



Alternative & Emerging Technologies in Health Services Research

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

April 11th, 2012

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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

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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

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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

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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
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Grantee Roll Call

- Name, Organization, Project PI

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Today's Presentation

Alternative & Emerging Technologies in Health Services Research

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

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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

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Overview of Technologies

Technology	Advantages	Disadvantages	Past and Present AHRQ Grantee Examples
Patient portals • Secure clinical messaging between patient and provider • Web access to portal	•Improves patient access •Reduces administrative burden on providers •Improves patient and provider communication •Improves continuity of care between different doctors	•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	•Kevin B Johnson. "My MediHealth: A Paradigm for Children-centered Medication Management"

Overview of Technologies



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Technology	Advantages	Disadvantages	Past and Present AHRQ Grantee Examples
Mobile devices • Texting • Personal healthcare record (PHR)/ electronic healthcare record (EHR) access	• Improves patient access • Use for medication reminders, and to improve treatment compliance	• Privacy and security concerns • Older patients may be unfamiliar with technology- choose audience wisely	• 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 medicine (ATSM) • 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*
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Joseph Kim, MD, MPH

The Evolving World of Mobile Health and Healthcare

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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

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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>

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Dermatology

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



Not approved in the USA

<http://www.handyscope.net>



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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

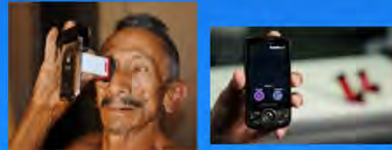
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Conducting Eye Exams

- 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>

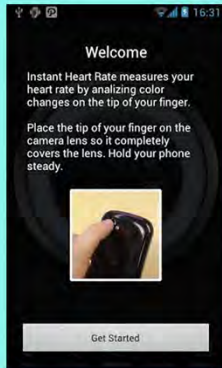
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Cardiology: Heart Rate to EKG



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



iPhone ECG by
AliveCor (not approved)



AirStrip Technologies
Medtronic Physio-
Control

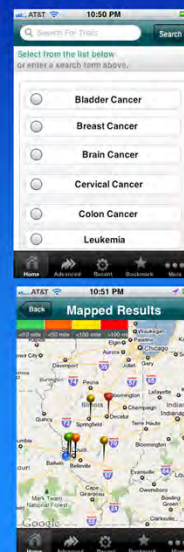
Cardiology: Hate Rate to EKG



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>



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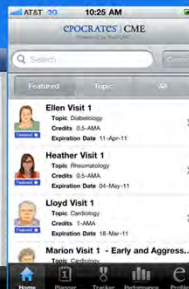
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Medical Education Going Mobile

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



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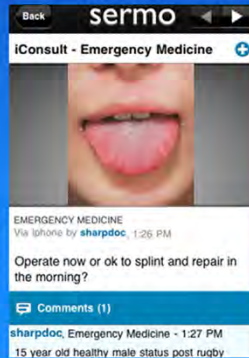
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Online Medical Communities

- Sermo
- QuantiaMD
- Doximity

HIPAA
Data security



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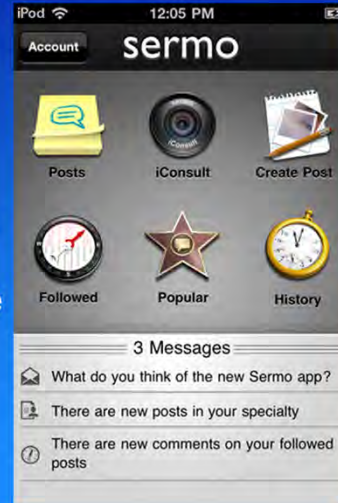
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HIPPA Data Security



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>

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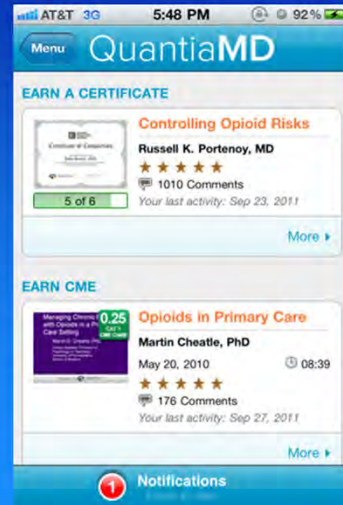
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QuantiaMD By Quantia Communications

- Compete in the Monthly Medical Challenge – real cases and expert knowledge challenges
- Expert Practice Series segments – 8-10 minute clinical presentations
- Interact with colleagues
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<http://itunes.apple.com/us/app/quantiamd/id305777377?mt=8>

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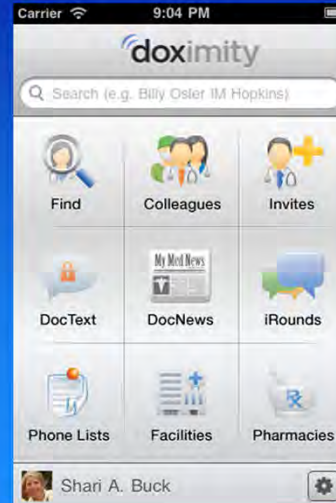
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Doximity By Doximity

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



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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

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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>

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



Free Mobile Phones

- FREE Phone + 250 FREE Voice Minutes
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- For qualifying government programs or are income eligible: Medicaid, Food Stamps/SNAP, Social Security Income (SSI),



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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>

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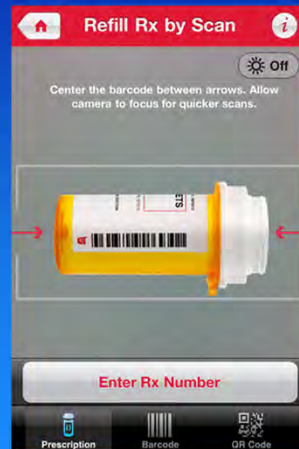
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Walgreens Mobile App By Walgreens

- 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>

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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

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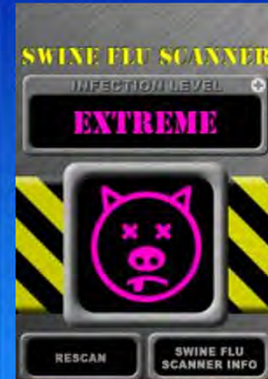
Swine Flu “Apps”



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>

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Diabetic Dosage: an Insulin Calculator By Kalianne 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>

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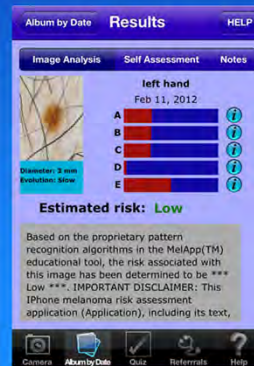
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MelApp By Health Discovery Corporation

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

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Data Security & Patient Privacy

- Questions and concerns:
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 - 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

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“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>

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“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>

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**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?

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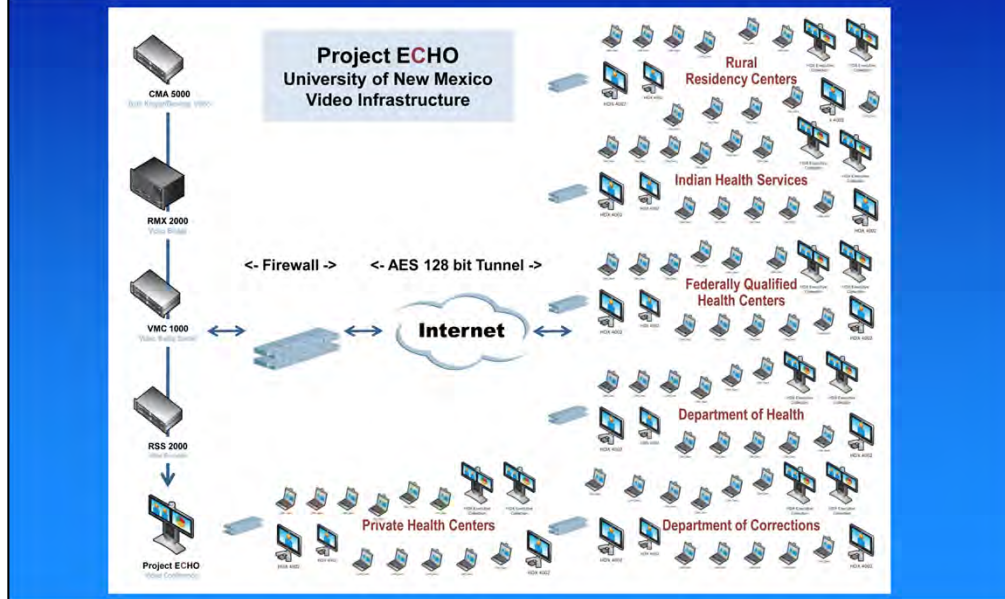




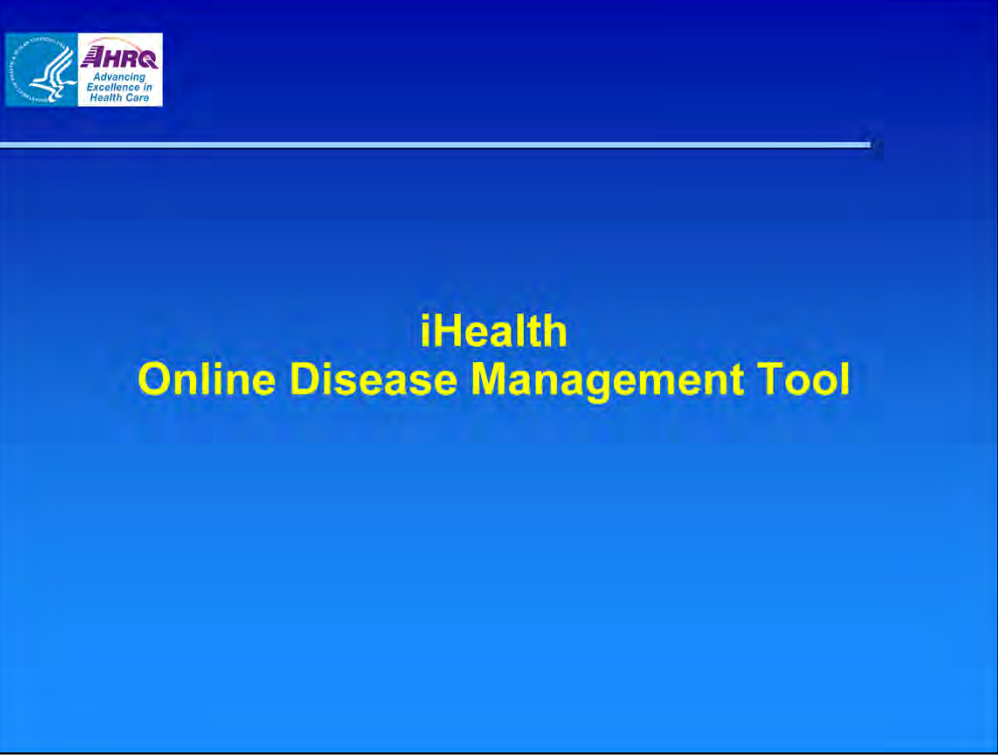
**TeleECHO
Video Conferencing Infrastructure**



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: 02/20/2012 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 160 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
niks

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

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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

Fix 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

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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

iHEALTH Disease Management Tool
Welcome, Test_SuperAdmin, Super Admin. (Last Logged in: 09/30/2012 11:02:03 AM) Home | Help | Change Password | Logout
Search Patient:

My Messages Patients Admin Reports Resources ECHO Clinics Clinic Admin



Patient Test Site: Z-Test Disney ECHO ID: 12281 [Edit Patient Profile](#)
Date of Birth: 01/10/1985 Age: 27 Gender: Male
Rheumatology [New Disease State](#)

Current Medications
Ibuprofen 200 mg BID

Messages Rheumatology Lab Flow Sheet Medications Presentations

Unscheduled Presenter: --Select-- (Olivas,Cynthia n-)

Main Question For Presentation
Diagnosis
Diagnoses
Depression, Anemia, Other: bilateral hip pain, MVA 6 months ago
Medications
Ibuprofen- 200- BID
Allergies
PCN
History of Present Illness (HPI)
Family History
Maternal Grandmother with OA, paternal grandmother with RA
Surgeries
Review of Systems
Other: difficulty lifting arms, diffuse back

Joint Tenderness & Swelling Selection

Pain Points


Last Note:

Clinic Note:

Back to Patient Clinic
Previous Presentations:
Schedule Presentations:
--Select--
Sign Off Person:
--Select--
Edit All Save Cancel Print

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

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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 [Link Patient Profile](#)

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

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

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

Current Medications

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

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		1.3	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							
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

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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

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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		6
(ENM MI) Motivational Interviewing	12 clinics, 96 attended		10
(ENM MOC-POW) Maintenance of Certification	8 clinics, 63 attended		1
			AA
			ABA
			ACE CPT
(ENM PN) Pediatric Nutrition Telehealth	14 clinics, 128 attended		2
(ENM SBHC-C) School-Based Health Center	67 clinics, 503 attended		27
			ACRN
			ANP-BC
(ENM Spec) Special Topics or Events	28 clinics, 115 attended		6
			AP-C
			APN
Community Addictions Recovery Specialists	25 clinics, 430 attended		1
			APRN
Dementia Care Clinic	9 clinics, 150 attended		53
			ARNP
Diabetes / Cardiovascular Risk Reduction	38 clinics, 877 attended		2
			AS
Diabetes CHW Training Clinic	27 clinics, 667 attended		1
			B.S.
			BA
HIV/AIDS	48 clinics, 1649 attended		1
			BCOP
Heart Failure	16 clinics, 188 attended		254
			BCPS
Hepatitis C - Community	51 clinics, 1067 attended		8
Hepatitis C - Connections	36 clinics, 627 attended		13
			BFA
High Risk Pregnancy	28 clinics, 475 attended		1
			BS
Integrated Addiction / Psychiatry	50 clinics, 1182 attended		202
			BS Education
New Mexico Peer Education Program	18 clinics, 466 attended		1
			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

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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

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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

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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

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Principal Endpoint

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

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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

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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

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Ranking of # of Buprenorphine-Certified Providers Per Capita

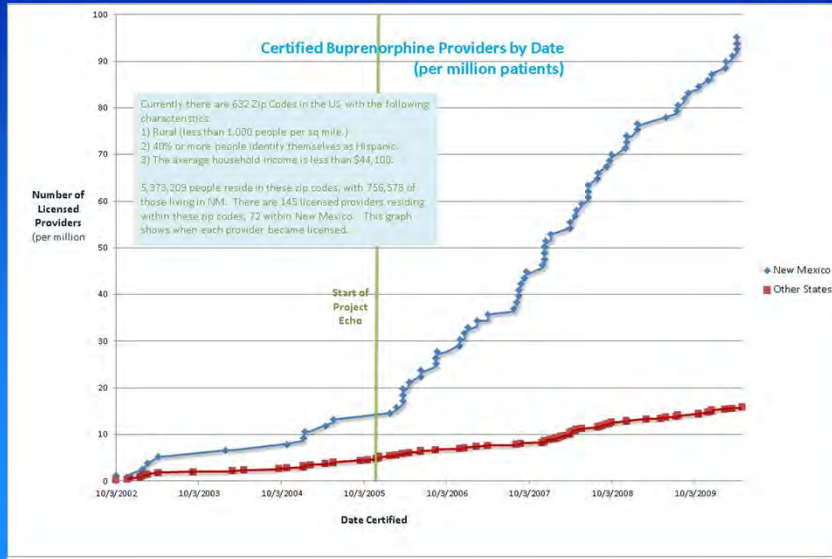
State	Rank 2005	Physicians certified 2005	Rank 2009	Physicians certified 2009
VT	1	31	1	160
ME	2	41	2	241
DC		9		81
MA	6	100	3	877
MD	10	82	4	749
NM	13	21	5	258
RI	4	20	6	127
NY	7	292	7	2156
CT	3	67	8	382
PA	8	185	9	1200
AK	6	17	10	62

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?

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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

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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
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- 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

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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*



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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

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Opportunities

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

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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

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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

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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?

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 - Once enrolled, can study participants identify each other on the SM platform?



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- Self-directed learning
- Better relevancy
- Save time/effort
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- Split testing – find out exactly ‘what’ works
- Pre-enrollment segmentation – target the population you want.
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Research Design

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 - Treatment of disease conditions
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PatientsLikeMe

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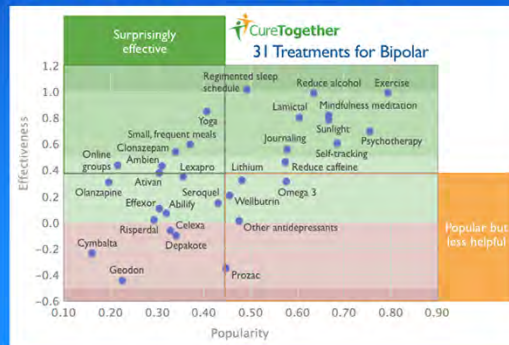
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 - Surfing personal data for screening is much more efficient than sending preliminary questionnaires.
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- Redefining “Bench to Market.” Shifting focus from evidenced based outcomes in pharma to population validated outcomes [instantaneous]
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Think like a marketer.

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 - Will be distributed to all Webinar participants and posted on the AHRQ TA website
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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.

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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.

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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.

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