

Connected Healthcare: Anywhere, Anytime, Anyone



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HIMSS
CENTRAL & SOUTHERN OHIO Chapter

Cisco's Commitment to Healthcare Industry Involvement & Recognition

The Academy
advancing healthcare — outlining for progress

ATA
American Telemedicine Association

CISCO
President's Circle

HIMSS 13
HEALTH IT: RIGHT TIME, RIGHT PLACE, IT'S ON
ANNUAL CONFERENCE & EXHIBITION
March 3-7, 2013 Ernest N. Moros Convention Center, New Orleans

Home • Specialty Programs • Cisco's Community for Connected Health Summit

COMMUNITY FOR CONNECTED HEALTH Summit
Sponsored by **HIMSS** and **CISCO**
MARCH 4, 2013
ERNEST N. MOROS CONVENTION CENTER | NEW ORLEANS

Awards for Medical Equipment and Infrastructure
KLAS announced that Cisco won the 2012 Best in KLAS Awards for medical equipment and infrastructure.



Cisco's Community for Connected Health Summit
Cisco's 10th Annual Community for Connected Health Summit brings together the power of industry leaders and Cisco specialists into a single forum of networking, education and best practices sharing unlike any other. That's how a front row seats the new leaders in improving healthcare delivery. You'll be the first to hear about breakthrough vendors, startups, ideas — and what's on the horizon for tomorrow.

FROST & SULLIVAN

2013 Frost & Sullivan
Asia Pacific Real-Time Telemedicine Company of the Year

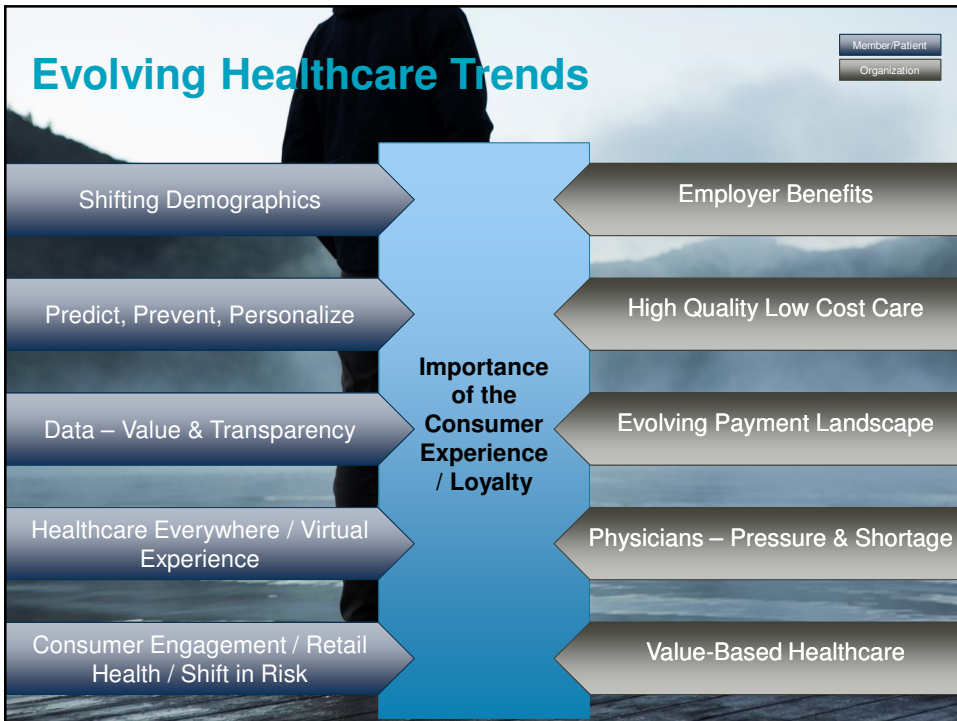
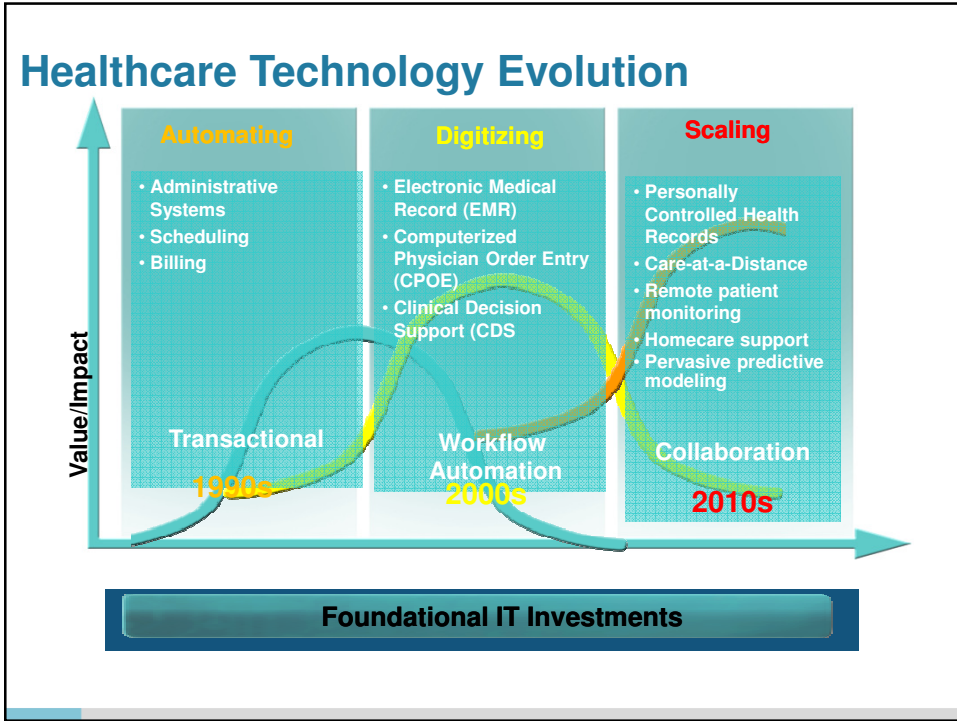
CISCO

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HEALTH ALLIANCE


AONE **CISCO**
The Voice of Nursing Leadership™

AONE Innovation in Technology Award
Honors an outstanding nurse leader who demonstrates innovation, creativity and entrepreneurship in the implementation and adoption of information or systems technology in their organization.

AHA Solutions
AHA Endorsement:
Wireless Networking Products




Industry Trends Accelerating Change

Patient Demand 

Affordable Care Act: Surge in Newly Insured (Oct 1)




The CBO estimates that 30 to 35 MM newly insured patients will have coverage by 2019 with nearly 1/2 of these patients utilizing govt programs such as Medicaid and CHIP. A significant demand for services is expected – finding available physicians, scheduling, wait times, etc.

Available Clinical Staff 

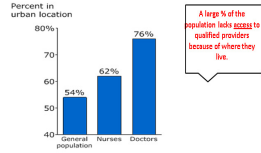
Anticipated U.S. Physician Shortage (FFY 2012-2025)

Year	Physician Supply (All Specialists)	Physician Demand (All Specialists)	Physician Shortage (All Specialists)	Physician Shortage (New Primary Care Beneficiaries)
2008	899,100	796,500	7,400	None
2010	976,700	723,400	13,700	4,200
2015	735,600	798,500	62,900	33,100
2020	759,800	851,300	91,500	45,100
2025	785,400	916,000	130,600	64,800

Nearly 1/3 of all physicians in the United States are expected to retire in the next decade further exacerbating the clinical supply.

Access To Care 


Geographical Barriers Impacting Patient Care

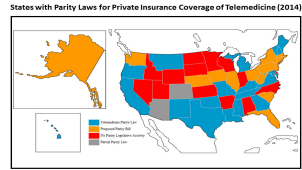


Today there are 5,748 Primary Care HPSA's (impacting 58MM patients) and 3,617 Mental Health HPSA's (impacting 69MM patients) in the U.S.

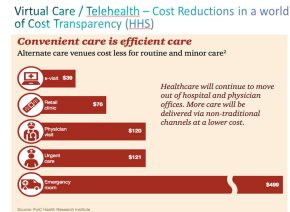
Consumer Satisfaction 



Evolving Reimbursement 



Cost of Care Delivery 



The Competitive Landscape is Changing

Disruption – Where will healthcare innovate?

Industry Disruptors

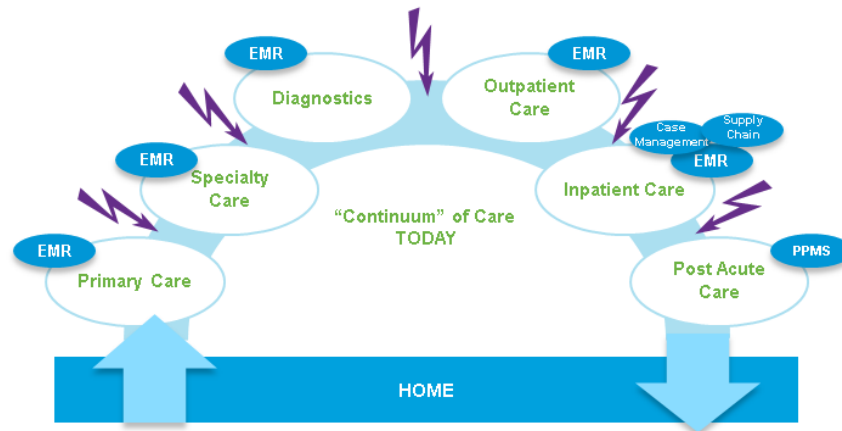


Possible Healthcare Disruptors



Where Are We In Healthcare Today?

Current State of the Industry



- Navigating from “silo” to “silo” is difficult
- Information is compartmentalized because “systems” are
- Continuity relies on patient compliance and doctor/office staff vigilance

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Consumers (Patients) are Mobile and Social

Healthcare Research Scope and Methodology



Healthcare

1,547

End-user respondents

403

Healthcare
Decision Makers

10

Countries

4 age groups...

18–29 Generation Y/Millennial

30–49 Generation X

50–66 Baby Boomers

67+ Silent Generation

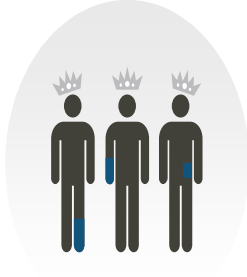


United States, Canada, United Kingdom, Germany, France, China, India, Japan, Russia, Brazil

Study completed and released in 2013

*Insight Express

Technology Impact on the Patient Experience



Today's consumers expect personalized service and more control



New technologies are allowing for an enhanced customer experience

We tested patient and healthcare decision makers' preferences across three innovation concepts...

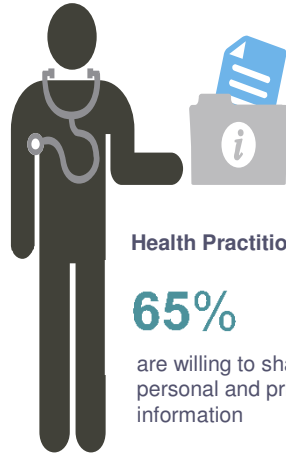
1
PRIVACY
vs.
ENHANCED PERSONAL
SERVICE

2
IN-PERSON VISITS
vs.
VIDEO/SOCIAL MEDIA

3
TRUST vs.
DISTRUST
IN MACHINES

It is All About Trust

Trust in Information Sharing



Sacrificing for Health Goal



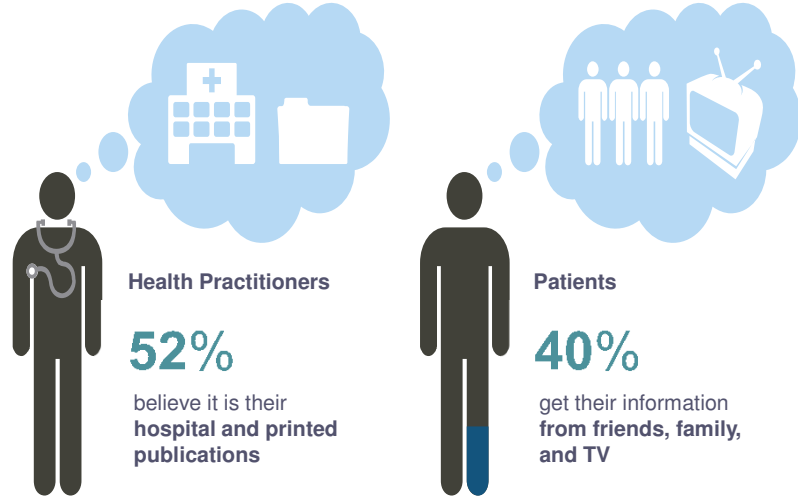
Patients

87%

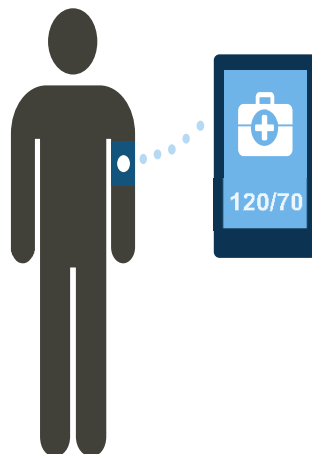
would give up anything to be treated at a perceived leading healthcare provider, and gain access to trusted care and expertise

Healthcare Information Sources

After their doctor, what is patient's secondary source of health care information?



Trust in Devices

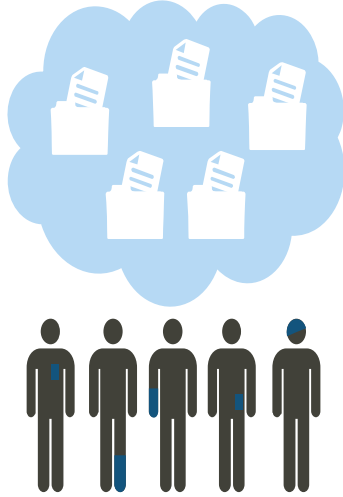


Patients

70%

would trust an automated device to provide a diagnosis and determine whether or not they needed to see a doctor

Trust in the Cloud



Patients

74%

are comfortable having their health records available on the cloud, assuming adequate security

...except in Germany and Japan

Trust in Mobile Health (mHealth)



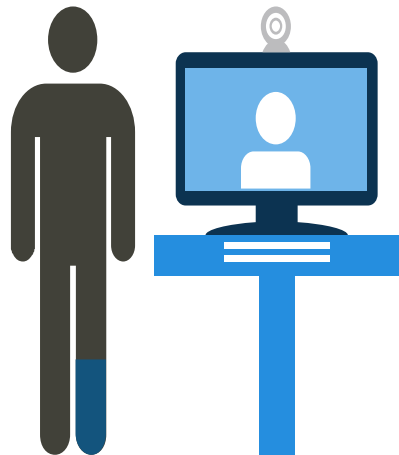
Patients

40%

Are showing interest in receiving health care information on computers and mobile devices

...it is the #1 topic of interest in Brazil, Mexico, and China

Trust in Virtual Care / TeleHealth

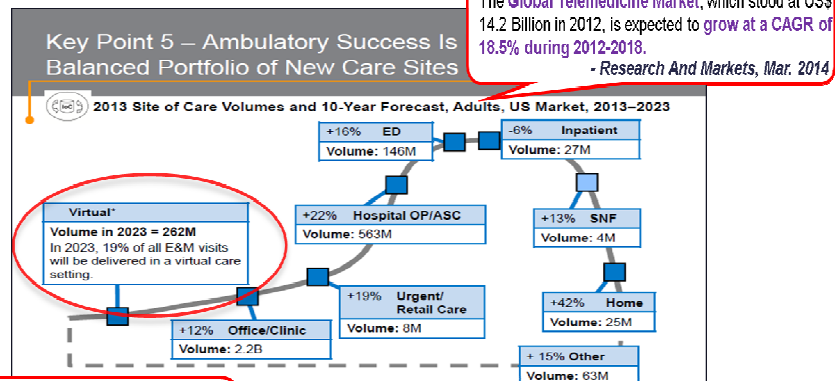


Patients

76%

find access to care more important than physical human contact with their care provider

Significant Shifts in Care Delivery Expected



The business of treating patients via telehealth in the U.S. will dramatically increase to nearly \$2 billion in revenue within five years due to a confluence of events in the health care industry from doctor shortages to provider payment changes under the Affordable Care Act. - Forbes, Dec. 2013

"Some 43 percent of U.S. hospitals have adopted telehealth platforms and are using the technology to treat patients... particular value to teaching hospitals that may consult on the treatment of patients with complex conditions or those located in areas with limited access to specialists." - Healthcare IT, 2/3/14

By 2030, Sg2 predicts that...

More than half of primary care will be delivered in retail clinics or virtually

Known as "If you don't like change, you're going to like irrelevance even less."
— General Eric Shinseki, Former US Army Chief of Staff,
Former Secretary of Veterans Affairs

Acute care hospital beds will have dropped by 30% compared with 2014 levels

The Biggest Change – Healthcare has become a business of "Outcomes" vs. patient visits or insurance.

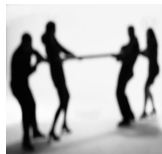
Outsource services to more than double as compared to 2014

Sg2 – The Health Enterprise of Tomorrow: Facing a Fork in the Road (2014)

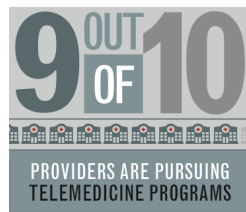
Factors Accelerating Virtual Care Adoption



Patient Readiness



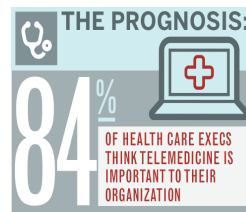
Access and Competition



Provider Readiness



Patient Demand



Healthcare Executive Readiness

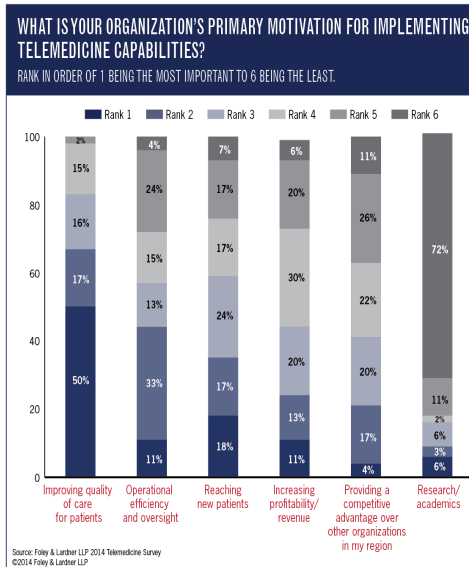


Reimbursement

Virtual Care Business Drivers:

Experience says....

- Operational Efficiency is #1: Speed and convenience for Providers AND Patients is paramount
- Organizations beginning to see Telemedicine as a requirement
- Seen as both an efficiency play and a new revenue driver



Recent Payer / Legislative Updates

UNITEDHEALTH GROUP'

UnitedHealthcare Covers Virtual Care Physician Visits, Expanding Consumers' Access to Affordable Health Care Options

- Partnership with Doctor On Demand, Optum's NowClinic® and American Well offers convenient, cost-effective virtual visits for UnitedHealthcare plan participants
- Expanded choice from a network of virtual-care physicians
- Virtual visits covered as an in-network benefit
- Available to self-funded employer customers now; expanding to additional employer-sponsored and individual plan participants in 2016

MINNETONKA, Minn. (Jan. 01, 0001) — UnitedHealthcare is expanding coverage options for virtual physician visits, giving people enrolled in self-funded employer health plans secure, online access to a physician via mobile phone, tablet or computer 24 hours a day.

Texas Medical Board / New Guidelines:

* Physician **must establish a physician-patient relationship prior to prescribing medication** via telemedicine (Patients travel to an "established medical site" for an initial appointment, although that meeting with a doctor may be either in-person or via teleconference. The patient could have the appointment from home as long as a medical assistant is present to relay vital signs and other data to the doctor.)

* The use of online questionnaires, or questions and answers exchanged through email, electronic text or chat, or telephone evaluation of a patient are **not adequate** to establish a valid physician-patient relationship under the Texas regulations

* Excludes Mental Health services

* Telemedicine **is allowed between facilities** with medical professionals on each side

Virtual Care Reimbursement UPDATE: 100 bills in 36 states related to telehealth reimbursement

ATA 2015 Insights:

- Cisco registered approximately 1,000 more attendees into our booth this year vs last (5,000+ total attendees)
- Attendees / Speakers continue to evolve:
 - More clinical – physicians, clinical staff attendance / along with IT
 - Presentations from Kaiser, Mayo, INOVA, Mercy Virtual Health, etc
- It's ALL about OUTCOMES –
 - Clinically & financially focused metrics
 - Many attest they have to prove / show outcomes to leadership to evolve programs
 - Expanding service lines

Virtual Care / Telehealth Maturity Model

	1 Experimenting	2 Organizing	3 Optimizing	4 Commercializing
<i>Characterized by...</i>	<ul style="list-style-type: none"> • Siloed pockets of experimentation in the form of pilots • Reactive initiatives that are loosely structured • Efforts that address very specific use cases/problems • Fragmented telehealth knowledge across enterprise • Low exec visibility; leadership emerges with need • Little or no alignment between IT and biz 	<ul style="list-style-type: none"> • Multiple but disconnected pilots across different geographies and service lines • Reactive but becoming proactive • Initiatives being organized as projects • Presence of central committees or teams • Growing exec sponsorship through strategic visioning • Growing alignment between IT and biz 	<ul style="list-style-type: none"> • Proactive efforts towards addressing need • Structured evaluation of opportunities • Established telehealth leadership position and/or department • Structured process for implementation • Full alignment between IT and biz • Full executive buy-in and supporting strategic plan 	<ul style="list-style-type: none"> • Telehealth represents a core delivery method • Physical locations or hubs of telehealth exist • Telehealth functions as revenue center • Enterprise performs and is seen as Innovation leader
<i>Organizational focus on...</i>	<ul style="list-style-type: none"> • Solving business and clinical problems • Building knowledge 	<ul style="list-style-type: none"> • Getting control • Harvesting success and best practice 	<ul style="list-style-type: none"> • Implementing standards • Building efficiency 	<ul style="list-style-type: none"> • Building scale • Enhancing marketability
<i>Opportunity exists to...</i>	<ul style="list-style-type: none"> • Set enterprise strategy • Develop roadmap • Evaluate IT platform 	<ul style="list-style-type: none"> • Define and build leadership • Reward innovation • Define standards 	<ul style="list-style-type: none"> • Evaluate opportunity to commercialize • Scale 	<ul style="list-style-type: none"> • Form strategic partnerships • Continue to innovate • Expand enterprise reach

• **Most organizations are doing something and reside between stages 1 and 2**

• **The evidence indicates that large systems are generally ready to embrace Telehealth as an alternative modality**

• **The tipping point may come when consumer awareness catches up to Provider readiness**

Virtual Care Use Cases: Cisco



Challenge

- Provide employees access to high quality specialty care / 2nd opinions
- Minimize workplace interruptions and enhance workplace efficiency.
- Reduce travel burden for employees / family members
- Provide children in the US / Internationally access to Specialty Care

Solution

- Partnership with Stanford Dermatology and Cardiology service lines for San Jose and RTP based employees.
- 2nd Opinion e-Consult program with Cleveland Clinic
- Connected Healthy Kids – Lucille Packard, Peking University, Great Osmond in London and regional facilities in Brazil

Business Value

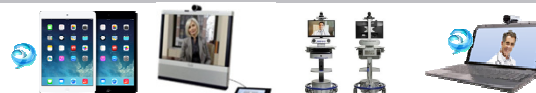
- Enhanced access to care for Cisco employees and family members to key specialists particularly in dermatology. Reduced wait times / follow-up.
- Self insured organization seeking to better promote healthy choices / lifestyles
- Collaboration with key specialists to provide pediatric care to underserved markets

EDCS-1386126

Virtual Care Use Cases: Veterans Administration



U.S. Department of Veterans Affairs



Challenge

- 22MM living Veterans in the United States with 41% living in Rural America
- 55% of Veterans are older than 65 years of age making travel / access an even greater challenge to receive the necessary care
- Significant need for behavioral health services to younger veterans returning from recent deployments

Virtual Care Offerings:

Clinical Video Telehealth (CVT) – Real time video conferencing between VA Med Centers & CBOCs – patient / provider and provider to provider

Home Telehealth (HT) – Monitors patients through video into the home and use of mobile devices for acute / chronic care management

Mobile Health – smart phone apps for self management of health 24x7 – PTSD coaching

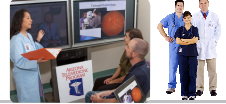
** Real time video consultations covers 44 clinical specialties as well as PCP services

Business Value (Fiscal 2014)

- Tele-health (CVT, HT, SFT) provided care from 152 VA Medical Centers (VAMCs) and 1,100 Community Based Outpatient Clinics (CBOCs) to over 690,000 patients. 45% of veterans lived in "rural" areas
- Approximately 2 Million virtual care consultations; VA virtual care services have grown 70% annually
- CVT-93% Patient Satisfaction and reduced bed days of care by 28% for mental health
- HT-86% Patient Satisfaction and reduced hospital admissions by 30% and bed days of care by 54%.

EDCS-1386126

Virtual Care Use Cases: Traditional



Challenge

- Provide access to medical care for state's rural communities, prison populations, underserved school districts and tribal nations
- Facilitate high quality virtual consultation between remote physicians and patients or provider to provider
- Significant geographical barriers

Solution

- Provider video conferencing / remote monitoring to connect multi-specialty practices to underserved communities
- Supplement face-to-face medical education with video training (i.e. surgical procedures, difficult cases, grand rounds)
- Identified metrics to prove program success

Business Value

- Real-time support network and education awareness for breast cancer; focus on neonatal specialists extension
- Currently have 100's of participating physicians and sites including several operating full-time in a virtual capacity; report to have facilitated over 1M virtual visits
- Achieved high ROI, while positioning university as innovative leader in medical education and healthcare delivery.

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Advocate Behavioral Health

Integrated Behavioral Health Practice with Cisco Virtual Visit



Business Imperatives

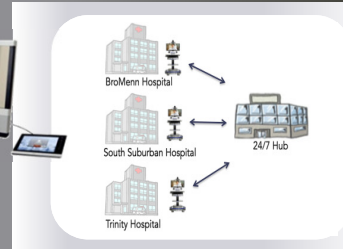
- Grow Service Line Revenue
- Reduce Cost of Care Delivery
- Drive Operational Excellence & Productivity

Business Capabilities Enabled

- Optimize Clinical Workflows
- Create/Maintain Excellent Service Lines
- Scale Clinical Expertise
- Enhance Patient Access to Care

Solution Overview

1. Advocate Christ Medical Center chosen as the hub due to availability of BH Staff to scale.
2. Avizia as a partner, deployed Cisco WebEx enabled Video Endpoint carts as Telepresence endpoints.
3. Service line deployments commenced in October 2014 and concurrently, the BH providers for the first phase were hired.



Advocate Behavioral Health

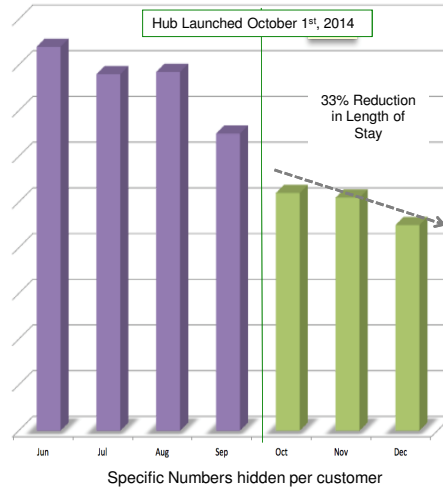
Business Outcomes



Measurable Business Outcomes

- As a result of the telepresence leveraged proactive screening process to treat as required, or provide consultation for patients with chronic medical conditions and underlying behaviorally comorbidities at all points of care, the following results were observed:
 - 33% reduction in Length of Stay (LOS) in the first 3 months of the Hub deployment.
 - The LOS was associated with an opportunity cost which when used to interpolate cost savings as a result of the program, showed a 40% reduction in the annualized cost per patient admit.
 - Reduction in Admissions and Readmission Rates.

2014 ACMC ED Psych Length of Stay (Avg. Min)



Virtual Care Use Cases: Scaling Staff Expertise



Challenge

- 595 bed hospital spending over \$600,000 per year on unreimbursed sitter program
- 1:1 sitter patient ratio—inefficient and unsustainable with growing and aging population
- Majority of falls occurring in rooms where no sitter coverage being provided

Solution

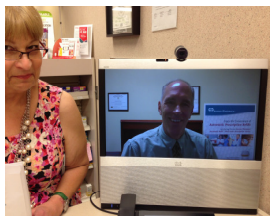
- Implemented Cisco Video Surveillance Manager and IP cameras in 40 patient rooms to virtually monitor patients
- Deployed centralized monitoring station including 3 shifts with 2 virtual sitters for each shift
- Integrated with nurse call system for alert functionality

Business Value

- Achieved ROI in three months with annual savings of six figures in operating expense. Achieved cost avoidance in year one of over \$1M.
- Contributed to a significant reduction in patient falls year over year with 50+ fewer falls in 2013
- Doubled number of patients monitored and tripled sitter coverage hours & lowered cost per monitored hour by 75% (additional 1300 patients served)
- Increased patient, patient family, and nurse satisfaction

Recent Experiences: Virtual Care

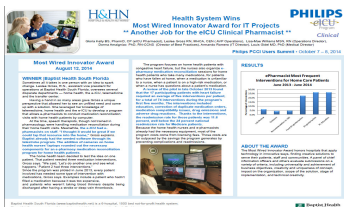
Virtual Pharmacist / 75 yr old Father



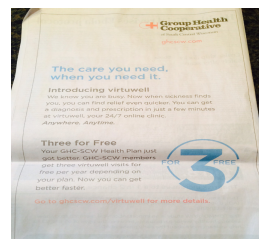
Santa Connection Initiative at UW



Baptist Health – ePharmacy Innovator Award



Group Health Cooperative / Virtuwell



- **Patient Engagement vs. Patient Clinical Engagement (Great Example)**
- **Recommends Apps that can and will produce more data....that will flow back into EHR's....**

Hospital opens genius bar for digital health apps

Fitness and wellness

Spring 2015

New Orleans' Ochsner Center for Primary Care and Wellness opened O Bar, an iPad bar to recommend mobile health apps.

Service is free and includes 200-300 physician-recommended apps, including those focused on weight loss, diabetes, smoking cessation, and more.

Staffed by a tech expert who can show patients how to download and setup the apps for use. Can also teach patients how to share data with Apple's HealthKit.

Also carries smartphone-enabled health tech devices like scales, glucose monitors, and blood pressure cuffs.



Editorial: "The leading causes of chronic disease are primarily lifestyle," said Dr. Richard Milani, Transformation Officer and Vice chairman of the Department of Cardiology at Ochsner, "so if we can do some things to fundamentally attack the root cause then we've got a good way of making you stay healthy."

- **Even text messages are showing better engagement and outcomes....**
- **Text messages can best reach the underserved demographics....**

Text messaging for the chronically ill will improve patient engagement, outcomes

Patient monitoring Spring 2015

Chronic disease is the leading cause of death in the U.S. This includes type 2 diabetes, heart disease, obesity, smoking-related illnesses.

54% of consumers want to increase healthcare interaction via mobile.

Main advantages for using text messaging to engage patients is reach, personalization, interactivity.

The average text is read within the first 90 seconds. Average email is 90 minutes.

Texts can best reach underserved demographics. Hispanics text 1.5 times more than whites; African-Americans text 2.2 times more.

Providers can use personalized data to aid in treatment compliance.

Information capture is simple and eliminates paper forms.

Editorial: In addition, a systematic review of 15 text messaging studies between 2009 and 2014 published in the *Annual Public Review of Health*, found the interventions had "statistically significant positive effects on health outcomes and/or behaviors."

Circle Square | CHaT Trends | Page 19

Source: Mobile Commons, MobilHealth News

- **Pediatric sensors monitoring and alerting back to parents whether a baby is sleeping / awake as well as mood...**
- **True Home Health**

Sproutling is a sleep sensor for babies

Fitness and wellness Spring 2015

Startup has raised \$6.6 million to date for an ankle-worn sensor that tracks heart rate, skin temperature, motion, and position.

Data is transmitted to a parent's smartphone app and displays whether a baby is sleeping or awake.

Can learn and predict a baby's sleep pattern and can alert parents to a baby's mood upon wake up: calm, fussy, or angry.

Device comes with three different ankle straps to accommodate growing babies. Encapsulated in medical-grade silicon and shaped to not be a choking hazard.

Charger can monitor room temperature, humidity, and sound and light levels.

Limited preview samples were sold via the company's site and sold out at \$249. Will retail for \$299. Works with multiples.

Editorial: Competitors in the space include Owlet, a smart sock which sold out its initial run, Mimo, a sensor-enabled onesie that can track breathing, temperature, motion, and sleep patterns, and MonBaby, a snap-on smart button that monitors sleep, breathing, and body position.

Circle Square | CHaT Trends | Page 6

Source: Arkansas Business, mHealth News

Percentage of patients who text

Age Group	Percentage
18-29	97%
30-49	92%
50-64	72%
65+	34%

18

