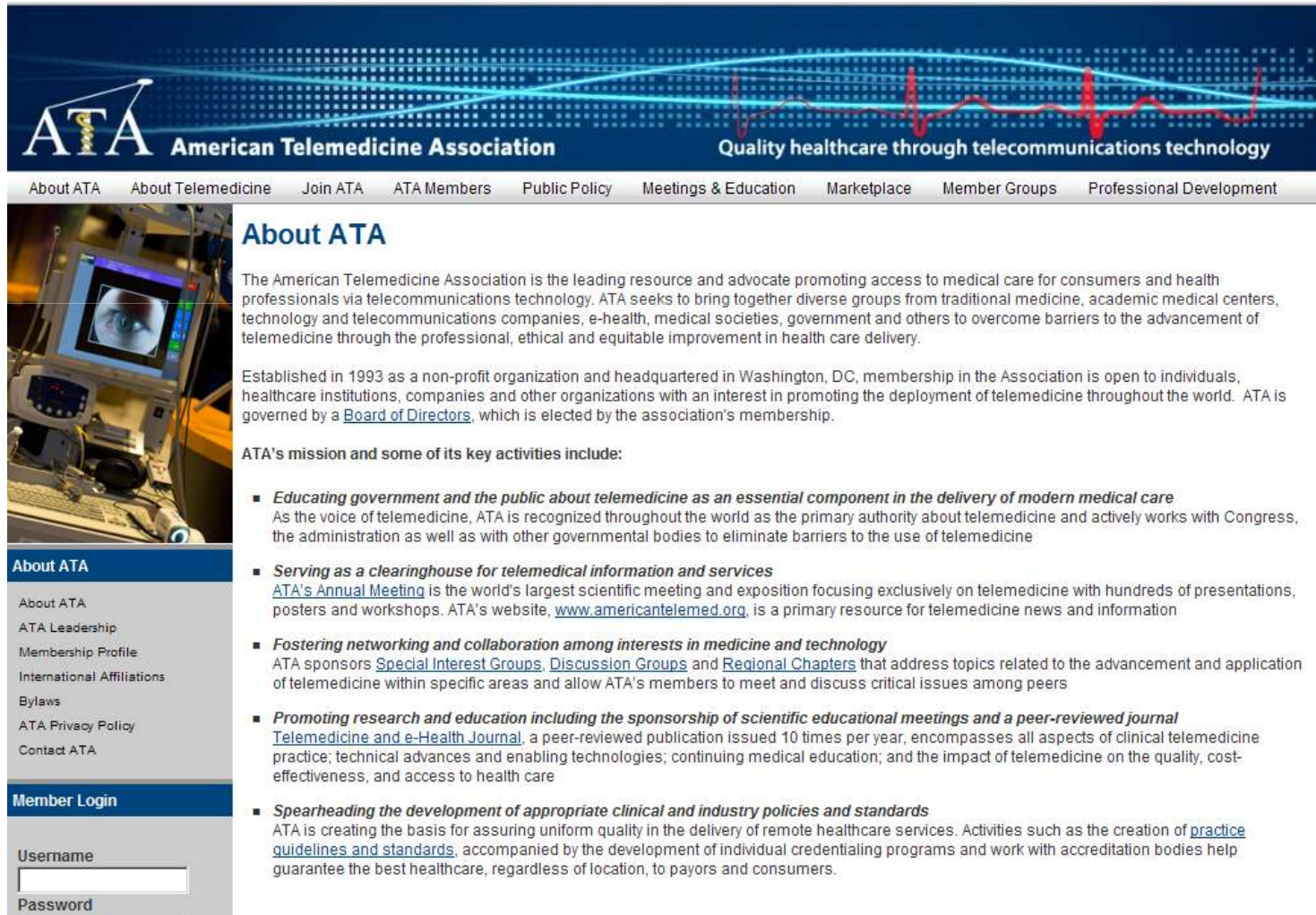
- 2008 study by Dr. Prathibtha Varkey of the Mayo Clinic's Division of Preventive, Occupational, and Aerospace Medicine
  - Tracked 100 telemedicine patients at a 700-employee worksite clinic over a 4-month period
    - Most common conditions seen via telemedicine
      - Sinusitis
      - Upper respiratory tract infections
      - Otitis media
      - Hypertension
      - Back pain
    - Physicians, nurses, and patients were capable of using the technology with minimal training
    - Physician perceptions
      - Most of the time (67%), it felt similar to a face-to-face visit
      - Most of the time (55%) telemedicine peripheral devices were helpful in the diagnosis
        - e.g. otoscopes, microscopes, and stethoscopes
    - Patient perceptions
      - Felt telemedicine encounters improved their relationship with the provider
      - Appreciated being able to watch and participate in their ENT examination
- 2009 comparison study (referenced in April 2010 SmartMoney magazine article)
  - Patient had online appointment with Doctor A and office visit with Doctor B
    - Diagnoses agreed 84% of the time
  - Patient had office visit with Doctor C and office visit with Doctor D
    - Diagnoses agreed 80% of the time
  - Results
    - No significant difference between the outcomes of an online appointment and an office visit

## Research Findings, cont'd.

- 2009 study (published Q1 2010) on stroke diagnosis by the Mayo Clinic and University of California San Diego
  - Compared telemedicine consultation diagnosis vs. telephone-only consultation diagnosis
  - Specialists at two stroke centers were connected via telemedicine to six rural hospitals
    - Video feed near patients' beds
    - 276 patients with stroke symptoms randomly selected for telemedicine consultation
  - Results
    - Telemedicine is a viable evaluation tool for acute stroke
      - Correct diagnosis made 96% of the time
      - Telephone-only diagnosis was correct only 83% of the time
- The Veteran's Administration telehealth program cares for 35,000 veterans and is the largest in the world. A 2009 study looked at the health outcomes of 17,025 telehealth patients and found a 25 percent reduction in the number of days in the hospital and a 19 percent reduction in hospitalizations.

# American Telemedicine Association

Standards and guidelines for telemedicine have been established by the American Telemedicine Association (ATA)—among other entities including the AMA and various specialty groups. Established in 1993, the ATA engages in public policy, develops provider education through conferences and a peer-reviewed journal, and provides a marketplace for telemedicine services.



**ATA American Telemedicine Association** Quality healthcare through telecommunications technology

About ATA About Telemedicine Join ATA ATA Members Public Policy Meetings & Education Marketplace Member Groups Professional Development

## About ATA

The American Telemedicine Association is the leading resource and advocate promoting access to medical care for consumers and health professionals via telecommunications technology. ATA seeks to bring together diverse groups from traditional medicine, academic medical centers, technology and telecommunications companies, e-health, medical societies, government and others to overcome barriers to the advancement of telemedicine through the professional, ethical and equitable improvement in health care delivery.

Established in 1993 as a non-profit organization and headquartered in Washington, DC, membership in the Association is open to individuals, healthcare institutions, companies and other organizations with an interest in promoting the deployment of telemedicine throughout the world. ATA is governed by a [Board of Directors](#), which is elected by the association's membership.

ATA's mission and some of its key activities include:

- **Educating government and the public about telemedicine as an essential component in the delivery of modern medical care**  
As the voice of telemedicine, ATA is recognized throughout the world as the primary authority about telemedicine and actively works with Congress, the administration as well as with other governmental bodies to eliminate barriers to the use of telemedicine
- **Serving as a clearinghouse for telemedical information and services**  
[ATA's Annual Meeting](#) is the world's largest scientific meeting and exposition focusing exclusively on telemedicine with hundreds of presentations, posters and workshops. ATA's website, [www.americantelemed.org](http://www.americantelemed.org), is a primary resource for telemedicine news and information
- **Fostering networking and collaboration among interests in medicine and technology**  
ATA sponsors [Special Interest Groups](#), [Discussion Groups](#) and [Regional Chapters](#) that address topics related to the advancement and application of telemedicine within specific areas and allow ATA's members to meet and discuss critical issues among peers
- **Promoting research and education including the sponsorship of scientific educational meetings and a peer-reviewed journal**  
[Telemedicine and e-Health Journal](#), a peer-reviewed publication issued 10 times per year, encompasses all aspects of clinical telemedicine practice; technical advances and enabling technologies; continuing medical education; and the impact of telemedicine on the quality, cost-effectiveness, and access to health care
- **Spearheading the development of appropriate clinical and industry policies and standards**  
ATA is creating the basis for assuring uniform quality in the delivery of remote healthcare services. Activities such as the creation of [practice guidelines and standards](#), accompanied by the development of individual credentialing programs and work with accreditation bodies help guarantee the best healthcare, regardless of location, to payors and consumers.

**About ATA**

- About ATA
- ATA Leadership
- Membership Profile
- International Affiliations
- Bylaws
- ATA Privacy Policy
- Contact ATA

**Member Login**

Username

Password

## Telemedicine might be one solution to solving America's health care woes...

Problems	Solutions
Doctors are hard to see.	Non-traditional medical practices are capturing the interest of physician entrepreneurs.
Patients have difficulty contacting doctors by email or telephone.	Reimburse doctors for virtual consultations.
There are too few doctors in rural areas.	Empower rural residents to direct health care dollars to most affordable, accessible care.
Patients overuse hospital emergency rooms.	Access to basic medical consultations averts the need for emergency care.
Patients have difficulty getting information during office visits.	Patients no longer rely on physicians as their sole source of medical information.
Care is fragmented and providers treat patients with too little information.	Electronic medical records improve documentation accuracy and facilitate coordination among providers.
America's 125-million chronically ill are not well-served.	Remote monitoring to assure compliance with medical protocols.



...but the obstacles to adoption have been great.

**The obstacles to achieving the full potential of telemedicine include the way in which Americans pay for health care, the medical culture in which physicians practice, and government regulation of medical practices. For instance:**

- Because patients pay directly for only 13 cents of each dollar spent on health care, providers have little incentive to create innovative patient-pleasing services unless third parties (private insurers, employers and government) pay for them.
- The medical culture generally, and medical societies in particular, have tended to oppose expanding patient services beyond traditional face-to-face office consultations and treatment in traditional settings (clinics and hospitals).
- State laws and regulations that prevent physicians licensed in one state from practicing in other states also keep doctors from providing medical care across state lines — such as writing a prescription or providing follow-up consultations remotely to patients who have returned home to another state.

*This is in addition to structural variables, such as the cost of equipment and availability telemedicine providers.*

## Payer Recognition of Telemedicine

- More insurers are covering telemedicine sessions:
  - Aetna and Cigna each cover virtual visits
    - Both use RelayHealth—a McKesson product (*see next slide*)
  - UnitedHealthcare is launching its own telemedicine platform in late 2010 (*see slide 19*)
  - Boston-based American Well allows consumers to connect directly to a physician whenever they have a need—services are offered through payers like BCBS of Minnesota, Hawaii, and TriCare (TriWest Alliance).
    - BlueCross Blue Shield of Hawaii has \$10 copay for basic online visits
      - Reaches consumers on remote islands
      - Non-acute conditions like ear infections, sinus pressure



An independent licensee of the Blue Cross and Blue Shield Association

# Relay Health Example (Aetna and Cigna)

**Christina King**

Home | Your Doctors | Message Center | Health Records | Account

**Hello Christina**  
Welcome to your home page. Use the options on the left to begin a message to your doctor. You will be notified at your email address listed below when your doctor's reply is ready. Use this service only for non-urgent communications.

**Visit Your Doctor Online**  
A webVisit® asks you questions that help you relay what your doctor needs to know. It may save you a trip to the office.  
[Start a webVisit](#)

**Message the Office**

- [Make/Cancel Appointment](#)
- [Request a Lab/Test Result](#)
- [Request Medication Refills](#)
- [Request a Referral](#)
- [Note to the Doctor's Office](#)

**New Messages** You can view all messages in your [Message Center](#)

<input checked="" type="checkbox"/>	<a href="#">RE: Schedule Appointment</a>	Kathryn Jones, MD	Aug 10, 2004
<input checked="" type="checkbox"/>	<a href="#">Medication Renewal</a>	Kathryn Jones, MD	Aug 10, 2004

**Reminders**

- [Add a Doctor](#) to your list of doctors
- [Add a family member](#) to your account to send messages on their behalf

**Health Records**

			Last Updated
	<a href="#">Christina King</a>	cking@nomail.com	Sep 08, 2004
	<a href="#">Scott King</a>	cking@nomail.com	Aug 10, 2004

Main screen, where the patient:

- Manages appointments
- Requests lab results
- Requests refills
- Requests referrals
- Communicates with the physician



**RelayHealth**

Home | Patients | Providers | Hospitals | Pharmacies | Health Plans | Employers

**RelayHealth In The News**  
Electronic Visits with Doctors on the Rise  
ABC affiliate KGO-TV San Francisco, CA  
Online Health Calls  
NBC Today Show  
The Doctor Will Tell You More  
The Wall Street Journal  
More

**Register As a New User**  
**Find Your Doctor**  
**Sign In**  
User ID:   
Password:   
  
Remember my User ID:   
Forgot your User ID or Password?

**Patients**  
RelayHealth is a secure, private way to communicate with your doctor online. Take care of non-urgent healthcare matters—quickly and easily. You can even save money by doing an online consultation. [Learn how...](#)

**Providers**  
Free up phone lines, increase patient satisfaction. [More...](#)

**Health Plans**  
Increase member satisfaction, boost sales. [More...](#)

**Employers**  
Enhance your consumer strategy, reduce costs. [More...](#)

**Hospitals**  
Manage health information exchange and revenue cycles. [More...](#)

**Pharmacies**  
Eliminate from inefficient labor services. [More...](#)

**News**  
5/4/2010 - Jerni: Health Connect Awarded Stimulus Grant to Expand State and National Health Information Exchange Connectivity Efforts  
4/22/2010 - RelayHealth Leading the Way in 5010 Preparations  
4/12/2010 - Catholic Health Initiatives Chooses RelayHealth to Enhance Revenue Cycle Services  
[More...](#)

Home Page, where the patient signs in

**Christina King**

Home | Your Doctors | **Message Center** | Health Records | Account

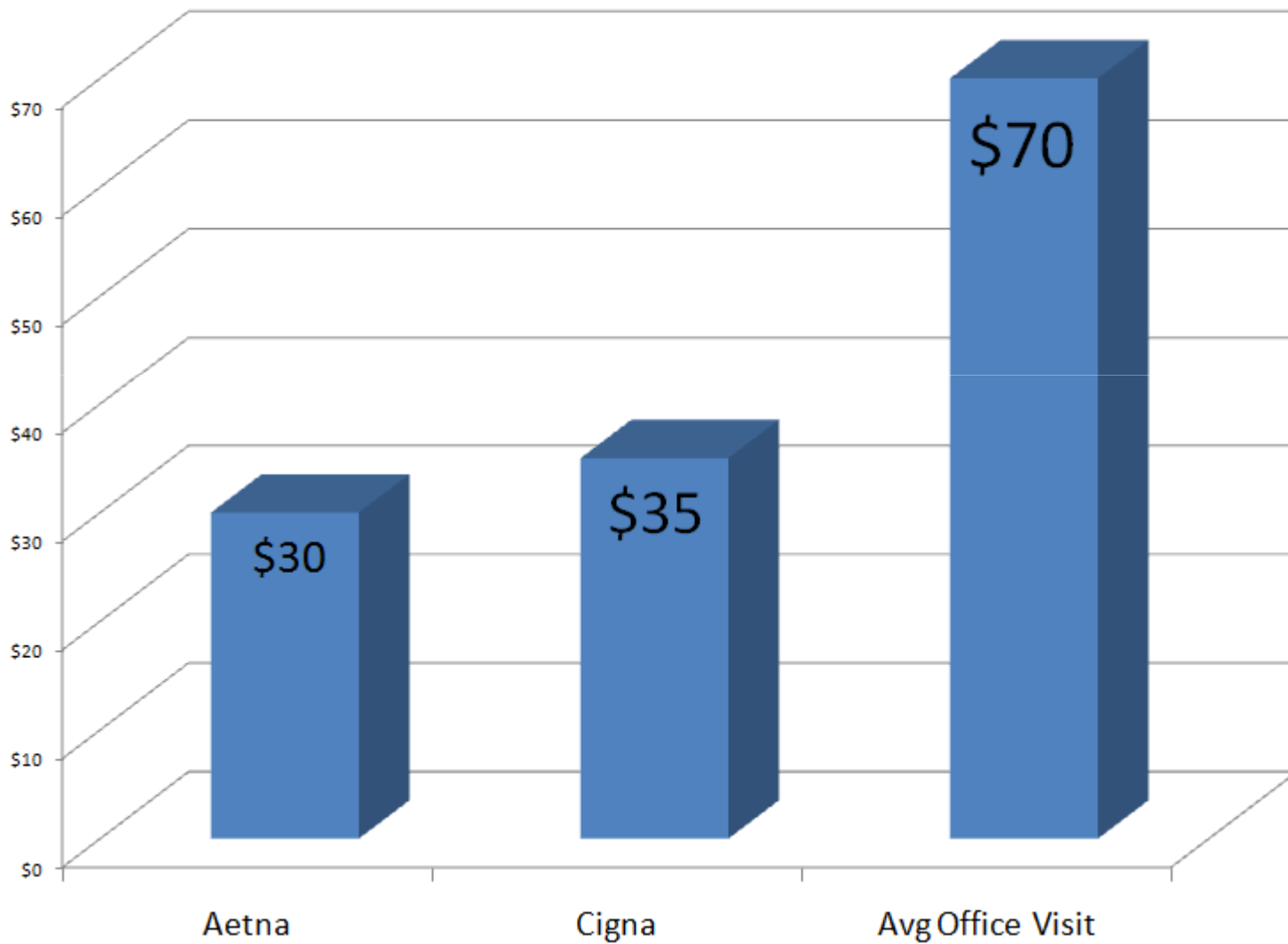
**Kathryn Jones MD**  
General Practice

**What would you like to consult me about? webVisit®**  
Use a webVisit to consult with me about a **non-urgent** medical issue. The webVisit will ask you questions about your specific health concern. It saves us both time by helping ensure I have the necessary information to provide you the best care possible.

Select the option below that best reflects your need and click **Next**.

- Current health problem**  
Consult me about a new or existing health condition for which you'd like medical advice.
- Chronic health condition**  
Consult me about a previously diagnosed chronic condition (for example: asthma; diabetes; heart disease; high blood pressure; obesity).
- Medication**  
Consult me about medication you have you have been taking or have interest in. (To simply refill a medication click **Home** and

For Aetna and Cigna, average reimbursement for a tele-medicine consultation is less than half that of a primary care office visit for the same condition.



## UnitedHealthcare/Cisco Systems Partnership

- UnitedHealthcare (UHC) and Cisco Systems have a joint venture called “Health Presence”—a retrofit of Cisco’s video-conferencing system for live doctor/patient interaction.
- Pilot will resolve the clinical and business issues that have hindered telemedicine development.
- Goal is to reduce costs of serving UHC’s 70-million members.
- Involvement with UHC overcomes the hurdle that insurers have traditionally only reimbursed in-person physician encounters.
- Initial focus will be on remote and underserved areas—first deployment is ProjectHope 18-wheel trucks serving remote areas of New Mexico.
- Cisco tested the system offering on-site primary care to 4,000 employees—93% of which would recommend the system.
- “Search” functionality could allow walk-in urgent care centers to route patients to specialists with immediate availability anywhere in the country.



# Telemedicine Entrepreneurs

In addition to Relay Health, other companies have entered the field, including: TelaDoc, the first to take telemedicine to the mass market; Philips VISICU, which expanded the technology to augment hospital staff; MyHealthyAccess, the first to incorporate the technology in to the retail host model, and Zipnosis, a new startup utilizing mid-level providers.

## TelaDoc



- Founded in 2002 in Dallas
- Provides telephone medical consultations
- Fee schedule
  - \$18 to join
  - \$4.25 monthly membership fee
  - \$35 for each call to a physician
- Key statistics
  - 1.6 million members
  - 97% overall satisfaction with TelaDoc
  - Physicians' response time 23 minutes



## Philips VISICU

- Technology developed in late 1990s
  - In use since early 2000s
- Enables virtual monitoring of a hospital's ICU
  - Within a facility or remotely
  - A solution to the growing shortage of doctors and nurses
- Key statistics
  - 250 hospitals
  - 40 health systems

## Zipnosis



- Launched 5/1/2010
- Active in Minnesota only
  - Goal: Expand to 15 states by 9/2011
- Provides online medical diagnoses by nurses
  - Patients fill out online forms
  - \$25 fee
  - Receive diagnosis with any scripts
- CEO is Rick Krieger
  - Co-Founder of Minute Clinic
  - Raised \$600K of "angel funding"

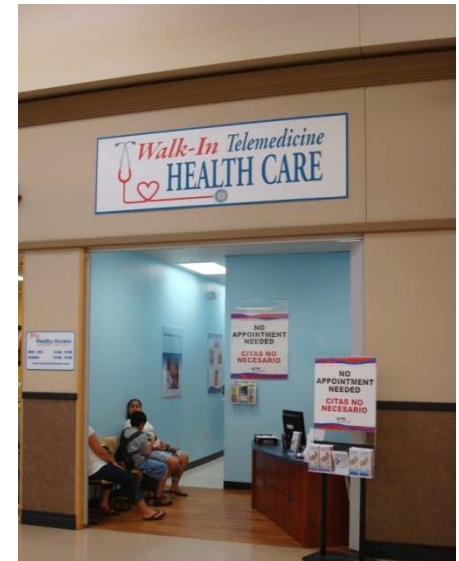
## NightHawk Radiology



- Founded in 2001 and based in Scottsdale, Arizona
- Radiologic images are delivered nightly or on-demand to NightHawk's board-certified radiologists.
- NightHawk supports providers with preliminary and final reads—STAT or overnight—as well as consulting services.
- NightHawk serves 26% of all US hospitals.
- Value is aggregation of demand and greater efficiency of radiologists—supports hospitals that have limited capacity in radiology.

## MyHealthyAccess: An Experiment in Retail Telemedicine

MyHealthyAccess opened five clinics in Houston-area Wal-Mart stores in 2008 as a joint venture with NuPhysicia—a spin-off of the University of Texas Medical Branch at Galveston, which provided the medical services. The “no frills” clinics were staffed by Emergency Medical Technicians (EMT-Ps) who facilitated online video sessions with medical doctors. Visits started at \$35—cash only—for a basic physician consultation. In March, 2010 the company’s CEO resigned as the stock price had reached \$.01 to .02/share and 12-month net losses exceeded \$7 million.



*Walk-In Telemedicine*  
**HEALTH CARE**

**OUR DOCTOR SERVICES**

**NUESTROS SERVICIOS MEDICOS**

Allergies	Scrapes	Bronquitis	Alergias
Colds	Impetigo	Salpullido	Gripe
Coughs	Rashes	Impetigo	Tos
Flu	Bronchitis	Dolor de Oído	Influenza
Headache	Poison ivy	Dolor de Cabeza	Sin
Earache	Insect bites	Infección del Ojo	Ho
Minor burns	Foot Fungus	Heridas Menores	He
Sore throat	Cold sores	Dolor de garganta	Pic
Ringworm	Eye Infections	Problemas de Epide	
Sinus Infection	Urinary tract infections	Infeccion de Sistema	

VACCINATIONS, PREVENTIVE INJECTIONS AND DIAGNOSTIC T  
VAGUNACION, INYECCIONES PREVENTIVAS, Y ANALISIS DE LABOR



## SwiftMD: Reducing Self-Insured Employer Health Costs

- SwiftMD is available 24/7 to diagnose and treat patients via telephone, Internet, or bi-directional video.
- Provides “live” contact with a Board-Certified Emergency Medicine physician within 30 minutes, followed by specialist referrals—actual doctor response time averages 12 minutes.
- Secure Electronic Health Record is available to patients and downstream providers over the Internet.
- Monthly membership fee and charge for each consultation—target is large payers and self-insured employee populations.
- Members of International Union of Operating Engineers locals in New York City—representing 9,000 members—receive unlimited family access for a flat \$120/year.
- Average savings is \$300 per employee per year.

The screenshot shows the SwiftMD website homepage. At the top, there is a navigation bar with links for Home, How It Works, Our Doctors, Group Plans, Individual & Family Plans, and a For Members button. Below the navigation is a large banner image of a woman talking on a phone while holding a stethoscope, with the text "High quality healthcare — no need to wait". To the right of the banner is a "Benefits of SwiftMD" section with a list of benefits: Superior ROI, Increase productivity, Strengthen self-administered plans, Enhance Progressive Benefits Tools, Access Care from Anywhere, Improve Wellness Programs, Provide Superior Care, and Employees Love It. Below the banner are four service icons: 24/7 ACCESS, TELEHEALTH, GREAT DOCTORS, and PRESCRIPTIONS. At the bottom, there is a "Special Offers" button and a testimonial snippet.

The screenshot shows the International Union of Operating Engineers (IUOE) website. The header includes the IUOE logo and navigation links for Home, Contact, Search, Register, and Members log-in. Below the header is a main navigation bar with links for About IUOE, Our Locals, Why Hire IUOE, Why Join IUOE, Great Jobs, Training, and IUOE Magazine. The main content area features a "Click the map to find a local near you" section with a map of the United States. Below the map is a "Become an IUOE member" section with the "UNION YES" logo and a "JOIN TODAY" button. The central text describes the IUOE as a progressive, diversified trade union representing operating engineers, heavy equipment operators, mechanics, and surveyors in the construction industry, as well as nurses and other health industry workers in the service industries.



## Healthy Minds and Bodies Begin at **Home.**



DURING THE FIRST SEVERAL DECADES OF THE 20TH CENTURY, EXTRAORDINARY IMPROVEMENTS IN MEDICAL CARE AND PHYSICIAN EDUCATION TOOK PLACE IN HOSPITALS ACROSS THE COUNTRY.

Today, the latest health information and educational advances are accessible at home through innovative technology, such as **Digital Cable**, **Road Runner® High Speed Online** and **Digital Home Phone!**

Time Warner Cable is a proud sponsor of the **125th Anniversary of *The Dallas Morning News***.

 **TIME WARNER CABLE**  
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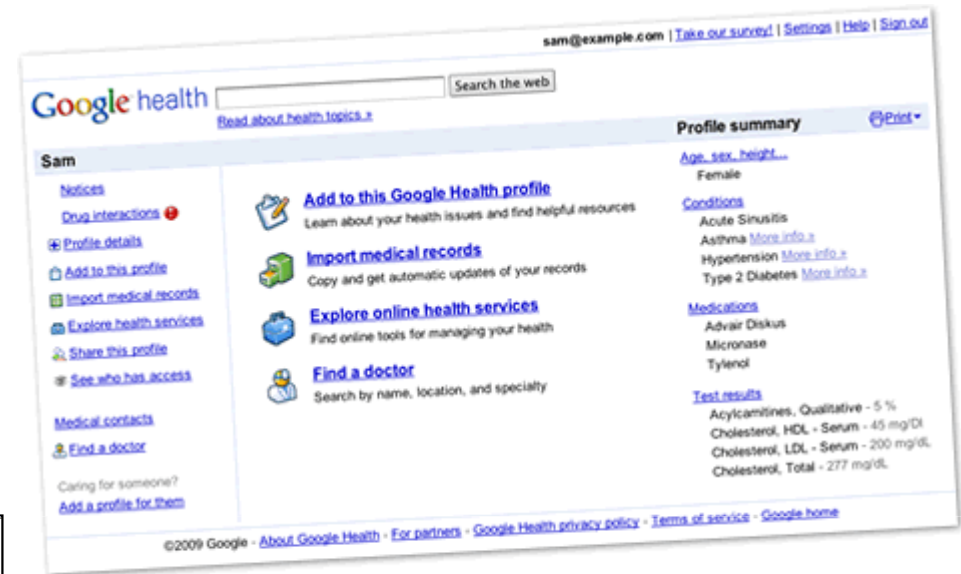
*Technology companies see health care as a multi-billion-dollar market that will be growing rapidly in coming years—they're looking for "problems" to apply their "solutions."*

- Intel and General Electric are co-developing a home monitoring system for chronic care patients—with Mayo Clinic studying outcomes in a year-long study.
- Google and IBM are jointly developing home devices that will transmit data from blood pressure cuffs and glucose meters over the Internet.
- Like Cisco Systems, Polycom is adapting its high-end video conferencing system for medical use.

## Patient Portals and the “Portable” Electronic Medical Record

### Consumer health portals:

- Gather health records from hospitals, doctors and pharmacies
- Organize health information in one place
- Share information securely with family, doctors or caregivers
- MinuteClinic integration with both GoogleHealth and Microsoft HealthVault



### Private portal capabilities:

- Schedule appointments
- Communicate with providers
- Retrieve and print medical records
  - Injury reports
  - Physical and drug test results
- Review and pay bills

*Provider adoption will depend on how important it becomes to patients to aggregate and manage their medical information online, as well as how much patients trust the security of such systems. “Winning” technologies will be determined by which achieves the greatest traction with consumers. Thus far, consumer adoption has been slow.*

## Case Study: Banking Industry



- In the 1990s, Citibank, Bank of Boston, and US Bank, among others, explored efforts to reduce staffing costs at bank branches.
- “Virtual” branches featured a touch-screen interface with telephone, scanner, and closed circuit video to interact “face to face” with a banker to apply for loans, open new accounts, and resolve customer service issues.

- As Internet connectivity exploded, the need for kiosks disappeared.
- All major banks built Web sites where their customers can transact business on their own computers—from anywhere.
- Banks coincidentally expanded their physical branch networks to facilitate real “face to face” transactions.

### The Key Takeaways

- Diffusion of innovation requires a fundamental change in consumer behavior
  - Technology can change, leaving early adopters at a disadvantage
- Customers were accepting of a virtual banker on routine transactions
  - Face-to-face still mattered for resolution of customer service issues
- Will patients accept a virtual physician?
  - How much do patients value in-person, face-to-face appointments?



## Telemedicine Equipment Cost



When first introduced, integrated telemedicine units topped \$50,000, such as this “T-Cart” used by MyHealthyAccess – produced by NuPhyscia



As technology prices have dropped, today units can be purchased for \$5,000-\$10,000, depending on the range of equipment.



The physician units are cheaper than the patient units because they’re merely a standard PC with a high-resolution Web camera and monitor. Costs therefore depend upon the quality and can range from \$1,000-\$5,000.

*The cost of technology is a dominant factor in considering whether to be an early entrant into a particular market segment. MyHealthyAccess no doubt still has a large fixed debt from its technology purchases, but its pricing can be undercut by a new entrant who has purchased the newer, much cheaper technology. Cheaper technology will accelerate adoption of telemedicine.*

# AMD Telemedicine

AMD is the largest technology/equipment provider in the telemedicine field with over 5,700 installations in 79 countries.

The screenshot shows the AMD Global Telemedicine website. At the top, the AMD logo is displayed with the tagline "The Future of Medicine...Now!". A search bar is located in the top right corner. Below the logo is a navigation menu with the following items: ABOUT AMD TELEMEDICINE, AMD PRODUCTS, AMD PRODUCT SUPPORT, AMD STORE, IN THE NEWS, ABOUT TELEMEDICINE, REQUEST QUOTE, and CONTACT AMD. The main content area features a collage of medical devices on the left and a "Step 1: Medical Devices" section on the right. The "Step 1" section includes the text "Choose the right devices for your specific clinical needs." and a "Learn More" button. Below this are four small images showing medical professionals using telemedicine. At the bottom, there are three sections: "Welcome to AMD Global Telemedicine" with a paragraph about AMD's services, "AMD Customer Spotlight" featuring "Greenland's Telemedicine Program" with a "Download PDF" link, and a dark red box with the AMD logo, a "Click Here To Contact Us" link, and the toll-free number "866-511-1301". Below this is a yellow box with a speech bubble icon and the text "Need a Quote from AMD Global Telemedicine? It's as simple as completing our".

**AMD Global Telemedicine**  
The Future of Medicine...Now!

Search AMD Global Telemedicine

ABOUT AMD TELEMEDICINE | AMD PRODUCTS | AMD PRODUCT SUPPORT | AMD STORE | IN THE NEWS | ABOUT TELEMEDICINE | REQUEST QUOTE | CONTACT AMD

## Step 1: Medical Devices

Choose the right devices for your specific clinical needs.

[Learn More](#)

### Welcome to AMD Global Telemedicine

AMD Global Telemedicine is the world's leading supplier of medical technology for telemedicine with over 5,700 installations in 79 countries. This includes medical devices, complete Telemedicine Encounter Management solutions and application software for both live and store and forward telemedicine.

AMD has achieved this leadership through quality products, effective services and a respected commitment to our customer. AMD's staff is responsive, professional, and ready to assist with your telemedicine program. AMD offers the expertise and experience of supporting hundreds of telemedicine programs of all sizes and

### AMD Customer Spotlight

#### AMD Customer Spotlight

**Greenland's Telemedicine Program**

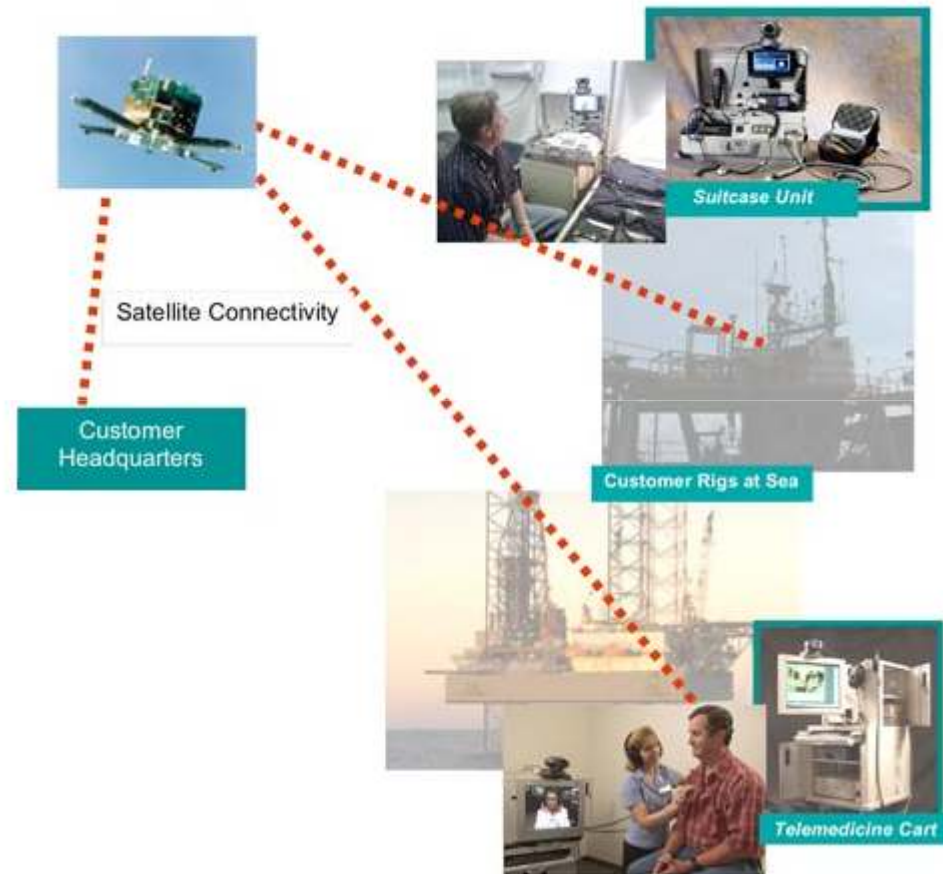
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## Occupational Medicine Opportunities in Telemedicine

- Delivery of Care to Remote Populations—such as rural and off-shore facilities
- Employee Wellness and Health Improvement Programs—including monitoring and coaching
- Integration of Specialty Medicine into Injury Care Locations



## Telemedicine Staffing Cost: Worksite Health Center

To illustrate the cost differential of Telemedicine, we will provide two examples of a worksite health center provider, using numbers derived from the MyHealthyAccess retail host model:

### Example A Standard Worksite Model

5 worksite health centers, staffed by:

- Physician
- Nurse practitioner

Open 40 hours per week,  
52 weeks per year

### Example B Worksite Telemedicine Model

5 worksite health centers, staffed by:

- Paramedic (physically at the worksite)
- Physician (virtual)
  - Oversees two clinics at once
  - Costs out at ½ of a physician

Open 40 hours per week, 52 weeks per year

	Cost of Physicians	Cost of Nurse Practitioners	Cost of Paramedics	TOTAL
Example A	\$1,040,000 <i>(2,080 hours @ \$100/hour x 5)</i>	\$468,000 <i>(2,080 hours @ \$45/hour x 5)</i>	\$0	\$1,508,000
Example B	\$520,000 <i>(2,080 hours @ \$100/hour x 2.5)</i>	\$0	\$260,000 <i>(2,080 hours @ \$25/hour x 5)</i>	\$ 780,000
			<b>SAVINGS</b>	\$ 728,000

*The cost savings more than cover the cost of the equipment. Further, the Worksite Telemedicine Model can enable the provider to be more competitive by expanding hours of coverage. Holding everything else equal, if you increased the hours in Example B to 60 hours per week, the total cost would increase to \$1,170,000, which would still represent an annual savings in personnel cost of \$338,000—still enough to cover the cost of the equipment.*

## Implications and Next Steps for Urgent Care

- Urgent care operators do not have to provide a full suite of telemedicine services in order to integrate the technology to extend services and improve operational efficiency—they can choose the capabilities that best suit the business model.
- Key is to understand the diffusion cycle of new technologies:
  - How important are the technologies to patients and payers?
  - “Too early” adoption results in high costs with little to no value added
  - “Late adoption” puts the center at a competitive disadvantage, makes it obsolete
  - How has the value proposition been proven/demonstrated by early adopters
- Evaluate opportunities to leverage telemedicine to:
  - Better connect with patients and payers:
    - Identify the information “wants” and “needs” of patients and examine how those may be met electronically.
    - Identify areas where communication can be automated, reducing provider and staff time:
      - Drug testing and other laboratory results
      - Results of physicals and other testing
      - Prescription refills, re-checks, patient questions
  - Improve operational efficiency:
    - Reduced delays in consultations and referrals
    - X-ray over-read and STAT read processes:
      - Consider the costs of x-ray over-read, including courier expenses and time delay in reporting
      - Computerized radiography and PACS enables instant secure transmission of x-ray images
      - Consider the availability of semi-retired radiologists willing to work part-time from home



## Implications and Next Steps, cont'd.

- Expand services in rural or remote areas:
  - Low cost way to serve patients at distant locations like prisons, manufacturing plants, and offshore drilling rigs
  - Virtual doctors could allow for 24/7 access instead of limited on-site office hours
  - Augment nurses and mid-level providers with ready physician access
- Improve access to specialists:
  - Demand can be aggregated from among multiple urgent care locations
  - Reduce waiting time for an appointment with in-demand specialists like dermatology, immunology
  - Extend the scope of services offered at the urgent care center and create new revenue streams
- Increase efficiency of medical monitoring:
  - Primary care physicians can regularly track chronic patients' vital signs
    - Schedule on-line consultations to address irregularities and/or adverse trends
  - Physical therapists can monitor patients' workout routines
    - Provide immediate feedback on correct/incorrect methods
  - Occupational physicians can watch patients back at work and/or on light duty
    - Ensure patients are following return-to-work plans

## Questions/Discussion



## **For More Information:**

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## Appendix A: Advantages and Disadvantages of Telemedicine

	Advantages	Disadvantages
Patients	<ul style="list-style-type: none"> <li>•Improves access to in-demand specialists—brings medical services to under-served areas</li> <li>•Saves time travelling to/from doctors offices—especially valuable for rural areas</li> <li>•Shorter wait times—consultation within the hour vs. 20-40 day wait for a scheduled appointment</li> <li>•Patients are more open to asking questions—less formal setting reduces intimidation factor</li> </ul>	<ul style="list-style-type: none"> <li>•Many patients express a preference for “face to face” and are either intimidated by the technology or don’t take the encounter seriously</li> <li>•Patient privacy could be at risk—global Internet access provides a platform for organized crime and unethical providers to capture private health information</li> <li>•Patient safety could be at risk—global Internet access could legitimize unlicensed or unscrupulous providers—particularly those operating “offshore”</li> </ul>
Providers	<ul style="list-style-type: none"> <li>•Less overhead (rent, furnishings/fixtures/equipment, and utilities) of a freestanding medical facility</li> <li>•Helps solve the growing problem of physician scarcity—opens new job opportunities for semi-retired and medical residents</li> <li>•Physicians can schedule virtual office hours when it’s convenient for them—allows integration of part-time and moonlighting doctors</li> <li>•Business opportunity to expand a clinic’s scope of services from episodic care to primary and specialist care</li> </ul>	<ul style="list-style-type: none"> <li>•May increase the risk of incorrect diagnoses—virtual “eyes” cannot see everything</li> <li>•Easier for patients to feign or over-exaggerate symptoms to manipulate medical decision making</li> <li>•Technology glitches, downtime, and monitoring errors—no software is 100% “perfect”</li> <li>•Threat of increased regulation—laws that prevent online physicians from treating patients across state lines or that they don’t see in the office</li> </ul>
Payers	<ul style="list-style-type: none"> <li>•Lower cost: \$25-\$50 for a virtual visit vs. \$100-\$125 for in-office visit</li> <li>•Aggregates demand—multiple patients at different locations can be monitored virtually by a single physician</li> </ul>	<ul style="list-style-type: none"> <li>•Greater access at lower cost could lead to increased utilization, thereby increasing total costs.</li> <li>•Patients may prefer face-to-face interaction—the adoption curve for medical innovation is slow/long</li> </ul>