Improving Access to Care in Rural America
Part 3: The Role of Teledermatology

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What Can Teledermatology Do?
Connect Patients to Dermatology

Kanthraj GR.
Indian J DermatolVenereol Leprol. 2015.

Spell CA, Pearlman RL et al.
JMSMA. 2020

Is Teledermatology the Solution
to the Rural Dermatology Access
to Care Conundrum?
Barriers to Access and Use of Teledermatology for Rural Patients

- Technological
  - Access to computers, cellphones, cameras, microphones, etc
  - Access to software
- Infrastructure
  - Access to internet connection
  - High speed
  - Cellular
  - Reliable access to electricity
- Reluctance to adopt new technologies, workflows by referring physicians
- Insurance coverage and payment
  - Prior to COVID, many payors did not cover teledermatology services or covered at too low a rate for most providers
  - Unclear how payment structures will change in the future
- Geographic restrictions
  - Must have a license in state where patient is located
- Technical problems
  - Interruptions to access to technological or infrastructural resources

Cellular and Broadband Access in Mississippi Are Limited

- Cellular Data Access in Mississippi
  - Source: T-Mobile
- Broadband Internet Access in Mississippi
  - Source: Clarion-Ledger, 2021

Lack of Broadband Access Not Unique to Mississippi

- Among study participants 58% of households had inadequate broadband internet necessary to support a telemedicine videoconferencing intervention.
- Average driving time to the nearest telemedicine site was 29.6 minutes.
- Participants who utilized the borrowed tablet experienced considerable difficulty with utilizing the technology.
- Digital inclusion is a driver to equity in access to rural cancer care.

The Rural-Urban Digital Gap

- National sample of 1,502 adults, 18 years of age or older, living in all 50 U.S. states and the District of Columbia
- Respondents were interviewed on a landline telephone or cellphone

Teledermatology Alone is Not a Solution to the Rural Dermatology Access Crisis
Types of Teledermatology

**SYNCHRONOUS**
- Live, virtual chat
- Conducted via interactive platforms (e.g., doxy.me, FaceTime, Zoom, etc)

**HYBRID**
- Includes both live and store-and-forward elements

**ASYNCRONOUS**
- "Store and forward"
- Images uploaded and reviewed by dermatologist at a later date
- Similar to dermatopathology review

Decreasing time of encounters
Decreasing image quality

Asynchronous (Store-and-Forward) Teledermatology

Care Delivery Models for Asynchronous Teledermatology

**Consultative**
- Primary care or other physician serves as intermediary
- Collects consult patient history and physical along with images
- Recommends care to consulting physician

**Direct-to-Consumer**
- Patient supplies history and other information
- Patient collects images
- Dermatologist communicates recommendations directly back to patient

Could Primary Care Physicians Help Bridge the Rural Access Gap in Mississippi?

Rural Primary Care Providers and Teledermatology Consults

Table 1: Provider concerns (% of providers) with initiating teledermatology referrals in primary care practice

<table>
<thead>
<tr>
<th>Concern/reservation</th>
<th>% of providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>No concerns/reservations</td>
<td>41.2</td>
</tr>
<tr>
<td>HIPAA violations/confidentiality or insurance coverage</td>
<td>23.9</td>
</tr>
<tr>
<td>Indisposition due to poor imaging</td>
<td>17.3</td>
</tr>
<tr>
<td>Time required for consultant response</td>
<td>8.8</td>
</tr>
<tr>
<td>Corporate constraints/bureaucracy</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Table 2: Perceived benefits (% of providers) of teledermatology by primary care providers

<table>
<thead>
<tr>
<th>Benefit</th>
<th>% of providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide the best diagnosis</td>
<td>55.9</td>
</tr>
<tr>
<td>Faster dermatology consultation</td>
<td>29.4</td>
</tr>
<tr>
<td>Reduce patient travel distances</td>
<td>5.9</td>
</tr>
<tr>
<td>Would not be helpful</td>
<td>2.9</td>
</tr>
</tbody>
</table>
Project ECHO

• Consultative, asynchronous teledermatology to provide recommendations to primary care doctors on cases from the Mississippi Delta region

Project Echo: Cases Can Be Lifechanging

• Patient reported a pigmented lesion that was not changing. Primary Care Physician noted unusual features and sent image to Project ECHO after advising patient to let him know if it changes.

Can Make A World of Difference

• Use of special WhatsApp number in Botswana to deliver teledermatology care
• Predominant form of electronic communication in Botswana and for 1 billion+ people worldwide
• Extremely limited access to dermatology for urban and rural patients
• Consults from physicians
• Direct patient care

Top Concerns Among PCPs - Asynchronous Teledermatology Consults

• HIPAA and patient privacy
• Image quality
• Insurance coverage for patients
• Time and staff to prepare consults

Summary: Asynchronous Teledermatology

• Advantages
  • Enhance access to care, including for rural patients
  • High image quality
  • Can often work around infrastructure and technology challenges
  • Consultative model → very fast on the dermatology side

• Disadvantages
  • Limited view
  • Cannot talk directly to patient
  • Consultative model → time-consuming for referring provider
Synchronous Teledermatology

- Synchronous (→ Live video)
- Comes in several models

COVID-19 Changes the Calculus, Especially for Synchronous Teledermatology

Synchronous Teledermatology Takes Centerstage

- Retrospective analysis of teledermatology consultations from March-May 2020 at University of Pittsburgh
- Synchronous visits grew rapidly during pandemic

Major Barrier to Expanding Synchronous Teledermatology

- Getting the patient online and in front of the clinical team via synchronous teledermatology platform

Choosing a Synchronous Teledermatology Platform

- Consider technology available to physicians and patients
  - Operating system
  - Mobile devices
  - Software availability
  - Apps
    - Connected directly to patient EHR
    - Browser-based
    - Consider end-user experience and physician experience
  - What is easiest for both parties
  - What is most efficient
Doxy.me Platform

- HIPAA compliant
- Virtual Waiting room
- Browser-based (no patient download or new software required)
- No log in, account creation required
- Enabled multiple users to video chat simultaneously
- Text or email patient link directly

Facetime by Apple

- Very easy to use
- Can accommodate multiple video chat users
- No download required
- Significant disadvantages
  - Not HIPAA compliant
  - Must have an Apple product

Increasing Synchronous Teledermatology Volumes by Optimizing Workflows

1. Pre-charting workflow for support staff (phone)
   A. “Room” the patient
      i. Update medications, history, allergies, etc
      ii. Confirm
   B. Plan the technical aspects of synchronous encounter
      i. Determine device preferences
      ii. Review how patient will join encounter

2. Day of clinic workflow for support staff, residents, and attendings
   (synchronous teledermatology platform)
   A. Use “quick forms” to direct resident or attending on how to set up encounter
   B. Conduct the patient encounter
   C. Make recommendations
   D. Enter orders and make follow-up plans
Teledermatology Triage Checklist:
- Patient has consented to telederm and photo review: Yes □ No □
- Patient was informed of billing: Yes □ No □
- Patient's Device Types: Phone □ iPad □ Computer with camera □ Android phone □ Other □
- Preferred communication method: Web-based video chat □ FaceTime □
- Context Name/Address: Input patient's phone number if FaceTime, email address if doxy.me
- MyChart Status: Already enrolled □ Directed to enroll □
- Patient is planning to send images ( uneven doxy.md@gmail.com) BEFORE appointment day: Yes □ No □

Patient Clinical Care Workflow Using Doxy.me

Day of clinic → Receiving pictures from patients
Nurse contacts patients who have not logged into doxy.me by 15 minutes prior to appointment time or failed to respond to FaceTime calls
Begin working through schedule
Resident checks for emailed pictures from doxy.me patients
Use .telederm note or similar template for documentation
Nurse assists patient with access to waiting room or other technological issues

Do Patients Like Synchronous Telederm?

<table>
<thead>
<tr>
<th>Measure</th>
<th>Patient-Provider Interaction (%)</th>
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</thead>
<tbody>
<tr>
<td>Overall Satisfaction</td>
<td>88.9%</td>
</tr>
<tr>
<td>Quality of Care was as Good as In-Person Visits</td>
<td>79.6%</td>
</tr>
<tr>
<td>More Convenient than In-Person Visits</td>
<td>16.7%</td>
</tr>
<tr>
<td>Problem Adequately Addressed</td>
<td>96.8%</td>
</tr>
<tr>
<td>Needed to send supplemental “store-and-forward” images (converted to “hybrid”)</td>
<td>16.0%</td>
</tr>
</tbody>
</table>

Challenges of Synchronous Teledermatology
- About 15% of patients lost connection with their provider
- A plurality (30%) of patients rated “sharing their skin with their provider” as “hardest”
- Majority of patients (68.7%) preferred in-person consultation for their next visit
Summary Recommendations: Synchronous Teledermatology

• Choose platforms that accommodate optimal workflow
  • Avoid platforms that are app based, rather than web-based

• Optimizing workflows is essential
  • Virtual waiting rooms

• Patient and physician experience increases the speed of teledermatology encounters

Conclusions

• Teledermatology facilitates access to care for rural patients
• Barriers can impede success of teledermatology
• Store-and-Forward is efficient for dermatologists but not for referring providers
• Synchronous teledermatology facilitates direct patient encounters, and patients are satisfied, but optimizing workflow is essential