# *The Rural Medical Practitioner: Using Technology to Bridge Gaps in Care*

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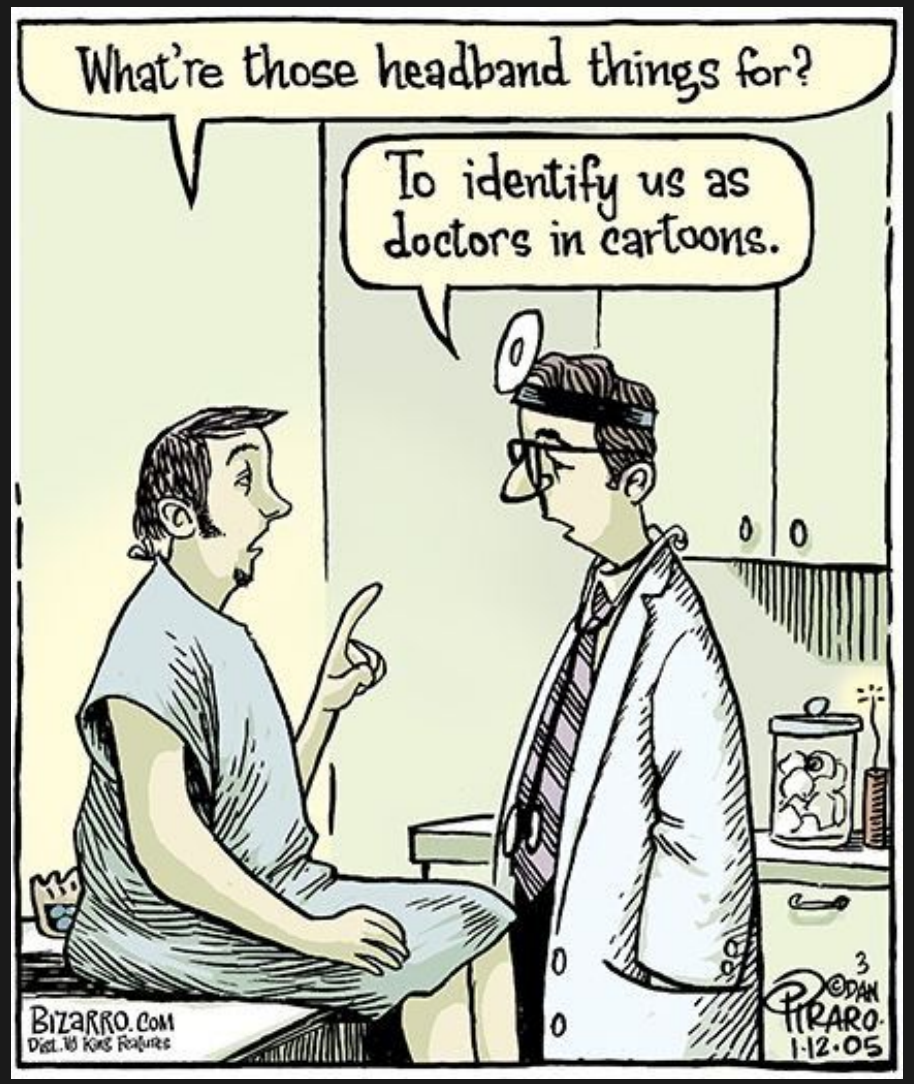
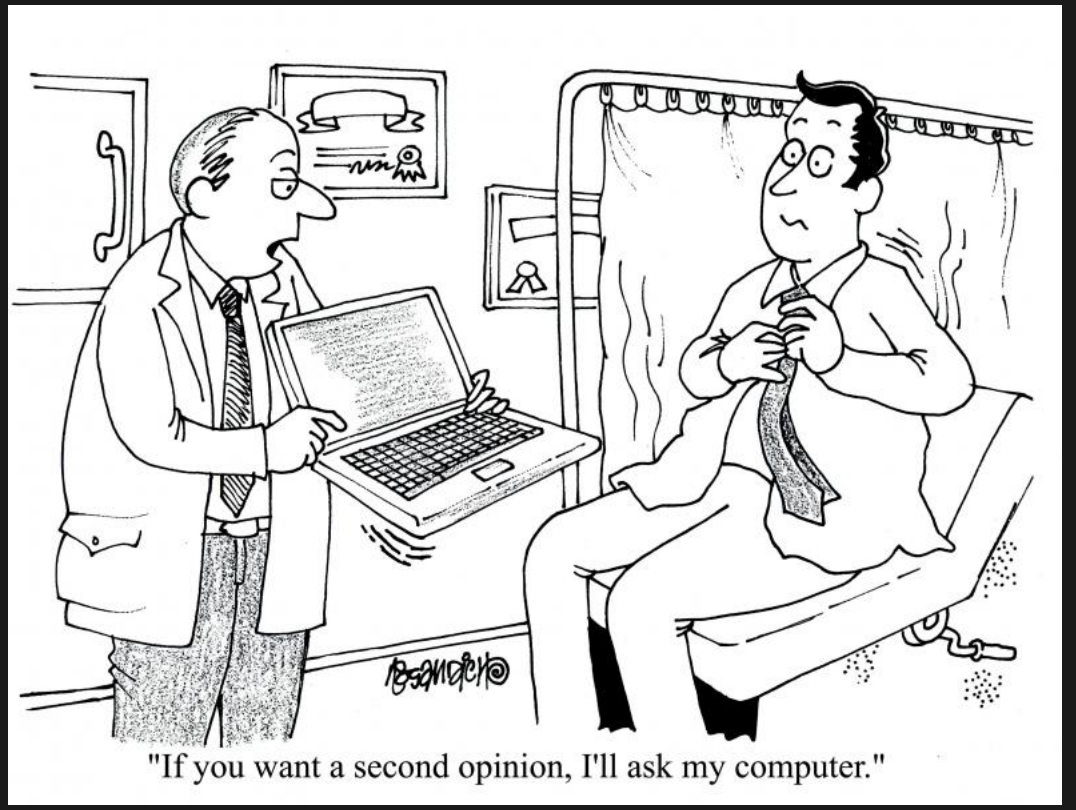


"If you want a second opinion, I'll ask my computer."

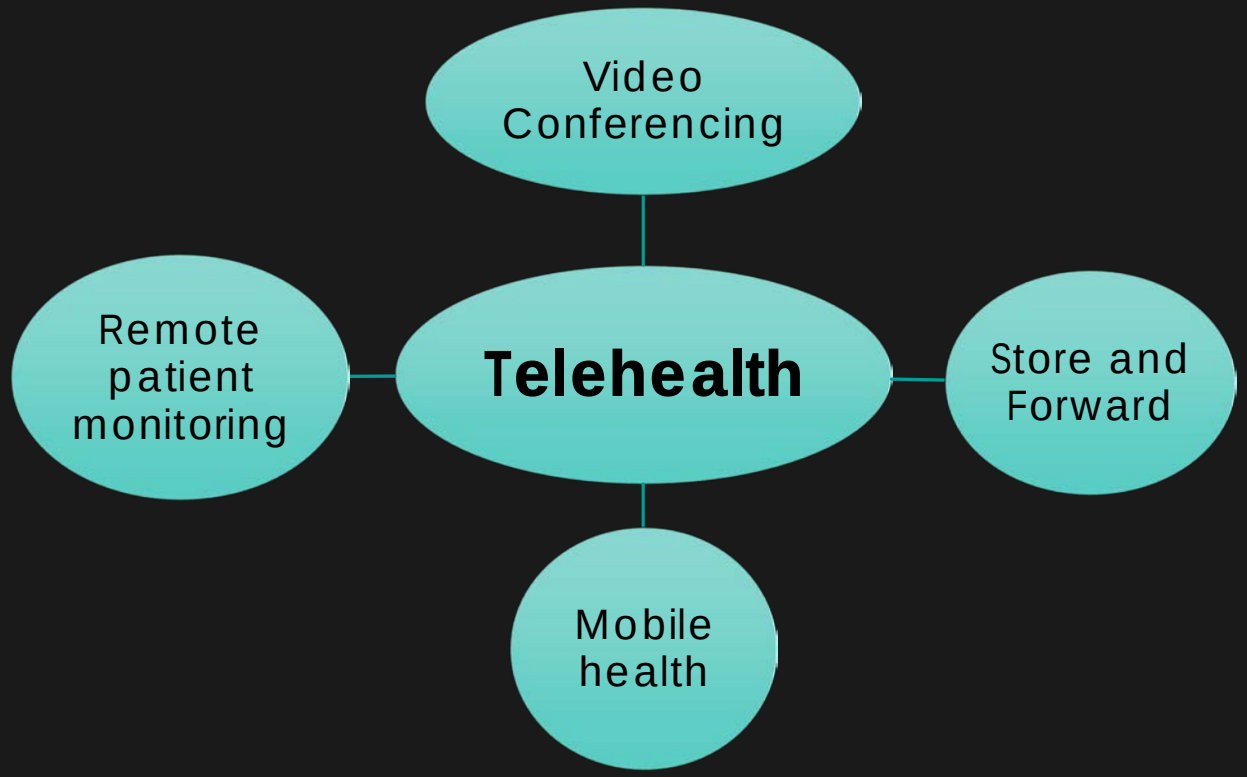
# What are the key elements of telehealth?

- Provide clinical support
- Overcome geographical barriers, connecting patients with providers who are not in the same physical location
- Implement the use of various types of technology (synchronous and asynchronous video clinical encounters, store and forward transmission of health data, and remote patient monitoring)
- Facilitate value-based care and improve patient outcomes

# What are the components of telehealth?

- Electronic medical or health records systems (EMRs/EHRs)
- Video conferencing
- Remote patient monitoring
- Mobile devices and networks
- Mobile applications

# What is telehealth?



# Types of Telehealth

## MODALITIES

**Store-and-forward:** Sending or forwarding stored digital images and associated patient data to a distant site provider or patient.

**Live-interactive:** Providers and patients interact via live video. A variety of peripheral hardware attachments may be utilized to enhance the consultation.

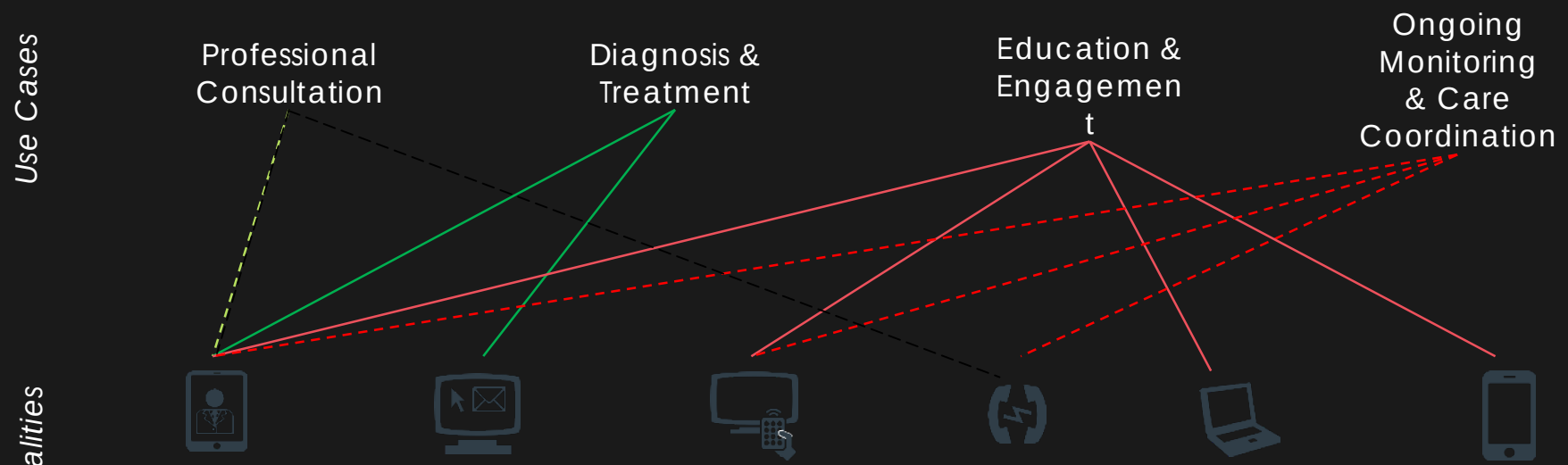
## USES

**Direct-to-patient:** The patient sends images or interacts live, directly with the dermatologist.

**Triage/consultative for inpatients and outpatients:** Another physician sends images or interacts live with a dermatologist for either consultation or triage.

# What is Telehealth?

## Telehealth Use Cases, Relevant Modalities, and Investment Required




**Videoconference**

- Need software, secure internet access for patients
- Home and hospital-based technology

**Asynchronous Store-and-Forward**

- Need additional bandwidth, storage space
- Can replace non-urgent phone calls and visits

**Remote Device**

- More expensive hardware investment
- Used for high-risk patients in non-hospital site

**Telephone**

- Little tech investment, requires proper staffing
- Used for pre-visit triage

**Patient Portal**

- High security needs require significant investment
- Must integrate EHR

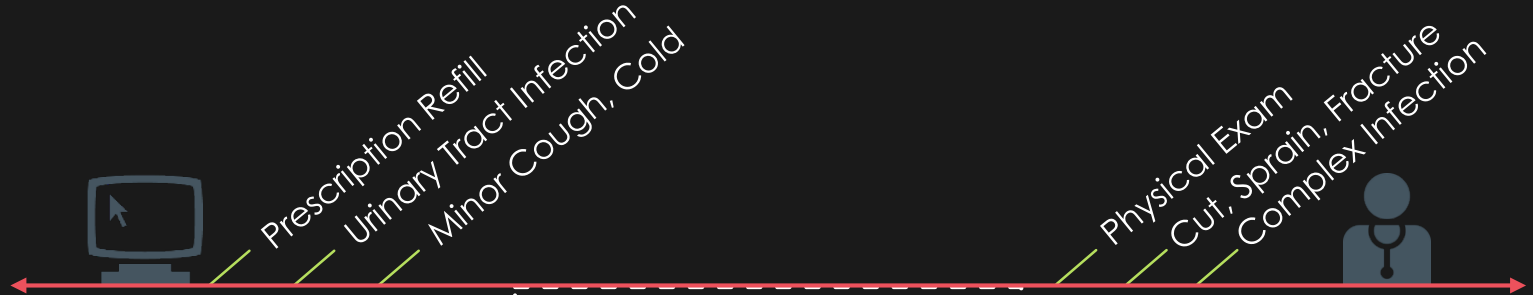
**Mobile App**

- Minimal hardware investment for providers
- Complex security and data storage issues

Source: Marketing and Planning Leadership Council interviews and analysis. (Advisory Board)

# More Services Being Provided Virtually

## Services Can be Offered at a Lower Cost




**Remote**

- Diagnoses, treatments follow reliable standard protocols based on evidence-based medicine
- Suggested therapies are nearly always effective
- Physical exam not required, visual exam adds nominal value

**Emerging Areas for Virtual Care**

***Management, Maintenance***

- Chronic disease checkups, follow-ups
- Care plan updates
- Specialist consults

***Diagnosis, Treatment***

- Remote diagnostics
- Self-guided interventions

**In-Person**

- Diagnoses, treatments more complex, may vary within disease category
- Therapies may need careful selection and monitoring
- Physical exam or diagnostic test required to correctly identify issue and select treatment
- Intervention required (i.e., immunization)

Source: Marketing and Planning Leadership Council interviews and analysis. Advisory Board

# What does telehealth offer?

- The hope of quality care at a lower cost – a critical imperative in the accelerating era of value-based payment.
- Increasing access to care and reaching new markets by enabling virtual consultation regardless or geographic location.
- Addressing the misdistribution of specialists
- Decreased wait times
- Reducing emergency department visits
- Addressing medical problems earlier and preventing more serious disease
- Facilitating patient compliance with referred care and recommended treatment by allowing more options for care

# What are the risks of telemedicine?

- Identity fraud/theft
- Abuse by patients, fraudulent use
- Violations of controlled substance prescribing standards – most states require in-person visits
- Degradation of physician-patient relationships
- Overburdening of doctors
- Incomplete data leading to wrong diagnosis
  - Poor history/lack of access to full patient information
  - Low quality photographs or video connection
- Lack of data on telemedicine outcomes

# Who can benefit from telemedicine?

- Rural patients who lack access to specialist care
- Patients who cannot travel (including inmates)
- Patients with limited mobility
- Patients with a language barrier
- Vulnerable populations
  - Those seeking mental health care
  - Those seeking treatment for sexually transmitted conditions
  - Those suffering from abuse or neglect

# Who can benefit from telemedicine?

- Busy parents and professionals
- Patients that are more comfortable with a virtual interaction

# What criteria should telemedicine meet?

- Care should be high quality (diagnostic accuracy and outcomes comparable to in-person care)
- Should contribute to care coordination (not care fragmentation)
- Care should meet state licensure and other legal requirements
- Care should maintain patient choice and transparency
- Care should protect patient privacy
- Patients should have a choice of provider
- Patients should be aware of cost sharing responsibility
- Insurers should not require telemedicine in lieu of traditional in-person care

# Requirements of telemedicine

- Provider must be licensed in state where patient receives services
- Delivery of services must be consistent with state scope of practice laws
- Patient history must be available (i.e. through shared EHR) or collected
- Consulting providers should understand the culture, health care infrastructure, and resources available at the remote site
- Telemedicine services should include care coordination with PCP or medical home
- Protocols for care of urgent or emergent conditions must be in place
- Mechanisms to facilitate continuity of care and follow up
- Care should be cost-effective

# WEIGHING UP

Telemedicine is quickly evolving into a budding option for delivery of health care. While many consumers are sold on its benefits, some physicians may still be weighing the advantages and limitations of utilizing teledermatology in their practices. Experts boil down the pros and cons of telemedicine to the following:

## POSITIVE

+ Increased access for patients who cannot travel/have inadequate insurance
+ Improved wait times for in-person visits
+ Efficiency in care management and coordination among physicians
+ Improved physician work-life balance
+ Better customer service for patients increasingly utilizing technology

## NEGATIVE

- Reduced efficiency due to unreliable technology
- Potential for HIPAA violations, documentation issues
- Inappropriate for many patients – especially high-risk or health illiterate
- Limitations with physician diagnosing capabilities – psychological, vision, smell, touch
- Potential shift in practice and value of dermatology

# Technology Getting Faster, More Widespread

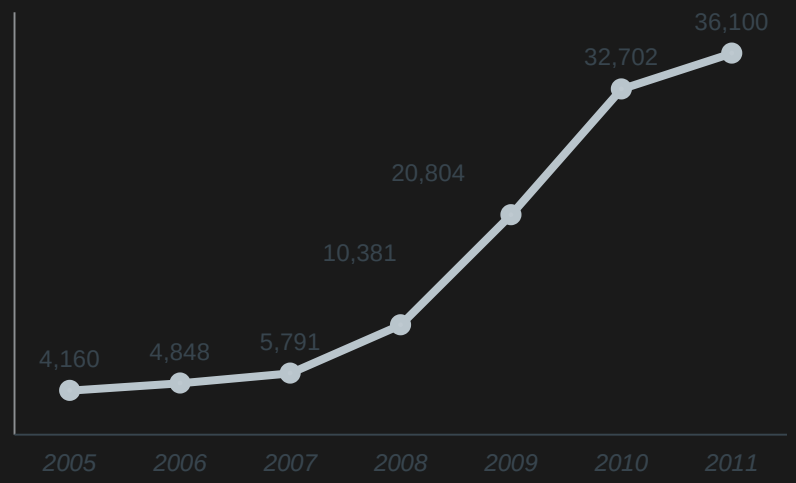
## Enables Growth in Telehealth

**Advancements in Technology**

- Remote monitoring devices with cellular or fixed-line modems enabling data transmission without computer or smartphone
- Expanded memory and processing capabilities
- Geospatial tracking
- Movement tracking
- Touch-screen technologies

**Increased Population**

- 100% US population covered by mobile network
- Health information fastest-growing content accessed by US mobile users, up 134% between 2010-2011




Sources: "mHealth in an mWorld: How mobile technology is transforming health care," Deloitte, available at http://www.deloitte.com/; Health Care IT Advisor research and analysis

# How do we study telehealth?

- With so many modalities emerging so quickly, quality data will take time
- The field of telehealth naturally studies itself, but is difficult to study against the gold standard of face-to-face care
- Cochrane review 2010
  - Little evidence of clinical benefits (though no clear harms either)
  - Cost effectiveness not clear
  - Patients were satisfied
  - . . . But only 7 trials met inclusion criteria (had to compare telemedicine to face-to-face)

# Dermatology: The Problem

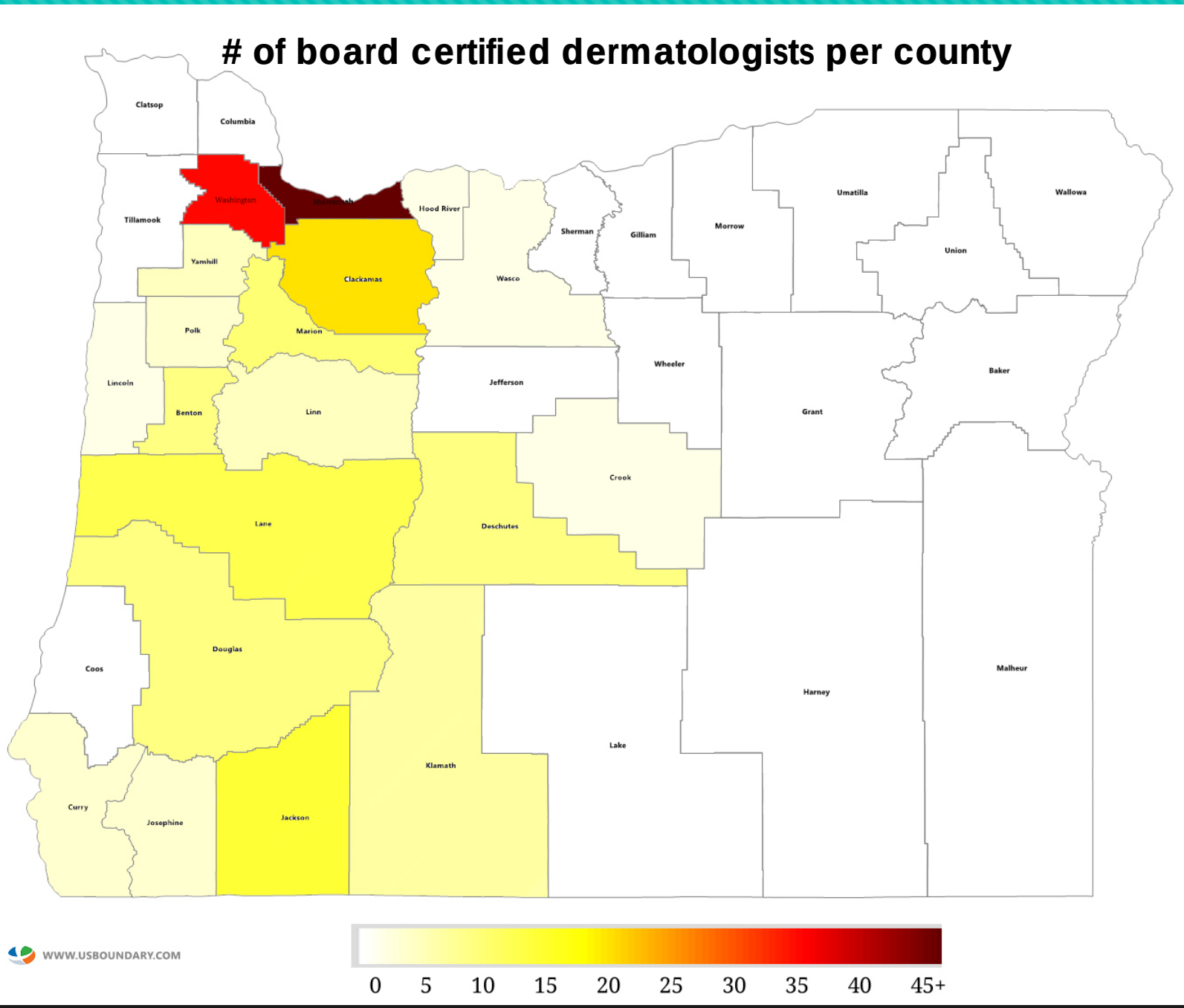
**# of board certified dermatologists per county**

**<u>18 DO licenses</u>**
**<u>238 MD licenses</u>**

- **71 in Multnomah County**
- **35 in Washington**
- **20 in Clackamas**

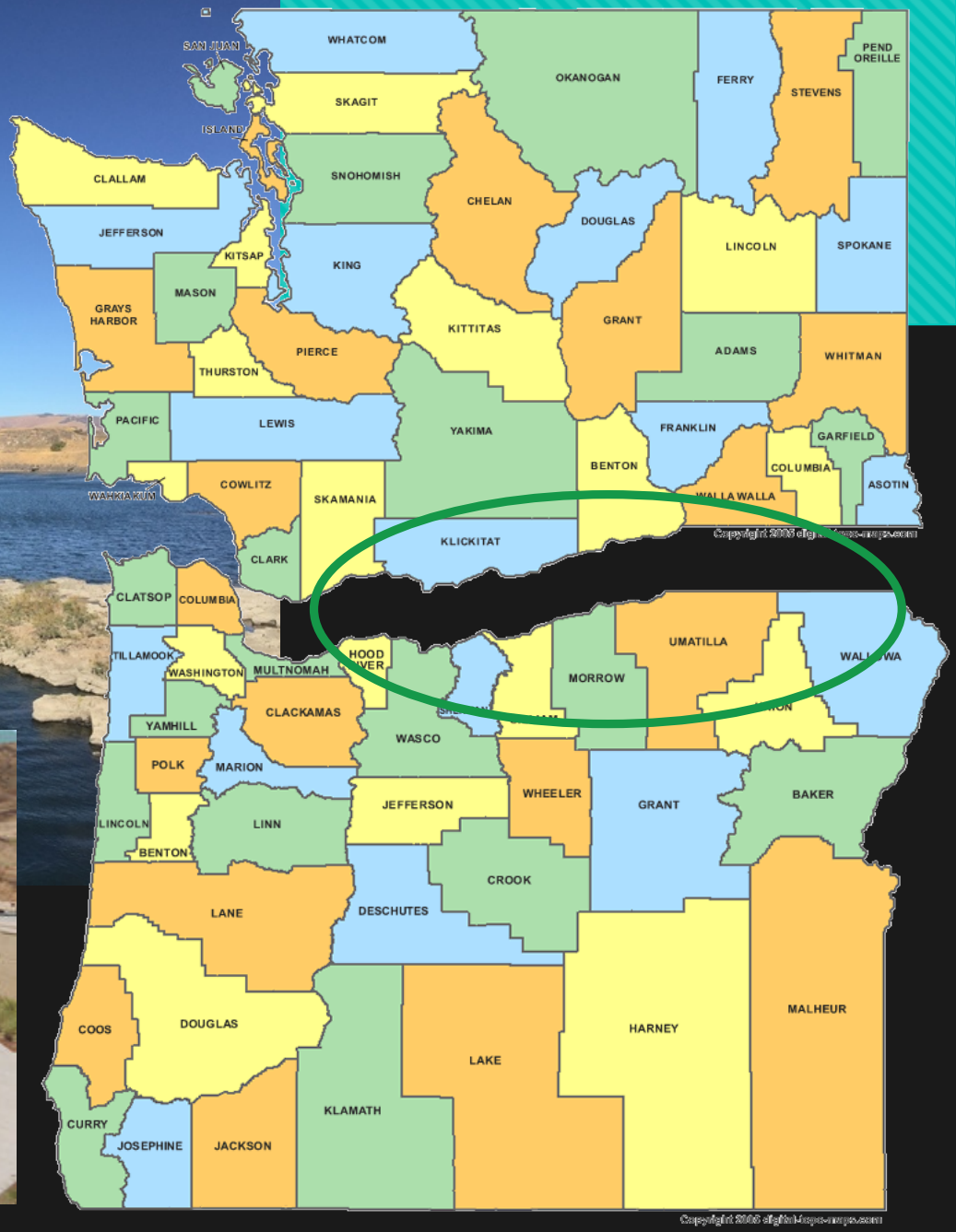
**50% in greater Portland area**

- **9 in Deschutes**



MCMC
MID-COLUMBIA MEDICAL CENTER

# HOW I GOT STARTED IN TELEDERMATOLGY



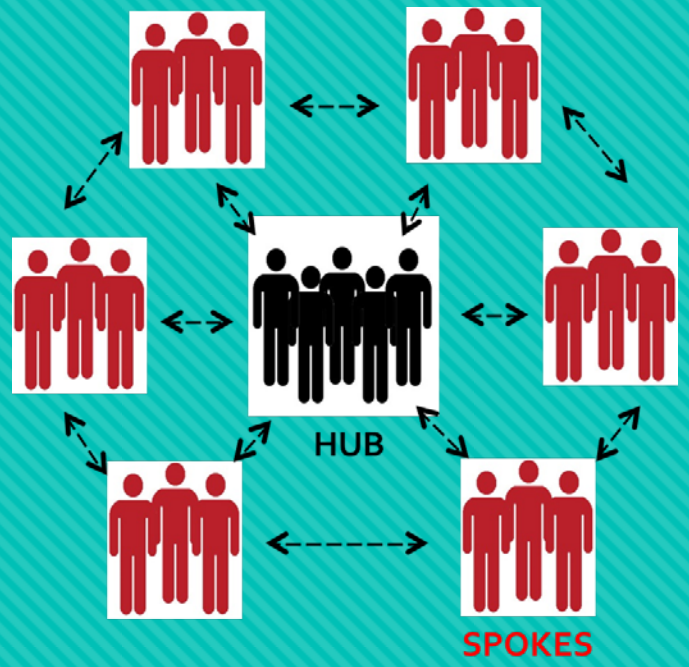
# How TELEDERMATOLOGY expands care:

## For practitioners:

- **CODE: Community Outreach & Dermatology Education**
- Project ECHO
- Teletriage
- Teleconsultation

## For patients:

- OHSU Dermatology eVisits
- App-based platforms
- Mole Mapper




# Telemedicine support for providers

Medical providers helping medical providers

# CODE:
# Community Outreach & Dermatology Education

## Addressing specialist misdistribution

ODS Oregon Dermatology Society + OREGON HEALTH & SCIENCE UNIVERSITY OHSU + AMERICAN ACADEMY OF DERMATOLOGY AAD 1938 + Pfizer = CODE community outreach & dermatology education


- Pfizer Independent Grants for Learning & Change (IGLC)
  - Address issues related to patient access to dermatologic care.

WHO WE ARE:

Mel Riter MD PhD, Macey Delcambre MD, Shannon Winchester

# CODE project goals


- CREATE a teleconferencing system to connect dermatologists in the PNW
  - https://codederm.ohsu.edu
- SHARE challenging cases
- CONTRIBUTE to resident education
- INCREASE access to specialized and general knowledge
- DELIVER CME (continuing medical education)
- INCREASE professional satisfaction
- LINK peers and foster community relationships

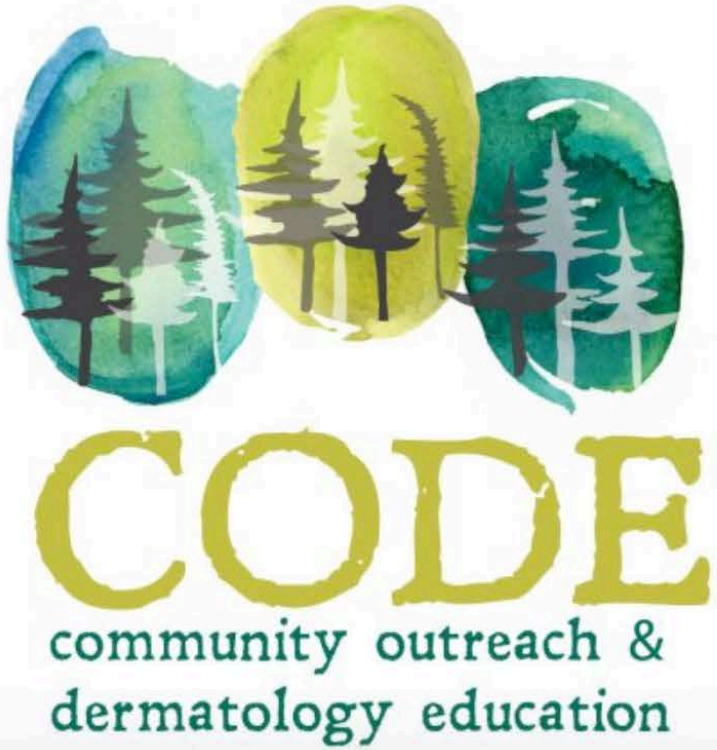
- IMPROVE access to care in RURAL/UNDERSERVED communities

https://codederm.ohsu.edu

# CODE Community Outreach & Dermatology Education

HOME | CALENDAR | HOW IT WORKS | PRESENTING A PATIENT | DIDACTIC PRESENTATIONS | CONTACT US | Hello Melinda!

Participants | New Registrations | Reporting




## UPCOMING CONFERENCE
08/09/2017 07:45 am - 09:00 am

The following cases are scheduled for presentation:

| | |
|---|---|
| **Adult** | Teri Greiling |
| **Hair and Nails** | Teri Greiling |
| **Adult** | Teri Greiling |
| **Adult** | Ross Brockman |
| **Adult** | Meghan Woody |

Moderated by: Andrew Blauvelt, Dr.

View Details

# CODE research study


- We are asking that patients, presenters, and participants of the conference participate in a survey study to **track conference participation and case characteristics** over time.
- Participation is voluntary
- Data from these surveys will be collected in a **secure research repository** for future study. We will use survey data to improve educational opportunities and identify conditions that need further research and study.

# Policies

These conferences are for educational purposes only. Participating in or bringing a patient to conference does not represent a therapeutic or medical relationship with any of the conference participants or organizers. Responsibility for patient care including medical decision-making resides solely with the presenting physician/provider. Review of biopsies and pathologic samples during the conference does not represent a consultation and is for educational purposes only.

All information presented at this conference is confidential. Protected health information (PHI) is secured in accordance with the policies of OHSU and HIPAA. Presenting physicians/providers agree to collect authorization to use and disclose PHI from their patient prior to the conference.

- For OHSU dermatology providers, please complete "OHSU Authorization to Use and Disclose Protected Health Information". Live patients will be provided this form at OHSU, virtual patients should complete this form prior to the conference and the form should be uploaded in the Case Intake process.
- For non-OHSU providers: please abide by your and your patient's institution's rules and regulations for use and disclosure of Protected Health Information (PHI).

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# Project ECHO:
## Extension for Community Healthcare Outcomes

# ECHO vs. Telemedicine

**TeleECHO™ Clinic**

Expert hub team

ECHO supports community based primary care teams

Learners at spoke site

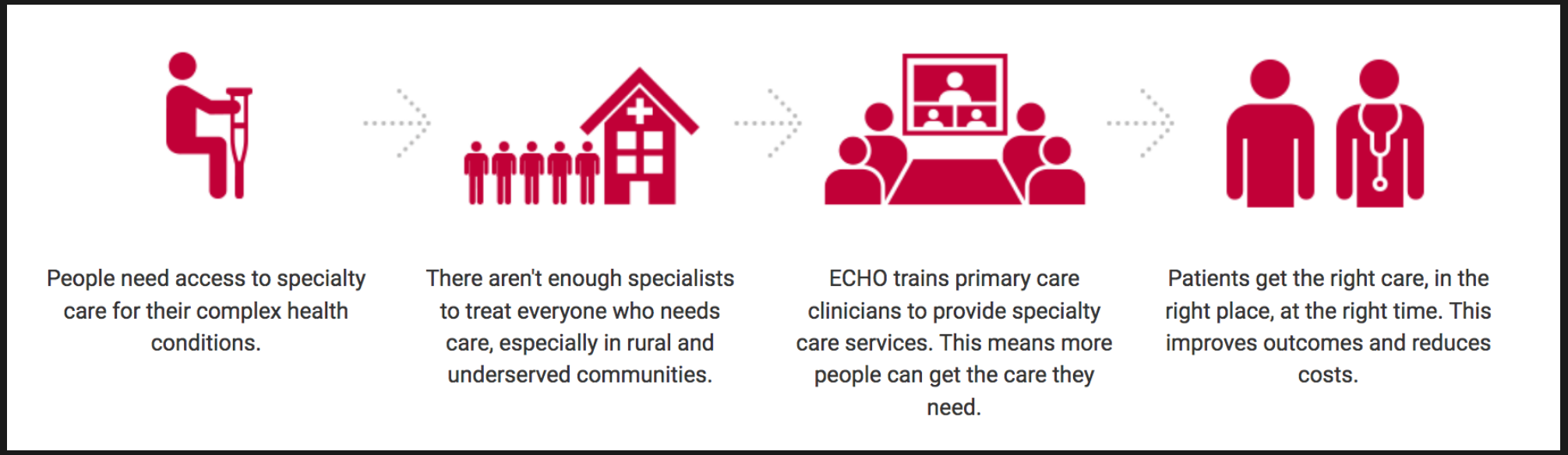
Patients reached with specialty knowledge and expertise

**Traditional Telemedicine**

Specialist manages patient remotely

# Project ECHO:
# Telemedicine becomes telementoring

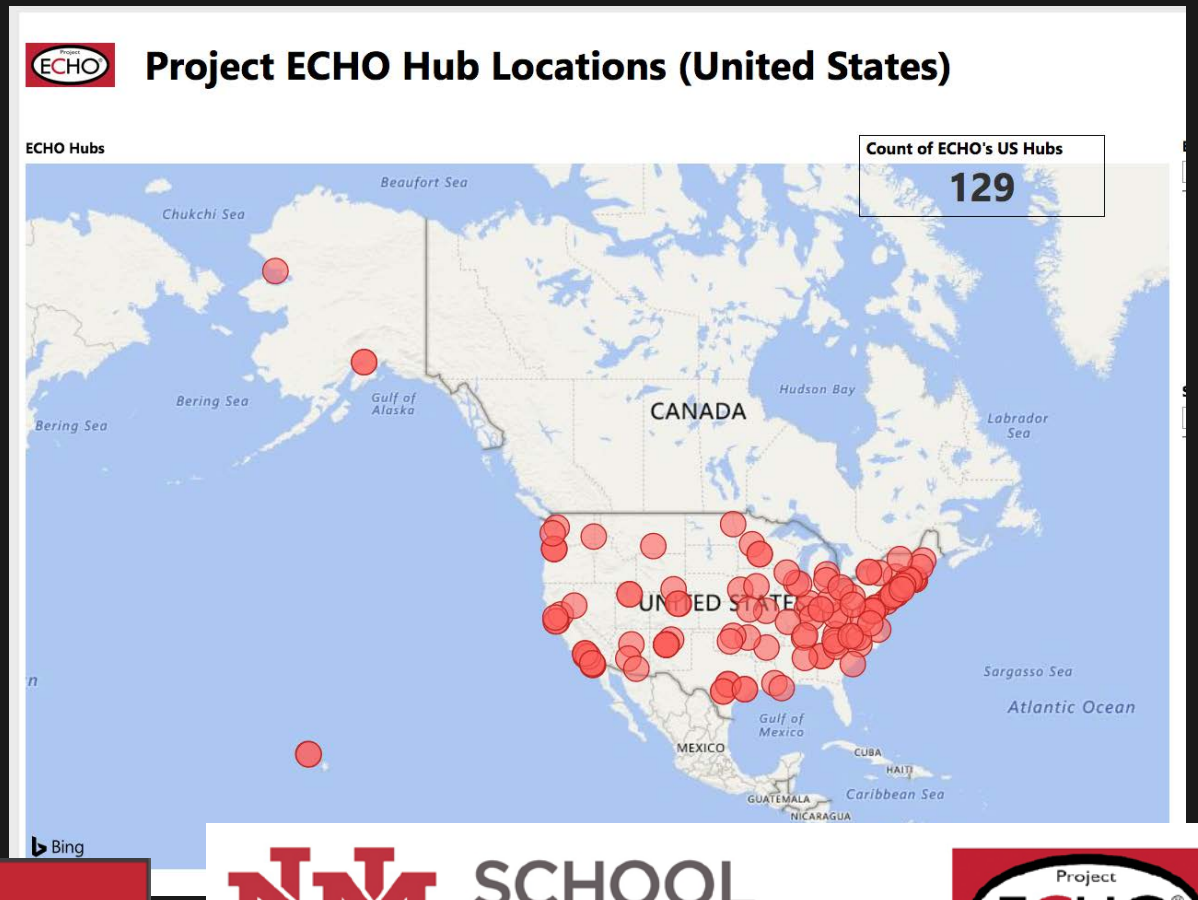
- Case-based learning connecting specialists with primary care
- Mentoring forum
- Specific topics with expanding care paradigms
- Examples:
  - Hepatitis C treatment with new antiviral agents



Missouri Telehealth Network
University of Missouri Health

Project ECHO
Ontario Pain

# Project ECHO: Extension for Community Healthcare Outcomes




Project ECHO
University of Wisconsin

SCHOOL OF MEDICINE
Project ECHO

TB Project ECHO

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# Teletriage: The gateway to specialist care

- You see your PCP for a new concern and they refer you to a specialist
- That referral can result in a few actions:
  - Scheduling an appointment with the specialist (traditional referral)
  - Teletriage: the specialists office reviews your case
    - Your case is appropriate and you are scheduled
    - Your case is appropriate but not acute and you are placed on a waiting list
    - The specialist gives your PCP advice on management and defers the referral

# How TELEDERMATOLOGY expands care:

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- **Teleconsultation/eConsults**

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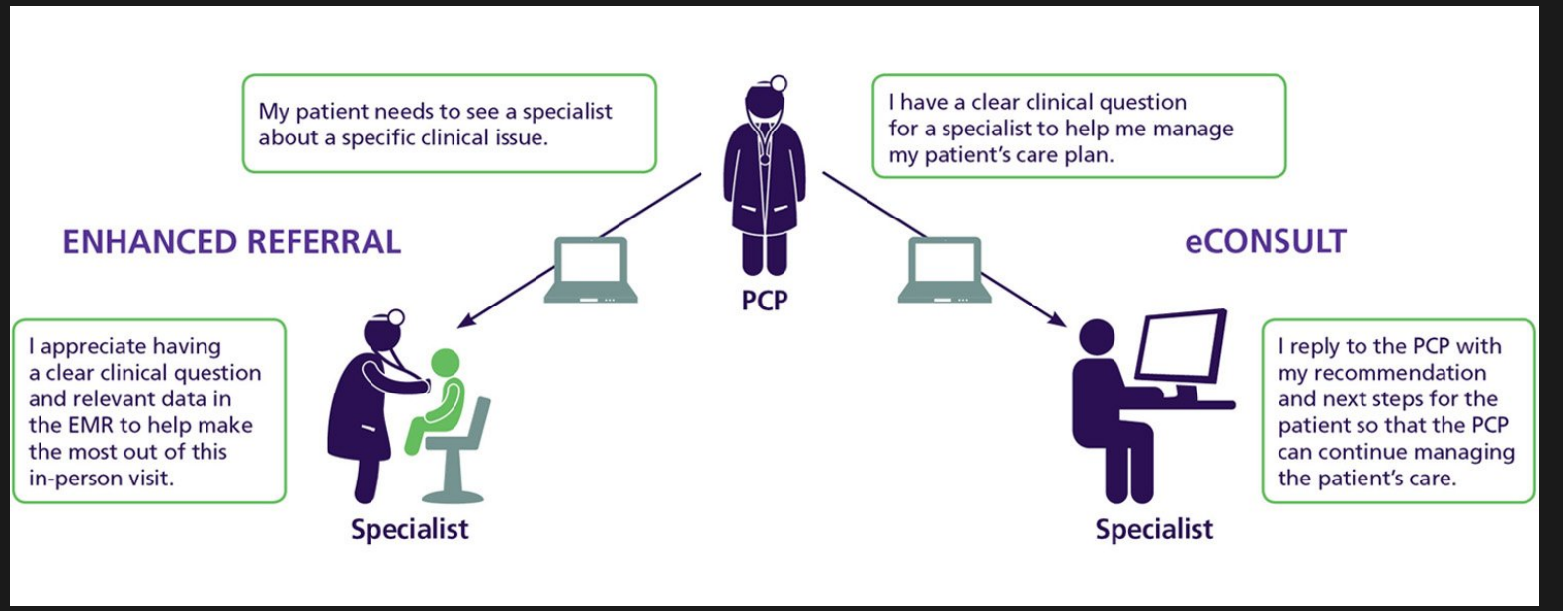
# eConsults: behind the scenes care

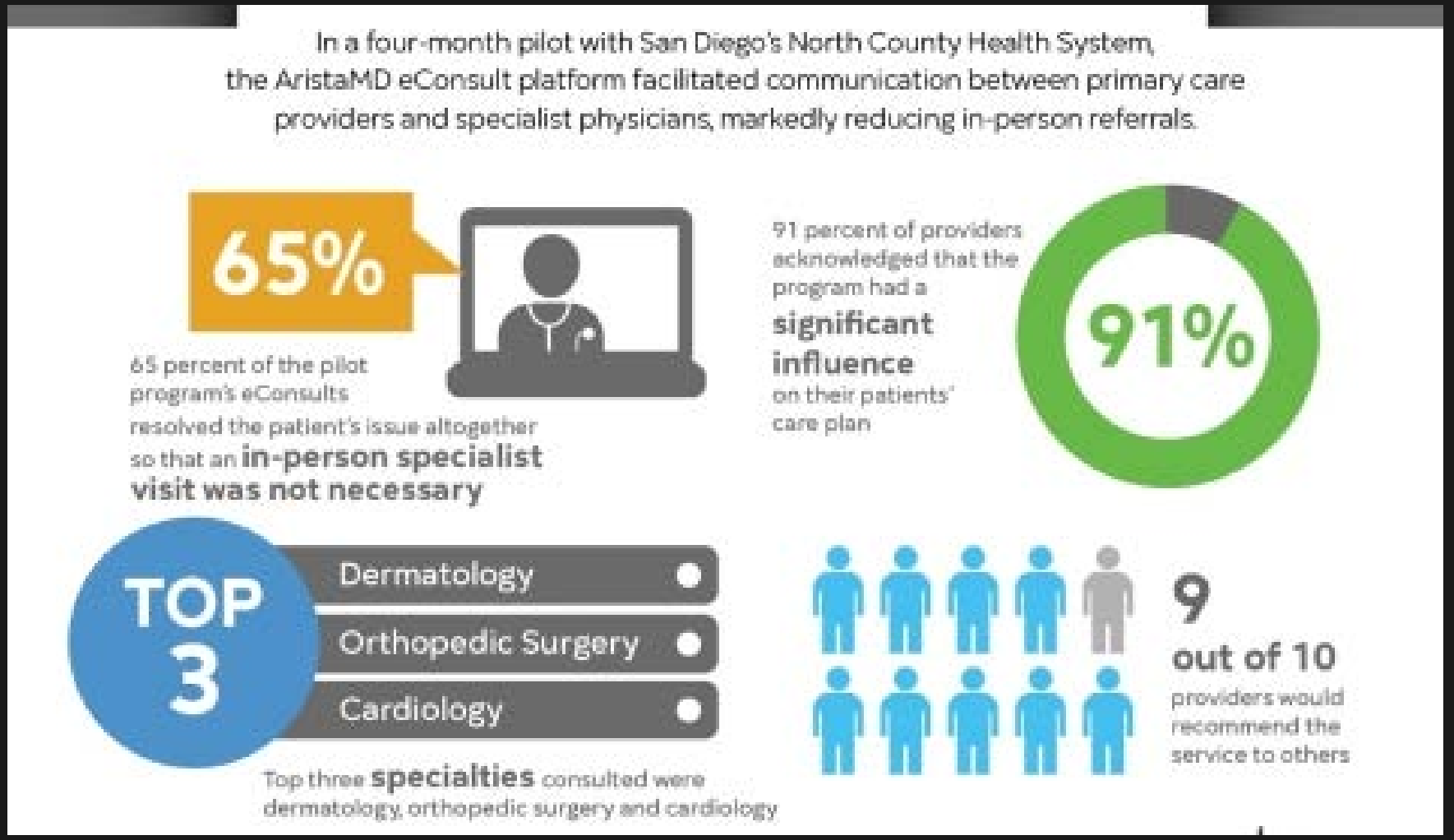



# eConsults: challenges

- Payment models still being developed
- How to partition physician time ?
- The development of a new specialty: the VIRTUAL PHYSICIAN

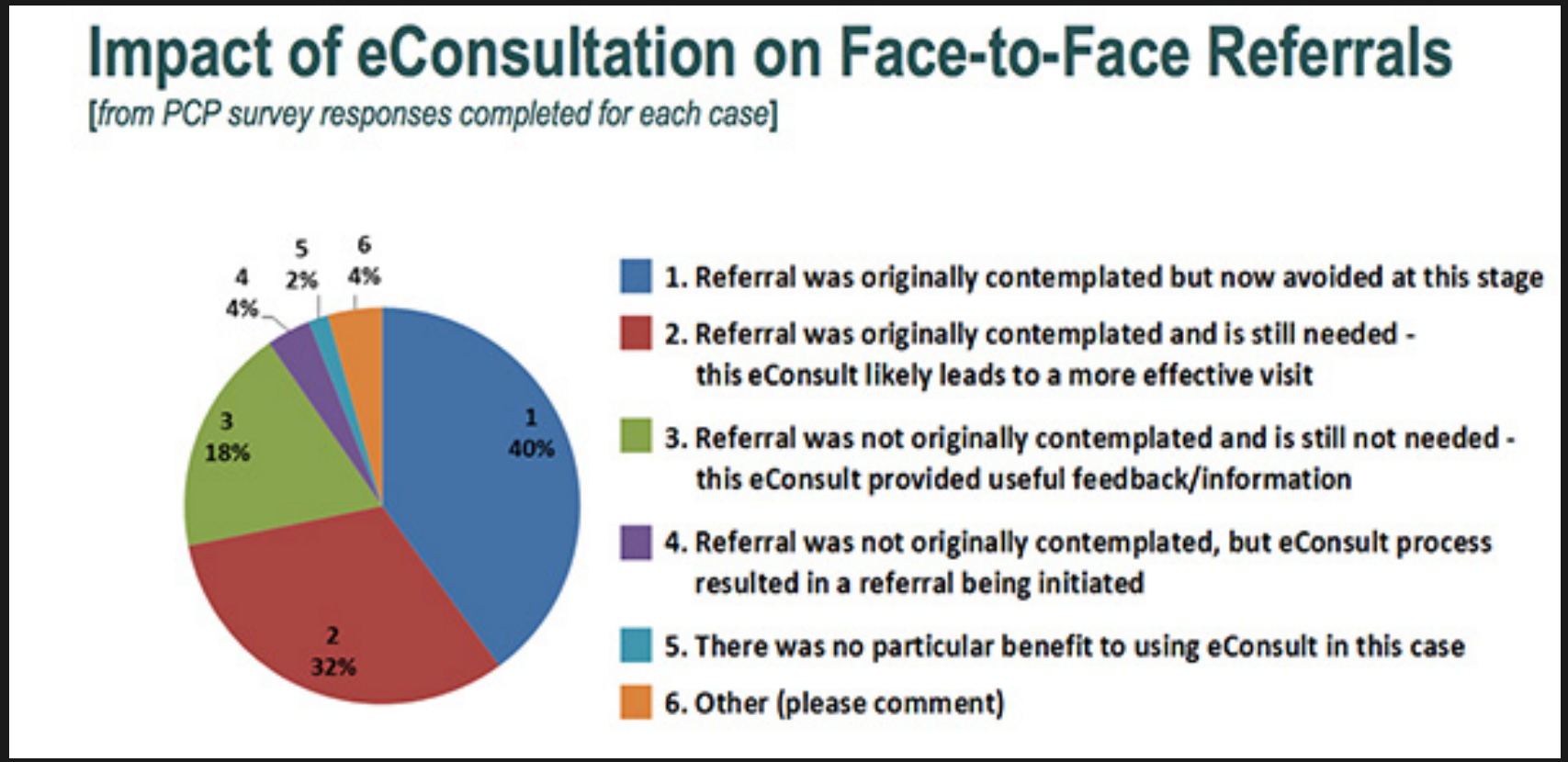
# Impact of eConsults on face-to-face visits

- Example: San Diego North County Health System
- 65% of cases were resolved without a face-to-face visit



# Impact of eConsults on face-to-face visits

- Example: Southeastern Ontario Academic Medical Organization
- 40% of cases resolved without face-to-face consultation



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# OHSU Dermatology eVisits

- Launched 2017
- Available only to OHSU employees currently, but has plans to expand
- $5 per visit
- Patient uploads photos and a concern via “My Chart” in the EPIC system
- Studying the diagnostic accuracy by comparing to follow up in-person visit
- EHR/EMR integrated

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# Direct-to-consumer applications

Dermatology only
- DermatologistOnCall
- Dermcheck (phone app only)
- DermLink
- Direct Dermatology
- First Derm
- SkyMD
- Spruce (phone app only)
- Virtual Acne (acne only)
- YoDerm (acne only)

General medical websites
- Amwell
- First Opinion (phone app only)
- HealthTap Prime
- MD Live
- MeMD
- Teladoc
- Virtuwell

yoDERM

SKYMD

spruce

DermatologistOnCall®

VIRTUAL acne

# How does direct-to-consumer care rate?

Original Investigation

## Choice, Transparency, Coordination, and Quality Among Direct-to-Consumer Telemedicine Websites and Apps Treating Skin Disease

Jack S. Resneck Jr, MD; Michael Abrouk; Meredith Steuer, MMS; Andrew Tam; Adam Yen; Ivy Lee, MD; Carrie L. Kovarik, MD; Karen E. Edison, MD

# Direct-to-consumer pitfalls

- 62 DTC encounters
  - 68% of cases were not given a choice of provider
  - Only 26% gave information on physician licensure
  - Only 23% collected information about a PCP, and only 10% offered to send records out
  - Only 77% gave a diagnosis, and many serious conditions were missed or misdiagnosed
  - 65% of were offered a prescription, but only 35% of those were given details on medication side effects or pregnancy risk

# How does direct-to-consumer care rate?

## Key Points

**Question** Are rapidly expanding direct-to-consumer (DTC) telemedicine websites and apps providing high-quality diagnosis and treatment for skin diseases?

**Findings** Sixty-two simulated encounters to 16 DTC telemedicine websites resulted in care that often lacked patient choice of clinician, transparency of clinician credentials, or care coordination. Many incorrect diagnoses were proffered without reasonable attempts to ask basic medical history follow-up questions, treatment recommendations sometimes contradicted evidence-based guidelines, and prescriptions frequently lacked disclosure of possible adverse effects and pregnancy risks.

**Meaning** Telemedicine has potential to expand access, but these findings raise doubts about the quality of skin disease diagnosis and treatment currently being provided by DTC telemedicine websites and apps.

**Box 2. Authors' Recommended Practices for Direct-to-Consumer Telemedicine Websites**

- Disclose the licensure, credentials, and location of their clinicians, making sure that all are licensed in the states where patients are located, and give patients some choice of which clinician will provide their care.
- Obtain proof of identity of patients seeking care, and establish an initial relationship with live interactive video before beginning a store-and-forward relationship (when a patient's existing health care team is uninvolved).
- Collect relevant medical history, including at least a history of present illness, review of systems, medication list, and drug allergies. In many instances, appropriate past medical records should be available to the consulting clinician.
- Recognize that the accurate diagnosis of disease often requires an interactive history, and train participating clinicians to ask appropriate follow-up questions to complete a patient's relevant medical history.
- Seek the use of laboratory studies in clinical scenarios when an in-person physician would have relied on those studies.
- Provide diagnoses and treatments consistent with existing evidence-based guidelines.
- Engage in meaningful informed consent, including discussion of risks, potential adverse effects, pregnancy concerns, and a clear follow-up plan when prescribing medications.
- Collect information about a patient's existing health care team and provide medical records to relevant team members—unless a patient opts out.
- Have relationships with local physicians in all areas where they treat patients, so that patients are not sent to emergency departments or left on their own when they need urgent in-person follow-up or experience medication adverse effects.
- Create quality assurance programs that regularly monitor clinical performance, patient outcomes, follow-up, and care coordination.

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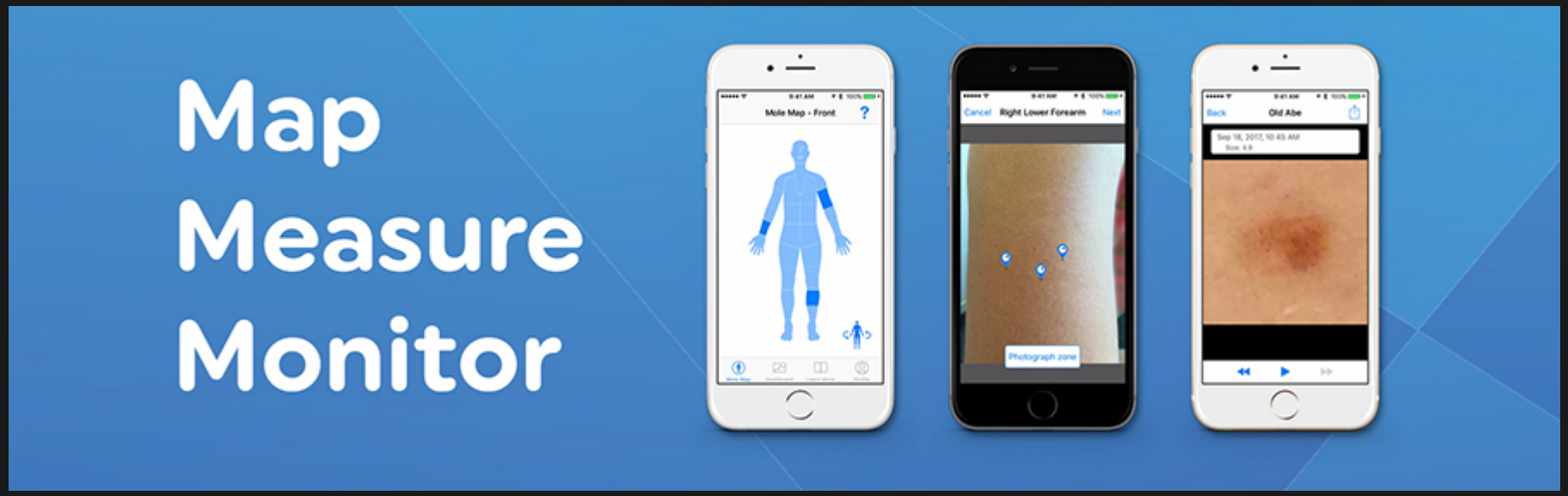
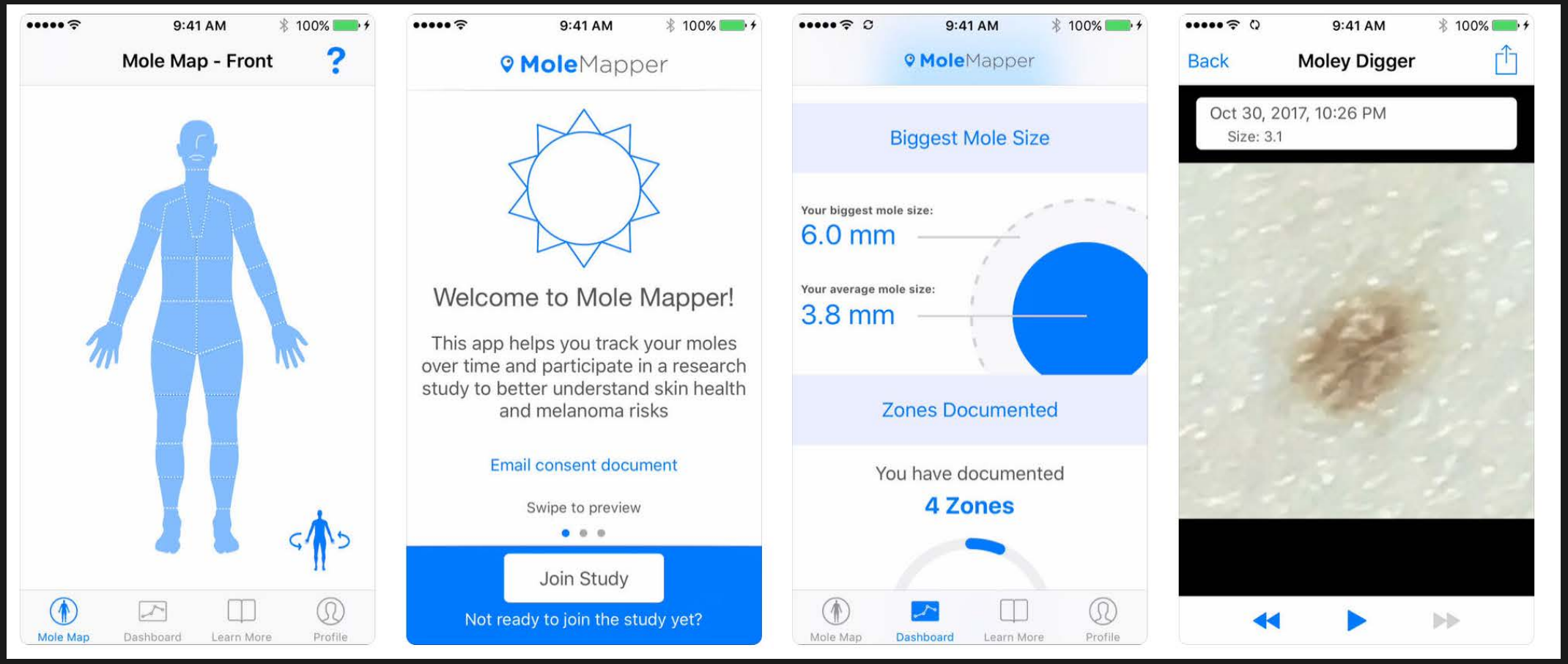
# OHSU Mole Mapper Application



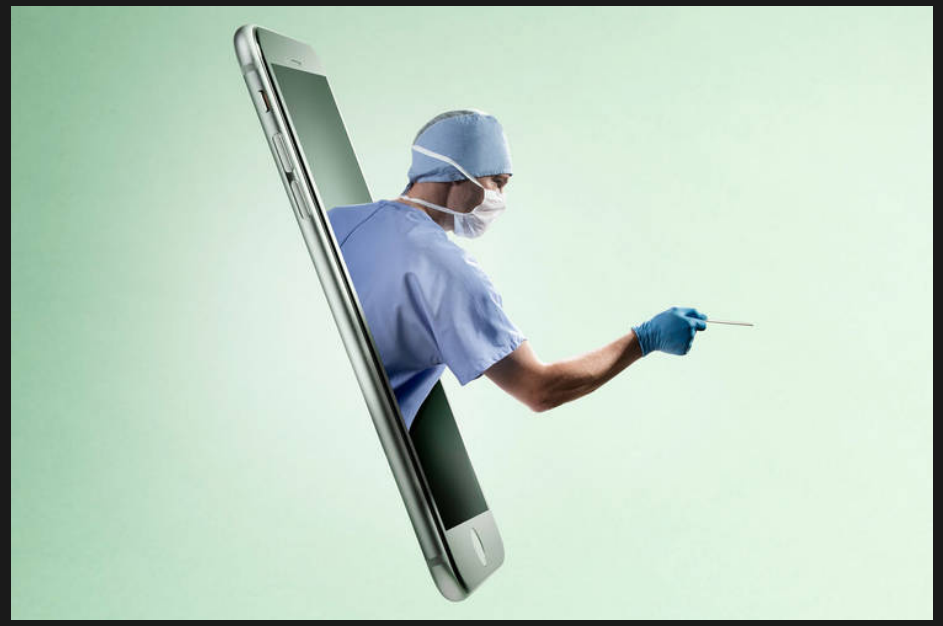
# OHSU Mole Mapper Application

- MoleMapper™ is a cellphone app available in Apple®'s App Store.
- Part of the ResearchKit suite of apps: **this is a research study**
- MoleMapper™ will help to gather data for melanoma research and, potentially, impact health outcomes in individuals at risk for melanoma.
- Using your phone camera, MoleMapper™ tracks moles and how they change and grow over time. Rapid change or growth may indicate malignancy.
- MoleMapper™ also reminds you to re-check your moles regularly.
- By sharing mole images over time, researchers can develop new ways of evaluating moles and may (at some point in the future) be able to tell whether you need to see a doctor or have a mole removed based upon a cell phone picture.

# OHSU Mole Mapper Application



# How does telemedicine change the physician-patient relationship?

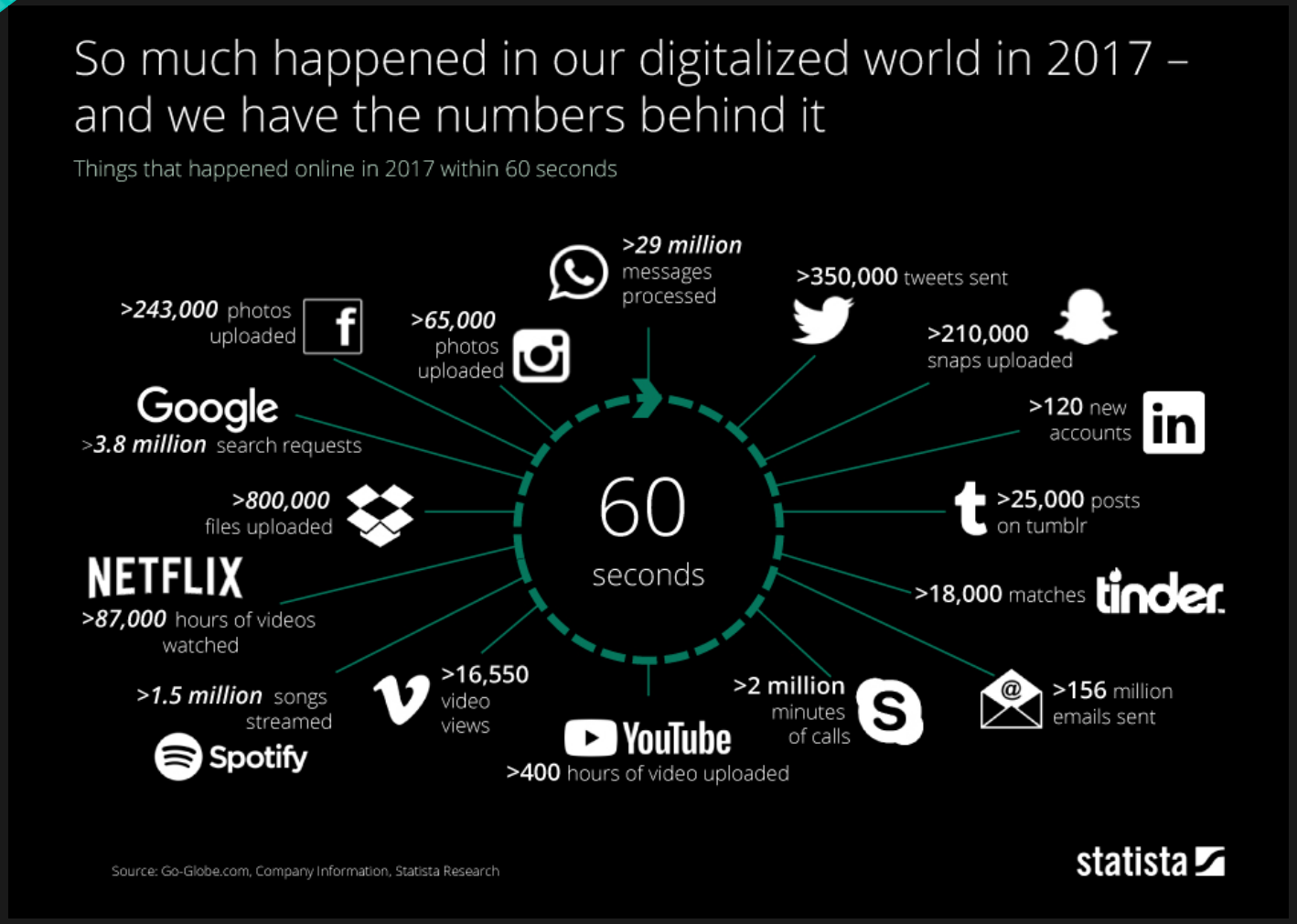


# How does telemedicine change the physician-patient relationship?

What is the highest standard?

- For teletriage and eConsults: the consulting doctor is not required to have a pre-existing patient-physician relationship; but the patient has access to in-person follow up with a local qualified specialist if needed
- For direct-to-consumer/patient: the consulting specialist must either:
  - Have an existing physician-patient relationship, or
  - Create a relationship through the use of a live-interactive face-to-face consultation before the use of store-and-forward technology, or
  - Be integrated in a health delivery system where the patient already receives care and has access to the full medical record and can coordinate follow up.

# An age of digital connection

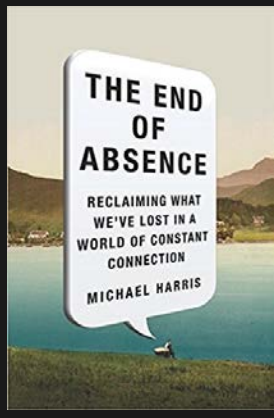


# Making sure to look back as we move forward

- *Just as we decide to limit our intake of the sugars and fats that we're designed to hoard, we now must decide to sometimes keep at bay the connectivity we're hardwired to adore. We must remain as critical of technological progress as we are desirous of it…Every technology will alienate you from some part of your life. That is its job. Your job is to notice. First notice the difference. And then, every time, choose."*

*The End of Absence: Reclaiming What We've Lost in a World of Constant Connection*

by Michael Harris



“If we scale the tele-health system to its full potential, it will become the dominant way that outpatient medicine is rendered.”

- Eric Topol, MD – Author of “The Patient Will See You Now”