



Alternative & Emerging Technologies in Health Services Research

Joseph Kim, MD, MPH
Miriam Komaromy, MD & Wesley Pak, MBA
Kamal Jethwani, MD, MPH

April 11th, 2012

Alternative & Emerging Technologies in Health Services Research

Joseph Kim, MD, MPH
Miriam Komaromy, MD & Wesley Pak, MBA
Kamal Jethwani, MD, MPH

April 11th, 2012



Agenda

- Welcome
 - Mark Belanger, TA Team, Massachusetts eHealth Collaborative
 - Vera Rosenthal, AHRQ NRC, Health IT Program Manager
- Speaker Presentations
 - Joseph Kim, MD, MPH
 - Miriam Komaromy, MD & Wesley Pak, MBA
 - Kamal Jethwani, MD, MPH
- Questions & Discussion

Agenda

- Welcome
 - Mark Belanger, TA Team, Massachusetts eHealth Collaborative
 - Vera Rosenthal, AHRQ NRC, Health IT Program Manager
- Speaker Presentations
 - Joseph Kim, MD, MPH
 - Miriam Komaromy, MD & Wesley Pak, MBA
 - Kamal Jethwani, MD, MPH
- Questions & Discussion



Technical Assistance Overview

- Goal: To support grantees in the meaningful progress and on-time completion of Health IT Portfolio-funded grant projects
- Technical Assistance (TA) is delivered in three ways:
 - One-on-one individual TA
 - Multi-grantee webinars
 - Multi-grantee peer-to-peer teleconferences
- Ongoing evaluation to improve TA offerings

Technical Assistance Overview

- Goal: To support grantees in the meaningful progress and on-time completion of Health IT Portfolio-funded grant projects
- Technical Assistance (TA) is delivered in three ways:
 - One-on-one individual TA
 - Multi-grantee webinars
 - Multi-grantee peer-to-peer teleconferences
- Ongoing evaluation to improve TA offerings



Key Resources

- AHRQ National Resource Center for Health IT
 - <http://www.healthit.ahrq.gov>
- AHRQ Point of Contact
 - Vera Rosenthal, vera.rosenthal@ahrq.hhs.gov
- AHRQ NRC TA Team
 - Kai Carter and Allyson Miller: Booz Allen Hamilton; carter_nzinga@bah.com; miller_allyson@bah.com
 - Mark Belanger and Rachel Kell: Massachusetts eHealth Collaborative, NRC-TechAssist@AHRQ.hhs.gov

Key Resources

- AHRQ National Resource Center for Health IT
 - www.healthit.ahrq.gov
- AHRQ Point of Contact
 - Vera Rosenthal, vera.rosenthal@ahrq.hhs.gov
- AHRQ NRC TA Team
 - Kai Carter and Allyson Miller: Booz Allen Hamilton; carter_nzinga@bah.com; miller_allyson@bah.com
 - Mark Belanger and Rachel Kell: Massachusetts eHealth Collaborative, NRC-TechAssist@AHRQ.hhs.gov



Housekeeping

- All phone lines are UN-muted
- You may mute your own line at any time by pressing *6 (or via your phone's mute button); press * 7 to un-mute
- Questions may also be submitted at any time via 'Chat' feature on webinar console
- Brief online evaluation form for completion by all participants at conclusion of Webinar
- Discussion summary will be distributed to attendees

Housekeeping

- All phone lines are UN-muted
- You may mute your own line at any time by pressing *6 (or via your phone's mute button); press * 7 to un-mute
- Questions may also be submitted at any time via 'Chat' feature on webinar console
- Brief online evaluation form for completion by all participants at conclusion of Webinar
- Discussion summary will be distributed to attendees



Grantee Roll Call

- Name, Organization, Project PI

Grantee Roll Call

- Name, Organization, Project PI



Today's Presentation

Alternative & Emerging Technologies in Health Services Research

Facilitator: Mark Belanger, AHRQ NRC TA Team, Massachusetts eHealth Collaborative

Today's Presentation

Alternative & Emerging Technologies in Health Services Research

Facilitator: Mark Belanger, AHRQ NRC TA Team, Massachusetts eHealth Collaborative



Today's Objectives

- Outline current and potential health care applications for specific emerging and alternative technologies of interest to health services researchers
- Discuss obstacles to use of these technologies in health services research
- Provide information on mobile technologies, telemedicine, and social media/networking as they pertain to health care and health services research
- Share experiences and recommendations amongst grantees

Today's Objectives

- Outline current and potential health care applications for specific emerging and alternative technologies of interest to health services researchers
- Discuss obstacles to use of these technologies in health services research
- Provide information on mobile technologies, telemedicine, and social media/networking as they pertain to health care and health services research
- Share experiences and recommendations amongst grantees



Overview of Technologies

Technology	Advantages	Disadvantages	Past and Present AHRQ Grantee Examples
Patient portals <ul style="list-style-type: none"> • Secure clinical messaging between patient and provider • Web access to portal 	<ul style="list-style-type: none"> • Improves patient access • Reduces administrative burden on providers • Improves patient and provider communication • Improves continuity of care between different doctors 	<ul style="list-style-type: none"> • Patients may misinterpret clinical results • Patient-entered data may be inaccurate • Providers reluctant to integrate uploading information into their workflow • Concerns with payer reimbursement for clinical messaging 	<ul style="list-style-type: none"> • Kevin B Johnson. "My MediHealth: A Paradigm for Children-centered Medication Management"

Overview of Technologies



Overview of Technologies

Technology	Advantages	Disadvantages	Past and Present AHRQ Grantee Examples
Mobile devices <ul style="list-style-type: none"> • Texting • Personal healthcare record (PHR)/ electronic healthcare record (EHR) access 	<ul style="list-style-type: none"> • Improves patient access • Use for medication reminders, and to improve treatment compliance 	<ul style="list-style-type: none"> • Privacy and security concerns • Older patients may be unfamiliar with technology- choose audience wisely 	<ul style="list-style-type: none"> • Lorraine Buis, "Text Messaging to Improve Hypertension Medication Adherence in African Americans" • Ardis Olson, "Healthy Teens TXT ME; IT to Change Teen Health Risk Behaviors" • Kevin Johnson, "My MediHealth: A Paradigm for Children-centered Medication Management" • Craig Garfield, "NICU-2-HOME: Using HIT To Support Parents of NICU Graduates Transitioning Home"

Overview of Technologies



Overview of Technologies (cont)

Technology	Advantages	Disadvantages	Past and Present AHRQ Grantee Examples
Online patient education	<ul style="list-style-type: none"> •Improves patient access •Patients receive health information from reliable online resources •Reduces providers' need to educate during appointment •Cost effective 	<ul style="list-style-type: none"> •Patients may receive inaccurate information from external, non monitored web sources 	<ul style="list-style-type: none"> •Kathleen McTigue, "Online Counseling to Enable Lifestyle-focused Obesity Treatment in Primary Care" •Katia, Delrahim-Howlett, "Web Based Intervention for Alcohol Use in Women"
Social networking sites <ul style="list-style-type: none"> • Patient and provider recruiting • Interaction with patients with similar conditions 	<ul style="list-style-type: none"> •Patients may feel more comfortable interacting with peers than with providers •Way to recruit for less common conditions 	<ul style="list-style-type: none"> •Privacy and security concerns •Unless site is specific to program, difficult to monitor information (less control over what is said) 	<ul style="list-style-type: none"> •Jason Glanz, "An Evaluation of an Interactive Social Media Website for Parents who are Concerned About Immunizing Their Children"

Overview of Technologies (cont)



Overview of Technologies (cont)

Technology	Advantages	Disadvantages	Past and Present AHRQ Grantee Examples
Cloud Technology	<ul style="list-style-type: none">•Device / location independent•Reliable and scalable•Can reduce cost, space, time and power•Option for small organizations that lack IT infrastructure, IT support, or capital•Many institutions have relocated radiology to cloud in order to reduce storage costs and facilitate image transfer	<ul style="list-style-type: none">•Security concerns (many providers opt for private cloud models)•Concerns with cloud vendor having data access•Reliability concerns in rural areas	

Overview of Technologies (cont)



Overview of Technologies (cont)

Technology	Advantages	Disadvantages	Past and Present AHRQ Grantee Examples
Telemedicine • Interactive voice response (IVR), automatic telephone system • Remote monitoring • Virtual providers	• Improves patient access due to transportation or provider shortage issues • Monitoring chronic conditions • Improves compliance • Reduces cost • Provider education	• Concerns with payer reimbursement • How to upload data to medial record • Patient satisfaction may be compromised	• Sanjeev Arora, "Project ECHO Hepatitis C Ambulatory Care Quality Improvement in New Mexico through HIT" • Jennifer Haas, "Health IT Enhanced Family Health History Documentation and Management in Primary Care" • Margaret Handley, "Implementation Outcomes of a Health IT Program for Vulnerable Diabetes Populations" • Kevin McConnochie, "Facilitators and Barriers to Adoption of a Successful Urban Telemedicine Model" • Flory Nkoy "Improving Post-Hospital Transitions and Ambulatory Care for Children with Asthma" • William Kearns, "Evaluation and Integration of an Automatic Fall Prediction System" • Brian, Jack, "Virtual Patient Advocate to Reduce Ambulatory Adverse Drug Events" • William Adams, "Conversational IT for Better, Safer Pediatric Primary Care"

Overview of Technologies (cont)



Today's Presenters

- Dr. Joseph Kim, President of Medical Communications Media, Inc.
 - *The Evolving World of Mobile Health and Healthcare*
- Dr. Miriam Komaromy, Medical Director for the Integrated Addiction and Psychiatry TeleECHO Clinic, University of New Mexico School of Medicine and Wesley Pak, MBA Systems and Programming Manager Project ECHO, Department of Medicine, University of New Mexico Health Sciences Center
 - *Use of Telehealth Technology for Research: The ECHO Model*
- Dr. Kamal Jethwani, Lead Research Scientist Center for Connected Health, Partners Healthcare
 - *Social Media: Opportunities and Applications for Health Services Research*

Today's Presenters

- Dr. Joseph Kim, President of Medical Communications Media, Inc.
 - *The Evolving World of Mobile Health and Healthcare*
- Dr. Miriam Komaromy, Medical Director for the Integrated Addiction and Psychiatry TeleECHO Clinic, University of New Mexico School of Medicine and Wesley Pak, MBA Systems and Programming Manager Project ECHO, Department of Medicine, University of New Mexico Health Sciences Center
 - *Use of Telehealth Technology for Research: The ECHO Model*
- Dr. Kamal Jethwani, Lead Research Scientist Center for Connected Health, Partners Healthcare
 - *Social Media: Opportunities and Applications for Health Services Research*



Joseph Kim, MD, MPH

The Evolving World of Mobile Health and Healthcare

Joseph Kim, MD, MPH

The Evolving World of Mobile Health and Healthcare



Evolving World of Mobile Health

- For physicians/health care professionals:
 - Telemedicine: diagnosis and treatment
 - Clinical decision support
 - Communicating with other clinicians
 - Social media interactions
 - Medical information updates, and education
- For patients/consumers:
 - Health education
 - Disease self-management
 - Behavior modification

Evolving World of Mobile Health

- For physicians/health care professionals:
 - Telemedicine: diagnosis and treatment
 - Clinical decision support
 - Communicating with other clinicians
 - Social media interactions
 - Medical information updates, and education
- For patients/consumers:
 - Health education
 - Disease self-management
 - Behavior modification



FDA Regulation

- Draft Guidance for Industry and Food and Drug Administration Staff - Mobile Medical Applications
 - Document issued on July 21, 2011
 - Center for Devices and Radiological Health (CDRH)
 - Center for Biologics Evaluation and Research (CBER)
- Awaiting final draft

<http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm263280.htm>

FDA Regulation

- Draft Guidance for Industry and Food and Drug Administration Staff - Mobile Medical Applications
 - Document issued on July 21, 2011
 - Center for Devices and Radiological Health (CDRH)
 - Center for Biologics Evaluation and Research (CBER)
- Awaiting final draft



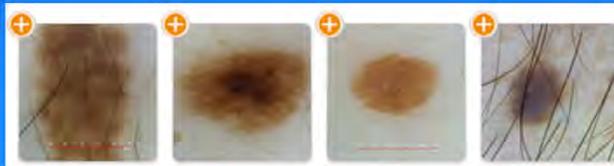
Dermatology

- Handyscope
 - iPhone attachment
 - Polarized light
 - 20x magnification
 - Skin cancer screening
 - Encrypted data



Not approved in the USA

<http://www.handyscope.net>



Dermatology

- Handyscope
 - iPhone attachment
 - Polarized light
 - 20x magnification
 - Skin cancer screening
 - Encrypted data

Not approved in the USA

<http://www.handyscope.net/>



Detecting E. coli

■ Researchers at UCLA

- Developed a cell phone–based fluorescent imaging and sensing platform that can detect the presence of the bacterium *Escherichia coli* in food and water.
- The cost-effective cell-phone attachment acts as a fluorescent microscope, quantifying the emitted light from each capillary after the specific capture of E. coli particles within a sample.



<http://newsroom.ucla.edu/portal/ucla/ucla-engineers-create-cell-phone-229249.aspx>

Detecting E. coli

- Researchers at UCLA
 - Developed a cell phone–based fluorescent imaging and sensing platform that can detect the presence of the bacterium *Escherichia coli* in food and water.
 - The cost-effective cell-phone attachment acts as a fluorescent microscope, quantifying the emitted light from each capillary after the specific capture of E. coli particles within a sample.

<http://newsroom.ucla.edu/portal/ucla/ucla-engineers-create-cell-phone-229249.aspx>



Conducting Eye Exams

- Researchers at the MIT Media Lab:
 - CATRA is a phone camera attachment designed to detect cataracts. It “scans the lens of the eye and creates a map showing position, size, shape and density of cataracts.”
 - NETRA is phone camera attachment designed for refractive tests



<http://web.mit.edu/newsoffice/2011/netra-cataracts-app-0701.html>

Conducting Eye Exams

- Researchers at the MIT Media Lab:
 - CATRA is a phone camera attachment designed to detect cataracts. It “scans the lens of the eye and creates a map showing position, size, shape and density of cataracts.”
 - NETRA is phone camera attachment designed for refractive tests

<http://web.mit.edu/newsoffice/2011/netra-cataracts-app-0701.html>



Cardiology: Heart Rate to EKG



Instant Heart Rate app
by Azumio Inc.
(consumer app)



iPhone ECG by
AliveCor (not approved)



AirStrip Technologies
Medtronic Physio-
Control

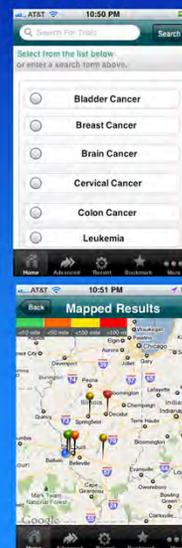
Cardiology: Hate Rate to EKG



CancerTrials App by MedTrust Online

- Features include:
 - Quickly locate Clinical Trials that are recruiting patients within 150 miles of your location
 - View search results of Clinical Trials on a map relative to your location (or manually enter a US Zip Code)
 - Simple text search to locate Clinical Trials within your area
- Developed in collaboration with GlaxoSmithKline

<http://itunes.apple.com/us/app/cancer-trials/id376117391?mt=8>



CancerTrials App by MedTrust Online

- Features include:
 - Quickly locate Clinical Trials that are recruiting patients within 150 miles of your location
 - View search results of Clinical Trials on a map relative to your location (or manually enter a US Zip Code)
 - Simple text search to locate Clinical Trials within your area
- Developed in collaboration with GlaxoSmithKline

<http://itunes.apple.com/us/app/cancer-trials/id376117391?mt=8>



Medical Education Going Mobile

- Epocrates Mobile CME powered by RealCME
- QuantiaMD
- References: Medscape, UpToDate, Skyscape, Unbound Medicine, etc.
- Journals
- ReachMD (Satellite radio)



Medical Education Going Mobile

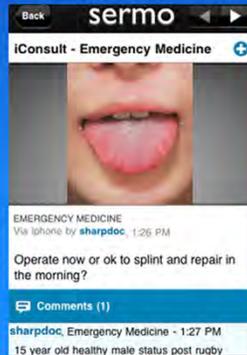
- Epocrates Mobile CME powered by RealCME
- QuantiaMD
- References: Medscape, UpToDate, Skyscape, Unbound Medicine, etc.
- Journals
- ReachMD (Satellite radio)



Online Medical Communities

- Sermo
- QuantiaMD
- Doximity

HIPAA
Data security



Online Medical Communities

- Sermo
- QuantiaMD
- Doximity

HIPPA Data Security



Sermo By Sermo, Inc.

- iConsult –instantly share clinical images and ask questions to capture feedback and advice from colleagues across the United States.
- Discussions - Share insights and expertise on clinical cases, practice management, healthcare policy, and more.



<http://itunes.apple.com/us/app/sermo/id438752890?mt=8>

Sermo by Sermo, Inc.

- iConsult –instantly share clinical images and ask questions to capture feedback and advice from colleagues across the United States.
- Discussions - Share insights and expertise on clinical cases, practice management, healthcare policy, and more.

<http://itunes.apple.com/us/app/sermo/id438752890?mt=8>



QuantiaMD By Quantia Communications

- Compete in the Monthly Medical Challenge – real cases and expert knowledge challenges
- Expert Practice Series segments – 8-10 minute clinical presentations
- Interact with colleagues
- Earn Q-Points



<http://itunes.apple.com/us/app/quantiamd/id305777377?mt=8>

QuantiaMD

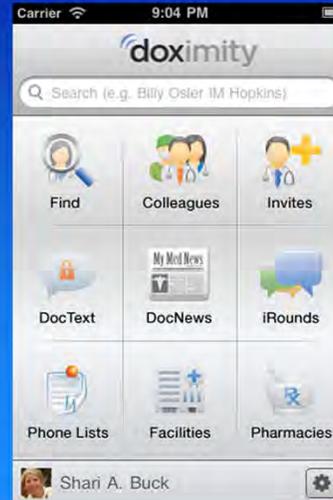
- Compete in the Monthly Medical Challenge – real cases and expert knowledge challenges
- Expert Practice Series segments – 8-10 minute clinical presentations
- Interact with colleagues
- Earn Q-Points

<http://itunes.apple.com/us/app/quantiamd/id305777377?mt=8>



Doximity By Doximity

- Secure messaging among physicians (HIPAA-compliant)
- Refer patients
- Follow-up on consultations
- Send and receive faxes



<http://itunes.apple.com/us/app/doximity-free/id393642611?mt=8>

Doximity By Doximity

- Secure messaging among physicians (HIPAA-compliant)
- Refer patients
- Follow-up on consultations
- Send and receive faxes

<http://itunes.apple.com/us/app/doximity-free/id393642611?mt=8>



Texting Underserved Communities

- Temple's School of Medicine received a \$100,000 grant from Verizon Foundation
- Telemedicine Light, a program designed to educate members of the surrounding neighborhoods on cardiovascular health by crafting and sending targeted, customized e-mail messages
- Patients will receive a weekly message from Temple containing facts and tips on cardiovascular disease and how to prevent it.
- Overcoming barriers to disseminating health information effectively in a medically underserved community

http://www.temple.edu/medicine/verizon_foundation.htm

Texting Underserved Communities

- Temple's School of Medicine received a \$100,000 grant from Verizon Foundation
- Telemedicine Light, a program designed to educate members of the surrounding neighborhoods on cardiovascular health by crafting and sending targeted, customized e-mail messages
- Patients will receive a weekly message from Temple containing facts and tips on cardiovascular disease and how to prevent it.
- Overcoming barriers to disseminating health information effectively in a medically underserved community

http://www.temple.edu/medicine/verizon_foundation.htm



Texting & Medication Adherence

No major improvement in adherence	Improvement in adherence
HIV therapy in Africa	HIV therapy in Africa
Oral contraceptives in women	Teenagers with diabetes
	Pediatric liver transplant patients

- Ongoing studies:
 - Geriatric patients
 - Smoking cessation
 - Schizophrenia
 - HIV
 - Diabetes

http://journals.lww.com/greenjournal/Abstract/2010/09000/Using_Daily_Text_Message_Reminders_to_Improve.13.aspx

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009756/abstract>

<http://www.healthcareitnews.com/news/study-texting-improves-medication-adherence-teens-diabetes-0>

<http://www.ncbi.nlm.nih.gov/pubmed/19822583>

<http://www.socialworktoday.com/archive/012312p6.shtml>

Texting & Medication Adherence

- Ongoing studies:
 - Geriatric patients
 - Smoking cessation
 - Schizophrenia
 - HIV
 - Diabetes

http://journals.lww.com/greenjournal/Abstract/2010/09000/Using_Daily_Text_Message_Reminders_to_Improve.13.aspx

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009756/abstract>

<http://www.healthcareitnews.com/news/study-texting-improves-medication-adherence-teens-diabetes-0>

<http://www.ncbi.nlm.nih.gov/pubmed/19822583>

<http://www.socialworktoday.com/archive/012312p6.shtml>



Free Mobile Phones

- FREE Phone + 250 FREE Voice Minutes
- Assurance Wireless is a Lifeline Assistance program brought to you by Virgin Mobile and supported by the federal Universal Service Fund.
- For qualifying government programs or are income eligible: Medicaid, Food Stamps/SNAP, Social Security Income (SSI),



<http://www.assurancewireless.com/Public/Welcome.aspx>

Free Mobile Phones

- FREE Phone + 250 FREE Voice Minutes
- Assurance Wireless is a Lifeline Assistance program brought to you by Virgin Mobile and supported by the federal Universal Service Fund.
- For qualifying government programs or are income eligible: Medicaid, Food Stamps/SNAP, Social Security Income (SSI),

<http://www.assurancewireless.com/Public/Welcome.aspx>



Pill Reminder Pro (Push Notification) By Winkpass Creations, Inc.

■ Features:

- Reminds you with PUSH alerts when to take your pills
- Great for medication, birth control pills and supplements
- Tracks pill names, dosage and frequency
- Keeps track of your pills



<http://itunes.apple.com/us/app/pill-reminder-pro-push-notification/id343499340?mt=8>

Pill Reminder Pro (Push Notification) By Winkpass Creations, Inc.

Features:

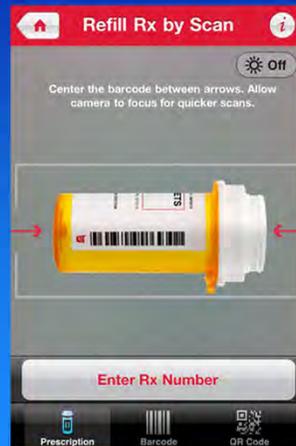
- Reminds you with PUSH alerts when to take your pills
- Great for medication, birth control pills and supplements
- Tracks pill names, dosage and frequency
- Keeps track of your pills

<http://itunes.apple.com/us/app/pill-reminder-pro-push-notification/id343499340?mt=8>



Walgreens Mobile App By Walgreens

- Express refills by scanning the bar code
- SMS when you prescription is ready for pickup
- Text FLU to 21525 and find the nearest Walgreens with flu shots



<http://itunes.apple.com/us/app/walgreens/id335364882?mt=8>

Walgreens Mobile App By Walgreens

- Express refills by scanning the bar code
- SMS when you prescription is ready for pickup
- Text FLU to 21525 and find the nearest Walgreens with flu shots

<http://itunes.apple.com/us/app/walgreens/id335364882?mt=8>



Dangers of Mobile Health Apps

- Not regulated (yet)
- Confusion regarding “medical” vs. “health” apps
- Anyone can develop and release a mobile app that gets classified as “medical” or “health”
- Medical information may be outdated, erroneous, or misleading
- Patient privacy & data security concerns

Dangers of Mobile Health Apps

- Not regulated (yet)
- Confusion regarding “medical” vs. “health” apps
- Anyone can develop and release a mobile app that gets classified as “medical” or “health”
- Medical information may be outdated, erroneous, or misleading
- Patient privacy & data security concerns



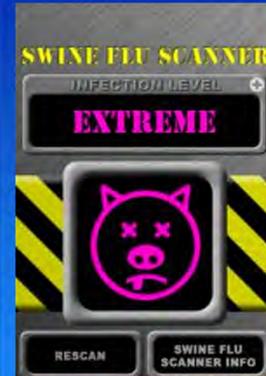
Swine Flu “Apps”



Swine Flu Detector
By Ecoshop Holding, LLC



! Swine Flu Detector
By Longneck (formerly
Vlad Lungu)



Swine Flu Scanner Free
(Fingerprint Test)
By Shaved Ham

<http://itunes.apple.com/us/app/swine-flu-detector/id315041953?mt=8>

<http://itunes.apple.com/us/app/!-swine-flu-detector/id295517288?mt=8>

<http://itunes.apple.com/us/app/swine-flu-scanner-free-fingerprint/id348868094?mt=8>

Swine Flu “Apps”

<http://itunes.apple.com/us/app/swine-flu-detector/id315041953?mt=8>

<http://itunes.apple.com/us/app/!-swine-flu-detector/id295517288?mt=8>

<http://itunes.apple.com/us/app/swine-flu-scanner-free-fingerprint/id348868094?mt=8>



Diabetic Dosage: an Insulin Calculator By Kaliaanne Neumann

- “It uses the correction number recommended by your physician, your current blood glucose level, and the amount of carbohydrate units you are anticipating to consume in order to assist you in calculating your fast-acting insulin dosage.”

Diabetic Dosage

Blood Glucose: 127

Carb Units: 7

Reminder: 1 carb unit = 10g or 15g of carbs

Correction: 60

Dosage Units: Half Whole

Suggested Dosage

7.0 Units

<http://itunes.apple.com/us/app/diabetic-dosage-insulin-calculator/id421962268?mt=8>

Diabetic Dosage: an Insulin Calculator By Kaliaanne Neumann

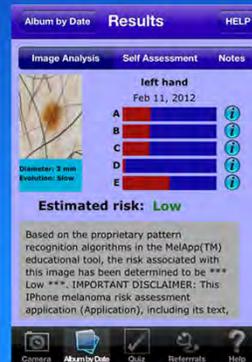
“It uses the correction number recommended by your physician, your current blood glucose level, and the amount of carbohydrate units you are anticipating to consume in order to assist you in calculating your fast-acting insulin dosage.”

<http://itunes.apple.com/us/app/diabetic-dosage-insulin-calculator/id421962268?mt=8>



MelApp By Health Discovery Corporation

- “MelApp for iPhone is an image-based risk assessment mobile app that assists in the early detection of melanoma.”



<http://itunes.apple.com/us/app/melapp/id446669257?mt=8&ls=1>

MelApp By Health Discovery Corporation

- “MelApp for iPhone is an image-based risk assessment mobile app that assists in the early detection of melanoma.”

<http://itunes.apple.com/us/app/melapp/id446669257?mt=8&ls=1>



Data Security & Patient Privacy

- Questions and concerns:
 - Encryption requirements for video conferencing (telemedicine)
 - Encryption requirements for texting/SMS
 - Privacy of information stored on a mobile device
 - Privacy of online communities
- No clear guidance around HIPAA and mobile technology

Data Security & Patient Privacy

- Questions and concerns:
 - Encryption requirements for video conferencing (telemedicine)
 - Encryption requirements for texting/SMS
 - Privacy of information stored on a mobile device
 - Privacy of online communities
- No clear guidance around HIPAA and mobile technology

“iPhone keeps record of everywhere you go”

“Privacy fears raised as researchers reveal file on iPhone that stores location coordinates and timestamps of owner's movements”

— April 2011



<http://www.guardian.co.uk/technology/2011/apr/20/iphone-tracking-prompts-privacy-fears>

“iPhone keeps record of everywhere you go”

“Privacy fears raised as researchers reveal file on iPhone that stores location coordinates and timestamps of owner's movements” April 2011



“FaceTime calls are HIPAA compliant”

Apple gear is HIPAA compliant when using WPA2 Enterprise security. It's arguable that WPA and WPA/Personal connections are also compliant, but it's debatable.

— Sept 2011



<http://www.zdnet.com/blog/apple/facetime-calls-are-encrypted-and-hipaa-compliant-when-using-proper-encryption/11166>

“FaceTime calls are HIPAA compliant”

Apple gear is HIPAA compliant when using WPA2 Enterprise security. It's arguable that WPA and WPA/Personal connections are also compliant, but it's debatable.

Sept 2011



**Miriam Komaromy, MD
& Wesley Pak, MBA**

**Use of Telehealth Technology
for Research: The ECHO Model**

Miriam Komaromy, MD & Wesley Pak, MBA

Use of Telehealth Technology for Research: The ECHO Model



A Different Telehealth Model

- Most telemedicine involves one medical provider and one patient
- The ECHO model connects specialists located in a hub (e.g. academic medical center) with a network of individual healthcare providers
- Model lends itself to supporting community-based research

A Different Telehealth Model

- Most telemedicine involves one medical provider and one patient
- The ECHO model connects specialists located in a hub (e.g. academic medical center) with a network of individual healthcare providers
- Model lends itself to supporting community-based research



What is the ECHO model?

- A consultative healthcare model designed to support primary care providers (PCPs)
- Mission: develop capacity to safely and effectively treat common, complex diseases in rural and underserved areas
- Method: multiple, geographically dispersed PCPs connect weekly via video & telephone with disease specialists located in a central hosting location, such as an academic medical center

What is the ECHO model?

- A consultative healthcare model designed to support primary care providers (PCPs)
- Mission: develop capacity to safely and effectively treat common, complex diseases in rural and underserved areas
- Method: multiple, geographically dispersed PCPs connect weekly via video & telephone with disease specialists located in a central hosting location, such as an academic medical center

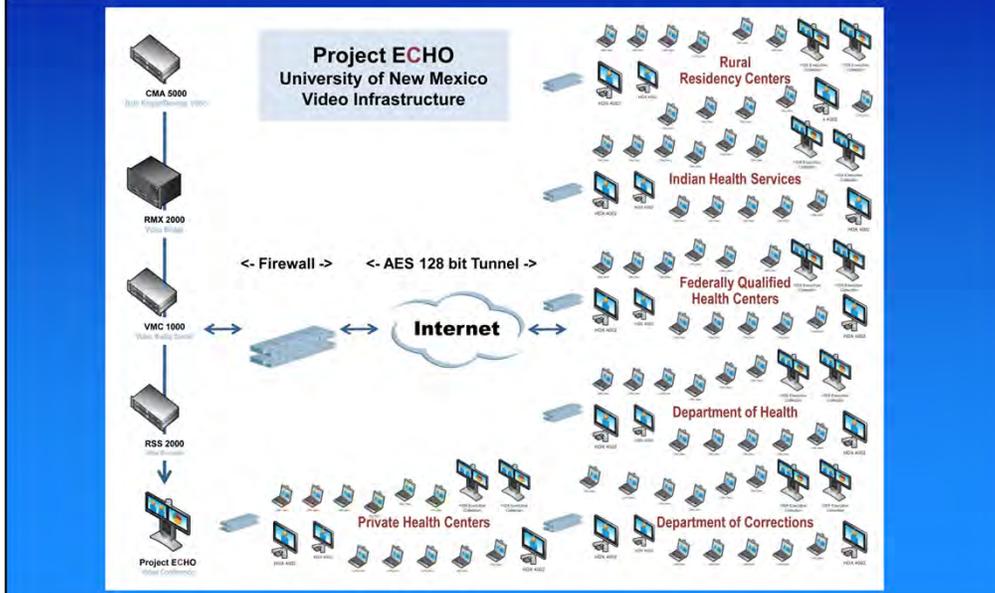




**TeleECHO
Video Conferencing Infrastructure**



Project ECHO University of New Mexico Video Infrastructure



Project ECHO University of New Mexico Video Infrastructure



**iHealth
Online Disease Management Tool**



iHealth Disease Management Tool

iHEALTH Disease Management Tool
Welcome, Test_SuperAdmin, Super Admin. (Last logged in: 02/30/2012 11:02:00 AM)
Home | Home | Help | Change Password | Logout
Search Patient:

My Messages Patients Admin Reports Resources ECHO Clinics Clinic Admin

Sleepy Dwarf Site: **Z-Test Disney, Z-Test Warner Bros** ECHO ID: **11857** [Edit Patient Profile](#)

Date of Birth: **01/02/1937** Age: **75** Gender: **Male**

HCV Community **Diabetes** [New Disease State](#)

Messages Diabetes/CRRC Lab Flow Sheet Medications Presentations

Current Medications
Ribavirin 400 Mg BID
Acetaminophen 360 mg Other
Mirtazapine 45 Mg Other
Peginterferon Alfa-2A 180 Mcg Q Week

Pending: 02/15/2012 Presenter: **HeizlerCS,Lindsey**

Main Question For Presentation
Medications Oral, Lab Interpretation, Other: Should I prescribe a medication for pt's hypertension

Diagnoses
Diabetes Mellitus, type II: 1-5 Yrs, Obesity, Hypertension

Medications
Acetaminophen- 160- mg- Other, Mirtazapine- 45- Mg- Other, Peginterferon Alfa-2A- 180- Mcg- Q Week, Ribavirin- 400- Mg- BID.

Allergies
nkda

Symptoms
WeightChange

Risk Diabetes
Parents and/or siblings

Self Monitoring Blood Glucose
4/d 120

Counseling
Smoking:Effective, Exercise:Effective, Nutrition:Effective

Physical Exam
Systolic BP=145, Diastolic BP=90, Pulse=66, Respirations (/min)=18, Foot Exam=02/13/12, Height=67in, Weight=235lbs, BMI=37, Waist Circumference=40in

Test Scores
CESD-2: 02/14/12, PHQ9-3: 02/01/12

Retinal Scan
01/25/2012
OD RIGHT: NPDR Mild, PDR High Risk, Macular Edema Suspect, Hypertensive Retinopathy
OS LEFT: NPDR Mild

Last Note:
exercise and monitoring, but needs some extra help. Start metformin 500mg po bid.

Clinic Note:

Previous Presentations:
02/01/2012 02/08/2012

Schedule Presentation:
--Select--

Sign Off Person:
--Select--

[Edit All](#) [Save](#) [Cancel](#) [Print](#)

iHealth Disease Management Tool



iHealth Disease Management Tool

iHEALTH Disease Management Tool

Welcome, Test_SuperAdmin, Super Admin. (Last Logged in: 03/30/2012 11:02:09 AM)

Home | Inbox | Help | Change Password | Logout

Search Patient

My Messages Patients Admin Reports Resources ECHO Clinics Clinic Admin

ECHO ID: 11857 Age: 75
Gender: Male Presenter: HeizlerCS,Lindsey

Pending: 02/15/2012 Presenter: HeizlerCS,Lindsey

Main Question For Presentation
Medications Oral, Lab Interpretation, Other: Should I prescribe a medication for pt's hypertension

Diagnoses
Diabetes Mellitus, type II: 1-5 Yrs, Obesity, Hypertension

Medications
Acetaminophen- 150- mg- Other, Mirazapine- 45- Mg- Other, Peginterferon Alfa-2A- 180- Mcg- Q Week, Ribavirin- 400- Mg- BID,

Allergies
nuts

Symptoms
WeightChange

Fhx Diabetes
Parents and/or siblings

Smoking
Yes-S per day

Alcohol
Yes

Self Monitoring Blood Glucose
4/d 120

Counseling
Smoking:Effective, Exercise:Effective, Nutrition:Effective

Physical Exam
Systolic BP=145, Diastolic BP=90, Pulse=66, Respirations (/min)=18, Foot Exam=02/13/12, Height=67in, Weight=235lb, BMI=37, Waist Circumference=40in

Test Scores
CSD-2: 02/14/12, PHQ9: 02/01/12

Retinal Scan
01/25/2012
OD RIGHT: NPDR Mid, PDR High Risk, Macular Edema Suspect, Hypertensive Retinopathy
OS LEFT: NPDR Mild

Current Labs
02/13/12 - Glucose:125; HGBA1C:5.5;
01/30/12 - LDL:80; HDL:36; Total Chol:176; Triglycerides:255;
05/13/11 - Phos:3.1; Uric Acid:6.2; ALT

Last Note:
Counsel patient on increasing self monitoring, exercise and starting a new

Clinic Note:

Previous Presentations:
02/01/2012 02/08/2012

Sign Off Person:
--Select--

Edit All Save Cancel Print

iHealth Disease Management Tool

iHealth Disease Management Tool



iHeath Disease Management Tool

	Tend		Swell	
Spine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cervical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoracic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lumbar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Right		Left	
	Tend	Swell	Tend	Swell
TMJ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shoulder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elbow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wrist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MCP	1: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PIP	1: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DIP	2: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ankle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Right Tarsal
 Swelling
 Tender

Save Cancel

iHeath Disease Management Tool



iHealth Disease Management Tool

Welcome, Test_SuperAdmin, Super Admin. (Last Logged in: 03/30/2012 11:02:03 AM)
Home | Inbox | Help | Change Password | Logout

My Messages Patients Admin Reports Resources ECHO Clinics Clinic Admin

Sleepy Dwarf Site: Z-Test Disney, Z-Test Warner Bros ECHO ID: 11857 [Link Patient Profile](#)

Date of Birth: 01/02/1937 Age: 75 Gender: Male

Start Date: 07/12/2010 HCV Genotype: 1a Current Week: 89

Current Medications
 Ribavirin 400 Mg BID
 Acetaminophen 160 mg Other
 Mirtazapine 45 Mg Other
 Peginterferon Alfa-2A 180 Mcg Q Week

[HCV Community](#) [Diabetes](#) [New Disease State](#)

Messages	Protocol	Clinical	Encounters	Lab	Flow Sheet	Medications	Reports	Presentations																
Weeks	Week0	Week1	Week2	Week4	Week8	Week12	Week16	Week20	Week24	Week28	Week32	Week36	Week40	Week44	Week48	Week52	Week56	Week60	Week64	Week68	Week72			
Due Date	07/12/10	07/19/10	07/26/10	08/09/10	09/06/10	10/04/10	11/01/10	11/29/10	12/27/10	01/24/11	02/21/11	03/21/11	04/18/11	05/16/11	06/13/11	07/11/11	08/08/11	09/05/11	10/03/11	10/31/11	11/28/11			
Actual Date	Week0	07/19/10	07/27/10	08/13/10	09/03/10	10/07/10	12/09/10 12/30/10 01/22/11 02/24/11 03/21/11 04/21/11 05/13/11																	
WBC	2.9	2.21	2.45	2.78	3.11	1.48	1.53	1.77	1.82	1.28	1.85	17.5	1.95											
ANC	1.1	0.8	0.7	1.2	1.3	0.6	0.5	0.7	0.7	0.6	0.9	7.9	0.7											
HGB	14.3	13.8	12.3	10	9.4	10.1	10.6	11.1	11.2	10.4	11.6	11.7	12.1											
HCT	43.3	40.8	35.9	29.2	29.2	32	33.8	33.8	34.9	33.1	36.6	36.4	37.3											
Platelets	200	155	188	157	224	232	205	257	303	225	211	193	190											
Creatinine	1.2	1.2	1.1	1.1	1.1	1	1.1	1	1	1.3	1.3	1.1	1.3											
AST SGOT	103	41	41	85	41	31	43	38	3	45	85	55												
ALT SGPT	192	45	43	73	49	27	46	43	29	42	89	49												
Total Prot	6.7	6.4	6	5.7	5	6	6.3	6.3	6.6	6.6	6.6	6.6												
Albumin	4	4	3.8	3.7	3	4	4.1	4.1	4.2	4.3	4.2	4												
T Bill	0.4	0.3	0.5	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2												
Dir Bill										0.2	0.2	0.2												
Alk Phos	100	92	90	94	84	78	79	79	75	76	74	76												
Uric Acid	5.6	4.3	6.5	6.7	7.4	6	5.6	6.3	5.7	5.8	5.5	6.2												
Triglycerides							172	115		295	451	236												
TSH	1.69					7.05		0.11		77.16														
Actual Date	05/01/10			08/13/10																				
HCV RNA	1,930,000			<43 ND																				
HCV Log																								
CESD Date	07/12/10	07/20/10	07/28/10																		07/30/11			
CESD	5	15	8																		15			

iHealth Disease Management Tool



**iECHO
Online TeleECHO Management Tool**



iECHO Clinic Records

iECHO University of New Mexico wpk | My Account | Sign out

Home Health Centers Contacts **Clinic Records** Videos Resources Reports Admin

Home > Clinic Records

Clinic Record: Diabetes and Cardiovascular Care NEW UNPUBLISH EDIT DELETE

ID 1892

Clinic Name **Diabetes and Cardiovascular Care**
Location **UNM ECHO**

Type **ECHO Clinic**
Status **Completed**

Start Time **March 28, 2012 12:00 pm**
End Time **March 28, 2012 1:30 pm**

Extra Attendees **0**

25 Attendees 1 Didactics 2 Patient Presentations 7 Administrative Documents 0 Videos

Notes

Participants **25 found**

- Attendee (15)
- Facilitator (10)

iECHO Clinic Records



iECHO Clinic Report

iECHO University of New Mexico
wpak | My Account | Sign out

Home
Health Centers
Contacts
Clinic Records
Videos
Resources
Reports
Admin

Home > Reports > Clinic Report

Clinic Report

From **January 1, 2011** To **December 31, 2011**

Number of Clinics	649 found		
Individual Attendees	2280		
Attendance	11991	Anonymous	1021
			Total 13012 found

Patient Presentations **1660 (New - 900, Follow-up - 760)**

Patient Presentations with Molina Patients **15**

Average Attendance per Clinic **18.48 attendees** Average Clinic per Attendee **0.28 clinics**

Total Hours **3403.23 hours**

	Clinics	Attendees	Credentials
(ENM COMM-TC) Childhood Overweight Medical Management - Telehealth Consultation	16 clinics, 238 attended		None 3452
(ENM DS) Developmental Screening Initiative	8 clinics, 117 attended	10	PhD
(ENM MI) Motivational Interviewing	12 clinics, 96 attended	1	4th year student
(ENM MOC-POW) Maintenance of Certification	8 clinics, 63 attended	1	AA
		1	ABA
		1	ACE CPT
(ENM PNT) Pediatric Nutrition Telehealth	14 clinics, 128 attended	2	ACNP
(ENM SBHC-CB) School-Based Health Center Quality Improvement Initiative	67 clinics, 503 attended	27	ACRN
(ENM Spec) Special Topics or Events	28 clinics, 115 attended	6	ANP-BC
Chronic Pain and Headache	47 clinics, 1256 attended	7	AP-C
Community Addictions Recovery Specialists	25 clinics, 430 attended	1	APN
Dementia Care Clinic	9 clinics, 150 attended	53	APRN
Diabetes / Cardiovascular Risk Reduction	38 clinics, 877 attended	2	ARNP
Diabetes CHW Training Clinic	27 clinics, 667 attended	1	AS
HAWAIDS	48 clinics, 1646 attended	1	B.S.
Heart Failure	16 clinics, 188 attended	254	BA
Hepatitis C - Community	51 clinics, 1067 attended	8	BCOP
Hepatitis C - Connections	36 clinics, 627 attended	13	BCPS
High Risk Pregnancy	28 clinics, 475 attended	1	BFA
Integrated Addiction / Psychiatry	50 clinics, 1182 attended	202	BS
New Mexico Peer Education Program	18 clinics, 466 attended	1	BS Education
			BSHCA

iECHO Clinic Report



Project ECHO: Methods

- Use technology to leverage scarce healthcare resources: tele / video conferencing with Primary Care Providers (PCPs) in underserved areas
- Case-based learning: PCPs present cases on weekly statewide teleconference and receive feedback from specialists at UNM and other PCPs
- Disease management model improves outcomes by sharing best practices
- “Learning loops” help PCPs develop confidence and expertise of their own, become resources in their own communities
- Force Multiplier

Project ECHO: Methods

- Use technology to leverage scarce healthcare resources: tele / video conferencing with Primary Care Providers (PCPs) in underserved areas
- Case-based learning: PCPs present cases on weekly statewide teleconference and receive feedback from specialists at UNM and other PCPs
- Disease management model improves outcomes by sharing best practices
- “Learning loops” help PCPs develop confidence and expertise of their own, become resources in their own communities



Research Opportunities Through ECHO

- Study outcomes of care: Hepatitis C Trial
- Study impact of ECHO on access to care: Addiction Program
- Use ECHO to disseminate innovations and study impact: SBIRT with DWI offenders

Research Opportunities Through Echo

- Study outcomes of care: Hepatitis C Trial
- Study impact of ECHO on access to care: Addiction Program
- Use ECHO to disseminate innovations and study impact: SBIRT with DWI offenders



Hepatitis C Trial Objectives

- To train primary care Clinicians in rural areas and prisons to deliver hepatitis C treatment to rural populations
- To show that outcomes of such care are as safe and effective as that given in a University Clinic
- To show that Project ECHO improves access to hepatitis C care for minorities

Arora et al, NEJM, 2011

Hepatitis C Trial Objectives

- To train primary care Clinicians in rural areas and prisons to deliver hepatitis C treatment to rural populations
- To show that outcomes of such care are as safe and effective as that given in a University Clinic
- To show that Project ECHO improves access to hepatitis C care for minorities

Arora et al, NEJM, 2011



Study Design

- Prospective cohort study
 - Randomization by patient, Clinician, or site not feasible
- Advantages
 - Uniform eligibility criteria
 - Standardized treatment
 - Prospective measurement of end-points
- Limitation: groups unbalanced with respect to patient covariates

Study Design

- Prospective cohort study
 - Randomization by patient, Clinician, or site not feasible
- Advantages
 - Uniform eligibility criteria
 - Standardized treatment
 - Prospective measurement of end-points
- Limitation: groups unbalanced with respect to patient covariates



Principal Endpoint

- Sustained viral response (SVR): no detectable virus 6 months after completion of treatment

Principal Endpoint

Sustained viral response (SVR): no detectable virus 6 months after completion of treatment



Treatment Outcomes

Outcome	ECHO	UNMH	P-value
	N=261	N=146	
Minority	68%	49%	P<0.01
SVR (Cure) Genotype 1/4	50%	46%	NS
SVR (Cure) Genotype 2/3	70%	71%	NS

SAE = significant adverse event

SVR = sustained viral response

Treatment Outcomes

SAE = significant adverse event

SVR = sustained viral response



Conclusions from Hep C Trial

- Rural primary care Clinicians deliver hepatitis C care under the aegis of Project ECHO that is as safe and effective as that given in a University clinic
- Project ECHO improves access to hepatitis C care for New Mexico minorities

Conclusions from Hep C Trial

- Rural primary care Clinicians deliver hepatitis C care under the aegis of Project ECHO that is as safe and effective as that given in a University clinic
- Project ECHO improves access to hepatitis C care for New Mexico minorities



ECHO Addiction Treatment Program

- Weekly telehealth clinic since 2006
- Addresses all addictions, but #1 focus is expanding buprenorphine treatment for opioid addiction
- Used ECHO to recruit providers to become trained in use of buprenorphine, and to support their practice and track impact

Echo Addiction Treatment Program

- Weekly telehealth clinic since 2006
- Addresses all addictions, but #1 focus is expanding buprenorphine treatment for opioid addiction
- Used ECHO to recruit providers to become trained in use of buprenorphine, and to support their practice and track impact



Ranking of # of Buprenorphine-Certified Providers Per Capita

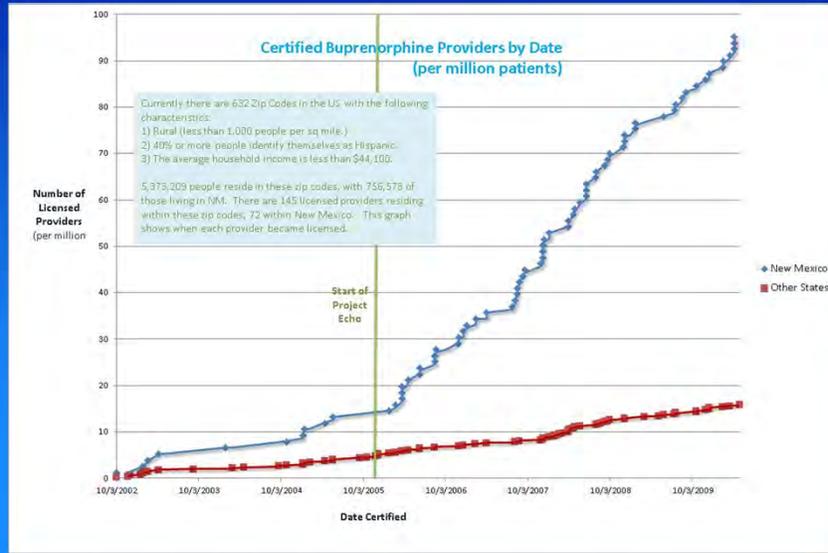
State	Rank 2005	Physicians certified 2005	Rank 2009	Physicians certified 2009
VT	1	31	1	160
ME	2	41	2	241
DC		9		81
MA	6	100	3	877
MD	10	82	4	749
NM	13	21	5	258
RI	4	20	6	127
NY	7	292	7	2156
CT	3	67	8	382
PA	8	185	9	1200
AK	6	17	10	62

CSAT database of certified MDs 2005, 2009

Ranking of # of Buprenorphine-Certified Providers Per Capita
CSAT database of certified MDs 2005, 2009



Increase in Bup-certified PCPs in Poor, Rural, and Heavily Hispanic Areas



Increase in Bup-certified PCPs in Poor, Rural, and Heavily Hispanic Areas



Survey of ECHO Bup Prescribers

What has been the impact of prescribing buprenorphine on your clinical practice?

Question	Mean
My ability to help opiate-addicted patients	6.5
My satisfaction with clinical practice	6.2
The clinic staff's satisfaction with our practice	5.6
My practice partners' satisfaction with our practice	5.9
My ability to have a positive impact on my community	6.4
My interest in treating patients with opiate addiction	6.4
My interest in treating patients with other addictions	6.0
My professional reputation in my community	5.5

Response choices from 0=strongly negative impact, 4=no impact, 5=somewhat positive, 7=strongly positive impact

N=51, survey response rate 70%, 2010

Survey of ECHO Bup Prescribers

What has been the impact of prescribing buprenorphine on your clinical practice?

Response choices from 0=strongly negative impact, 4=no impact, 5=somewhat positive, 7=strongly positive impact

N=51, survey response rate 70%, 2010



Use of ECHO to Disseminate Innovations

- Recent study in urban health systems showed that a single SBIRT intervention for heavy drinkers decreased DWIs for 5 years; effect stronger in Latinos
- Designing an ECHO study to implement in rural, predominantly Latino, community-based settings in rural NM

Davis et al, Population Health Mgmt, 2012

Use of ECHO to Disseminate Innovations

- Recent study in urban health systems showed that a single SBIRT intervention for heavy drinkers decreased DWIs for 5 years; effect stronger in Latinos
- Designing an ECHO study to implement in rural, predominantly Latino, community-based settings in rural NM

Davis et al, Population Health Mgmt, 2012



How is ECHO useful for research?

- Network of rural PCPs with positive relationship with an academic medical center program
- Recruitment of rural, low income, minority patients
- High quality data collection through iHealth and iECHO
- Conduit for rapid dissemination of innovations, EBPs
- Opportunity to study uptake, provider knowledge, attitudes, and beliefs, outcomes, impact on healthcare and health of the community

How is ECHO useful for research?

- Network of rural PCPs with positive relationship with an academic medical center program
- Recruitment of rural, low income, minority patients
- High quality data collection through iHealth and iECHO
- Conduit for rapid dissemination of innovations, EBPs
- Opportunity to study uptake, provider knowledge, attitudes, and beliefs, outcomes, impact on healthcare and health of the community



Kamal Jethwani, MD, MPH

**Social Media:
Opportunities and Applications for
Health Services Research**

Kamal Jethwani, MD, MPH

Social Media: Opportunities and Applications for Health Services Research



What is Social Media?

- Forms of electronic communication through which users create online communities to share information, ideas, personal messages, and other content
 - *Blogs*
 - *Location-based Social Networks*
 - *Virtual Worlds*
 - *Bulletin Boards*



What is Social Media?

- Forms of electronic communication through which users create online communities to share information, ideas, personal messages, and other content
 - Blogs
 - Location-based Social Networks
 - Virtual Worlds
 - Bulletin Boards



What is Social Media?

- What is social media currently used for?
 - INTERACTIVITY
- How is it used and by whom (for healthcare)?
 - Doctor to Doctor (Sermo)
 - Doctor to Patient (Facebook + Twitter)
 - Patient to Patient (PLM + CureTogether)
- All used for health information/guidance/support

What is Social Media?

- What is social media currently used for?
 - INTERACTIVITY
- How is it used and by whom (for healthcare)?
 - Doctor to Doctor (Sermo)
 - Doctor to Patient (Facebook + Twitter)
 - Patient to Patient (PLM + CureTogether)
- All used for health information/guidance/support



Opportunities

- Recruitment
- Engagement
- Observation of social interactions
- Direct interaction with patients
- Crowd-sourced data for research
- Dissemination of research

Opportunities

- Recruitment
- Engagement
- Observation of social interactions
- Direct interaction with patients
- Crowd-sourced data for research
- Dissemination of research



Patient Recruitment

- Opportunities for Recruitment
 - Especially suited for:
 - Certain hard to reach populations (teenagers, rare diseases)
 - Large sample size recruitments
 - Multi-site recruitments
 - Studies needing very frequent contact with subjects

Patient Recruitment

- Opportunities for Recruitment
 - Especially suited for:
 - Certain hard to reach populations (teenagers, rare diseases)
 - Large sample size recruitments
 - Multi-site recruitments
 - Studies needing very frequent contact with subjects



Patient Recruitment

- Distinguish between simply advertising on SM platforms, and actually using SM

- Opportunities for recruitment
 - Targeted Promotion to prospective subjects
 - Open Forum
 - Listening/Monitoring for leads
 - Using the 'network' effect

Patient Recruitment

- Distinguish between simply advertising on SM platforms, and actually using SM
- Opportunities for recruitment
 - Targeted Promotion to prospective subjects
 - Open Forum
 - Listening/Monitoring for leads
 - Using the 'network' effect



Patient Recruitment

- Some tips on using Social media effectively:
 - Most social media users are tech-savvy. Focus on design and content of your campaign.
 - Do not sell the campaign, sell the service/trial
 - Pay attention to the following privacy issues:
 - Can potentially interested participants be identified by other users/other agencies if they express interest?
 - Are you collecting any PHI with or without the knowledge of the participant? How is this stored?
 - Are you following the user-terms and privacy guidelines of the platform you're using?
 - Once enrolled, can study participants identify each other on the SM platform?

Patient Recruitment

- Some tips on using Social media effectively:
 - Most social media users are tech-savvy. Focus on design and content of your campaign.
 - Do not sell the campaign, sell the service/trial
 - Pay attention to the following privacy issues:
 - Can potentially interested participants be identified by other users/other agencies if they express interest?
 - Are you collecting any PHI with or without the knowledge of the participant? How is this stored?
 - Are you following the user-terms and privacy guidelines of the platform you're using?
 - Once enrolled, can study participants identify each other on the SM platform?



What's in it for Patients?

- Ability to provide more information
- Self-directed learning
- Better relevancy
- Save time/effort
- Maintain anonymity wherever possible

What's in it for Patients?

- Ability to provide more information
- Self-directed learning
- Better relevancy
- Save time/effort
- Maintain anonymity wherever possible



Monitoring Success

- Google analytics / other free or paid tracking tools
- Split testing – find out exactly ‘what’ works
- Pre-enrollment segmentation – target the population you want.
- Post-enrollment segmentation – find out who is responding better, and tailor the campaign accordingly

Remember to include this in the consent form!

Monitoring Success

- Google analytics / other free or paid tracking tools
- Split testing – find out exactly ‘what’ works
- Pre-enrollment segmentation – target the population you want.
- Post-enrollment segmentation – find out who is responding better, and tailor the campaign accordingly

Remember to include this in the consent form!



Recruitment Successes

- Mayo Clinic – SCAD* Study
 - Research focusing on a rare disease
 - Concentrated and organized patient population
 - Patient-initiated research and ownership
 - Favorable demographics for patient recruitment
 - Widespread positive brand awareness
 - Lack of geographic constraints

*SCAD: Spontaneous coronary artery dissection

Recruitment Successes

- Mayo Clinic – SCAD* Study
 - Research focusing on a rare disease
 - Concentrated and organized patient population
 - Patient-initiated research and ownership
 - Favorable demographics for patient recruitment
 - Widespread positive brand awareness
 - Lack of geographic constraints

*SCAD: Spontaneous coronary artery dissection



Recruitment Challenges

- Challenges:
 - People on social media sites vary from general population.
 - Reliability of data collected (self reported)
 - General digital eco-system can impact your campaign
 - Changing rules or formats of SM platforms can greatly impact your campaign
 - Increased clutter in the SM space makes it hard to stand out
 - Privacy/security concerns

Recruitment Challenges

- Challenges:
 - People on social media sites vary from general population.
 - Reliability of data collected (self reported)
 - General digital eco-system can impact your campaign
 - Changing rules or formats of SM platforms can greatly impact your campaign
 - Increased clutter in the SM space makes it hard to stand out
 - Privacy/security concerns



Recruitment Challenges

- Pfizer – REMOTE 2.0
 - World’s first “virtual” clinical trial
 - Aimed to recruit 600 patients for overactive bladder research
 - Failed to see what patients needed
 - Apprehension around divulging medical information online [privacy concerns]
 - Elderly population [not internet users]
 - Complicated enrollment [for the patient]
- Know your target audience

Recruitment Challenges

- Pfizer – REMOTE 2.0
 - World’s first “virtual” clinical trial
 - Aimed to recruit 600 patients for overactive bladder research
 - Failed to see what patients needed
 - Apprehension around divulging medical information online [privacy concerns]
 - Elderly population [not internet users]
 - Complicated enrollment [for the patient]
- Know your target audience



Overcoming Recruitment Roadblocks

- Overcoming challenges:
 - Study design and population should dictate the use of SM
 - Use ‘social interaction’ creatively
 - Do not rely extensively on specialized design features of a specific SM platform – keep it simple
 - Focus on using appropriate design – your users are likely to appreciate it!
 - More is more – when giving out information about your study – make information readily available
 - Think hard about privacy and patient safety

Overcoming Recruitment Roadblocks

- Overcoming challenges:
 - Study design and population should dictate the use of SM
 - Use ‘social interaction’ creatively
 - Do not rely extensively on specialized design features of a specific SM platform – keep it simple
 - Focus on using appropriate design – your users are likely to appreciate it!
 - More is more – when giving out information about your study – make information readily available
 - Think hard about privacy and patient safety



Research Design

- 80% adults online (or 59% of all adults) seek health information online.
- Seeking health information is the 3rd most common activity online today!
- What do people talk about on SM?
 - Treatment of disease conditions
 - Knowledge about diseases / adverse events
 - Social Implications of disease conditions

Research Design

- 80% adults online (or 59% of all adults) seek health information online.
- Seeking health information is the 3rd most common activity online today!
- What do people talk about on SM?
 - Treatment of disease conditions
 - Knowledge about diseases / adverse events
 - Social Implications of disease conditions



Research Design

- 66% adults use at least one SM platform regularly
- SM allows researchers to study:
 - Health seeking behaviors
 - What do people ask? Where do they look?
 - How do people help each other?
 - If SM can be used to improve care delivery?
 - If SM can be used to engage new populations?
 - Do social factors impact health?

Research Design

- 66% adults use at least one SM platform regularly
- SM allows researchers to study:
 - Health seeking behaviors
 - What do people ask? Where do they look?
 - How do people help each other?
 - If SM can be used to improve care delivery?
 - If SM can be used to engage new populations?
 - Do social factors impact health?



PatientsLikeMe

- Wicks et al. (2012). Perceived benefits of sharing health data between people with epilepsy on an online platform. *Epilepsy & Behavior*, 23(1), 16–23.
- Wicks et al. (2011). Accelerated clinical discovery using self-reported patient data collected online and a patient-matching algorithm. *Nature Biotechnology*, 29(5), 411–414.
- Frost et al (2011). Patient-reported Outcomes as a Source of Evidence in Off-Label Prescribing: Analysis of Data From PatientsLikeMe. *Journal of Medical Internet Research*, 13(1), e6.



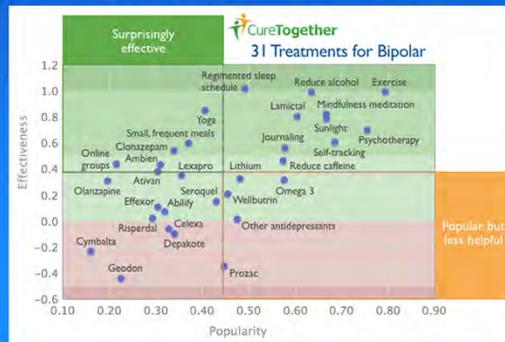
PatientsLikeMe

- Wicks et al. (2012). Perceived benefits of sharing health data between people with epilepsy on an online platform. *Epilepsy & Behavior*, 23(1), 16–23.
- Wicks et al. (2011). Accelerated clinical discovery using self-reported patient data collected online and a patient-matching algorithm. *Nature Biotechnology*, 29(5), 411–414.
- Frost et al (2011). Patient-reported Outcomes as a Source of Evidence in Off-Label Prescribing: Analysis of Data From PatientsLikeMe. *Journal of Medical Internet Research*, 13(1), e6.



CureTogether

- Patient-driven Research
- Anonymous to encourage those dealing with the stigma of conditions/diseases
- Focus on under-funded/under-researched conditions
- LIVE research



CureTogether

- Patient-driven Research
- Anonymous to encourage those dealing with the stigma of conditions/diseases
- Focus on under-funded/under-researched conditions
- LIVE research



Social Media in Study Design

- Opportunities in clinical research
 - The data is already public; we have implied consent
 - Surfing personal data for screening is much more efficient than sending preliminary questionnaires.
 - The data provides a more holistic view of participants and their behaviors.
 - The data is free of certain biases

Social Media in Study Design

- Opportunities in clinical research
 - The data is already public; we have implied consent
 - Surfing personal data for screening is much more efficient than sending preliminary questionnaires.
 - The data provides a more holistic view of participants and their behaviors.
 - The data is free of certain biases



Research Design

■ Barriers

- Users may not think their data will be reviewed this way
- Data gathered from such efforts may be false or misleading
- Publishing results with such data may make it easier to identify participants, causing harm
- May violate web sites' terms of service

Research Design

- Barriers
 - Users may not think their data will be reviewed this way
 - Data gathered from such efforts may be false or misleading
 - Publishing results with such data may make it easier to identify participants, causing harm
 - May violate web sites' terms of service



Research Dissemination

- Redefining “Bench to Market.” Shifting focus from evidenced based outcomes in pharma to population validated outcomes [instantaneous]
- Instantaneous dissemination of research findings via Twitter, Facebook, etc. invites instantaneous feedback
- Meaningful dissemination
 - Target populations for specific results (i.e. teens w/ asthma)
 - Collaborate with Sponsor on dissemination (Sponsors have full-time marketing departments)



Research Dissemination

- Redefining “Bench to Market.” Shifting focus from evidenced based outcomes in pharma to population validated outcomes [instantaneous]
- Instantaneous dissemination of research findings via Twitter, Facebook, etc. invites instantaneous feedback
- Meaningful dissemination
 - Target populations for specific results (i.e. teens w/ asthma)
 - Collaborate with Sponsor on dissemination (Sponsors have full-time marketing departments)



Privacy Case Study

- The “Tastes, Ties and Time” Study
 - Study to evaluate how people’s friendships and tastes evolve over time
 - Researchers downloaded 1700 ‘anonymous’ Facebook profiles.
 - The cohort was released publicly, and soon cracked to reveal that the cohort was Harvard’s 2009 UG class.
 - Conclusions about specific people’s ‘ties and tastes’ were now public, without their consent!

Privacy Case Study

- The “Tastes, Ties and Time” Study
 - Study to evaluate how people’s friendships and tastes evolve over time
 - Researchers downloaded 1700 ‘anonymous’ Facebook profiles.
 - The cohort was released publicly, and soon cracked to reveal that the cohort was Harvard’s 2009 UG class.
 - Conclusions about specific people’s ‘ties and tastes’ were now public, without their consent!



Privacy Case Study (cont)

- Where did they go wrong?
 - Using 'in network' RA's – to use their privileged access to download profile data
 - Did not Remove or encode ALL "identifying" information
 - Release of 'raw de-identified' data to the public
 - Relative inexperienced IRB

Privacy Case Study (cont)

- Where did they go wrong?
 - Using 'in network' RA's – to use their privileged access to download profile data
 - Did not Remove or encode ALL "identifying" information
 - Release of 'raw de-identified' data to the public
 - Relative inexperienced IRB



Addressing Privacy Concerns

- IRB: Understanding federal regulations (ensure compliance for medical research)
 - Protect all identifying information
 - Do subjects know their data can be analyzed? If not, tell them!
 - Can anyone who has access to de-identified data trace it back to subjects?
 - Are all your sub-contractors (developers etc) HIPAA compliant?

Addressing Privacy Concerns

- IRB: Understanding federal regulations (ensure compliance for medical research)
 - Protect all identifying information
 - Do subjects know their data can be analyzed? If not, tell them!
 - Can anyone who has access to de-identified data trace it back to subjects?
 - Are all your sub-contractors (developers etc) HIPAA compliant?



Privacy (cont)

- IT:
 - Where is the data being stored?
 - For how long?
 - Can it be de-identified completely?
 - Can it be destroyed completely?
 - Who owns it?
 - How public is it?
- Legal:
 - Understand terms of use and/or service,
 - Understand patient rights

Privacy (cont)

- IT:
 - Where is the data being stored?
 - For how long?
 - Can it be de-identified completely?
 - Can it be destroyed completely?
 - Who owns it?
 - How public is it?
- Legal:
 - Understand terms of use and/or service,
 - Understand patient rights



Conclusion

Understanding the power of social media and fitting it in with regulatory environment of clinical research

Think like a marketer.

Conclusion

Understanding the power of social media and fitting it in with regulatory environment of clinical research

Think like a marketer.



Discussion

- We welcome your comments and questions
- Reminder: press *6 to mute; press * 7 to un-mute
- Questions may also be submitted via 'Chat' feature on webinar console at any time

Discussion

- We welcome your comments and questions
- Reminder: press *6 to mute; press * 7 to un-mute
- Questions may also be submitted via 'Chat' feature on webinar console at any time



Final Comments

- Discussion Summary
 - Will be distributed to all Webinar participants and posted on the AHRQ TA website
- Evaluation Form
 - Online evaluation form will appear on your screen at conclusion of Webinar; we value your feedback.
 - Thank you for joining us today!

Final Comments

- Discussion Summary
 - Will be distributed to all Webinar participants and posted on the AHRQ TA website
- Evaluation Form
 - Online evaluation form will appear on your screen at conclusion of Webinar; we value your feedback.
 - Thank you for joining us today!



Panelist Bio

Joseph Kim, MD, MPH

Dr. Kim is the President of MCM Education. Established in 1995, MCM develops certified continuing medical education (CME) activities in joint-sponsorship with accredited organizations. He is also the founder of several mobile health websites like MedicalSmartphones.com and MobileHealthComputing.com and currently serves on the Medical Advisory Board of Doximity.

Dr. Kim holds a bachelor of science in engineering from the Massachusetts Institute of Technology, a doctor of medicine from the University of Arkansas College of Medicine, and a master of public health from the University of Massachusetts Amherst School of Public Health.

Contact email: mdjoekim@gmail.com

Panelist Bio

Joseph Kim, MD, MPH

Dr. Kim is the President of MCM Education. Established in 1995, MCM develops certified continuing medical education (CME) activities in joint-sponsorship with accredited organizations. He is also the founder of several mobile health websites like MedicalSmartphones.com and MobileHealthComputing.com and currently serves on the Medical Advisory Board of Doximity.

Dr. Kim holds a bachelor of science in engineering from the Massachusetts Institute of Technology, a doctor of medicine from the University of Arkansas College of Medicine, and a master of public health from the University of Massachusetts Amherst School of Public Health.

Contact email: mdjoekim@gmail.com



Panelist Bio

Miriam Komaromy, MD

Dr. Komaromy is a practicing physician, board certified in both internal medicine and addiction medicine. She launched the addiction treatment arm of Project ECHO in 2006 and has been serving as Medical Director, Integrated Addictions and Psychiatry Program Project ECHO, University of New Mexico Health Sciences Center since its creation. In addition, Dr. Komaromy is the Medical Director for Turquoise Lodge Hospital, an addiction treatment hospital funded by the New Mexico Department of Health. Her main research interest is in studying the use of telehealth technology, in the form of the ECHO model, to expand access to health care for traditionally underserved communities.

Contact email: miriamkomaromy@gmail.com

Panelist Bio

Miriam Komaromy, MD

Dr. Komaromy is a practicing physician, board certified in both internal medicine and addiction medicine. She launched the addiction treatment arm of Project ECHO in 2006 and has been serving as Medical Director, Integrated Addictions and Psychiatry Program Project ECHO, University of New Mexico Health Sciences Center since its creation. In addition, Dr. Komaromy is the Medical Director for Turquoise Lodge Hospital, an addiction treatment hospital funded by the New Mexico Department of Health. Her main research interest is in studying the use of telehealth technology, in the form of the ECHO model, to expand access to health care for traditionally underserved communities.

Contact email: ***miriamkomaromy@gmail.com***



Panelist Bio

Wesley Pak, MBA

Wesley Pak is a Systems and Programming Manager at Project ECHO at the University of New Mexico. He received a Bachelor of Science degree from the University of Maryland, a Master of Business Administration from the University of Phoenix, and is currently completing his PhD at the University of New Mexico. His areas of research are telehealth adoption, knowledge management and dissemination.

Contact email: wpak@salud.unm.edu

Panelist Bio

Wesley Pak, MBA

Wesley Pak is a Systems and Programming Manager at Project ECHO at the University of New Mexico. He received a Bachelor of Science degree from the University of Maryland, a Master of Business Administration from the University of Phoenix, and is currently completing his PhD at the University of New Mexico. His areas of research are telehealth adoption, knowledge management and dissemination.

Contact email: wpak@salud.unm.edu



Panelist Bio

Kamal Jethwani, MD MPH; Lead Research Scientist, Center for Connected Health; Instructor in Dermatology, Harvard Medical School

Dr. Jethwani currently leads the research and program evaluation initiatives at the Center for Connected Health. His research is focused on technology-based models of health delivery and use behavior change as a tool for preventive and supportive care in a tertiary health care setting. His work at the Center for Connected Health has spanned from designing and implementing clinical trials to leading efforts in predictive modeling using behavioral parameters.

Kamal's research has evolved over time to include exploration of newer health delivery models, like employer based health programs and electronic social network based programs. He is also exploring newer tools to deliver feedback to patients, like simple text message based platforms, applications for smart phones, etc. The ability to personalize care and understand behavioral motivations that dictate health choices remains central to all his work at the Center.

Contact email: kjethwani@partners.org

Panelist Bio

Kamal Jethwani, MD MPH; Lead Research Scientist, Center for Connected Health; Instructor in Dermatology, Harvard Medical School

Dr. Jethwani currently leads the research and program evaluation initiatives at the Center for Connected Health. His research is focused on technology-based models of health delivery and use behavior change as a tool for preventive and supportive care in a tertiary health care setting. His work at the Center for Connected Health has spanned from designing and implementing clinical trials to leading efforts in predictive modeling using behavioral parameters.

Kamal's research has evolved over time to include exploration of newer health delivery models, like employer based health programs and electronic social network based programs. He is also exploring newer tools to deliver feedback to patients, like simple text message based platforms, applications for smart phones, etc. The ability to personalize care and understand behavioral motivations that dictate health choices remains central to all his work at the Center.

Contact email: kjethwani@partners.org