Virtual Visits and Health Information Technology: Improving Access, Accountability and Outcomes

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Diana Isaacs, PharmD, BCPS, BC-ADM, CDE
Morgan Jones, PharmD, MS, BCACP

Cleveland Clinic
Objectives

- Define telemedicine and its role in improving patient access, accountability, and health outcomes
- Discuss the pharmacist's role in the virtual visit program at Cleveland Clinic
- Describe various technology platforms for remote ambulatory monitoring
- Outline the logistics of setting up a virtual program including challenges, successes, and clinical pearls
Envision an Entire Healthcare System in the Cloud
Telemedicine

• Provision of medical services across a distance
• Use of medical information exchanged from one site to another via electronic communications to improve a patient’s clinical health status
• Two-way, real time interactive communication between the patient, physician or practitioner at the distant site
Types of Telemedicine

Synchronous
- Virtual Visits

Asynchronous
- Remote Patient Monitoring
Virtual Visits: Continue to Innovate

- Increase Efficiency and Lower Costs
- Stay Current With Patient Expectations
- Expand Patient Access
- Prepare Capabilities for Future of Healthcare
Strategic Alignment with Value Based Care

• Tools for improved management of risk

• Improve patient assess and flow

• Tools for next generation primary care
Telemedicine Population

- Cardiovascular
- Respiratory
- Diabetes
- Weight Management
<table>
<thead>
<tr>
<th>Title</th>
<th>Method</th>
<th>Modality</th>
<th>Intervention</th>
<th>Primary Outcome</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemonitoring and self-management in the control of hypertension (TASMINH2)</td>
<td>RCT</td>
<td>BP automated modem device</td>
<td>Self management with telemonitoring vs. usual care</td>
<td>Change in mean SBP from baseline to 6 and 12 months</td>
<td>6 months: ↓️12.9 mmHg vs. ↓️9.2 mmHg</td>
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<tr>
<td></td>
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<td>12 months: ↓️17.6 mmHg vs. ↓️12.2 mmHg</td>
</tr>
<tr>
<td>BP control during telemonitoring of home BP</td>
<td>RCT</td>
<td>BP automated modem device</td>
<td>Self management with telemonitoring vs. usual care</td>
<td>Change in mean SBP from baseline to 6 months</td>
<td>↓️11.9 mmHg vs. ↓️9.6 mmHg</td>
</tr>
<tr>
<td>Effect of home BP telemonitoring with self care support on uncontrolled systolic HTN in patients with diabetes</td>
<td>RCT</td>
<td>BP automated modem device</td>
<td>Self care support vs. usual care</td>
<td>Change in mean SBP from baseline to 1 year</td>
<td>↓️9.1 mmHg vs. ↓️1.5 mmHg</td>
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<td>Active care management supported by home telemonitoring in veterans with type 2 DM</td>
<td>RCT</td>
<td>BP, home glucose, weight via Viterion 100 monitor</td>
<td>Active care management with home telemonitoring vs. monthly care coordination</td>
<td>Change in HbA1c from baseline to 3 and 6 months</td>
<td>6 months: ↓1.7% vs. ↓0.7% 12 months ↓1.7% vs. ↓0.8%</td>
</tr>
<tr>
<td>Effectiveness of telemonitoring integrated into existing clinical services on hospital admission for exacerbation of COPD</td>
<td>RCT</td>
<td>Telemonitoring and monitoring oxygen saturation using linked instruments</td>
<td>Telemonitoring vs. usual care</td>
<td>Time to hospital admission due to COPD exacerbation</td>
<td>362 days vs. 361 days</td>
</tr>
<tr>
<td>A novel DM prevention intervention using a mobile app</td>
<td>RCT</td>
<td>Mobile phone based diabetes prevention program</td>
<td>Mobile phone app/pedometer vs. pedometer</td>
<td>Change in weight from baseline to 5 months</td>
<td>↓ 6.2 kg vs ↑ 0.3 kg</td>
</tr>
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</table>
What is a Virtual Visit?

• “Skype” like video communication
  - Provider/Pharmacist
  - Patient
  - Caregiver
Spectrum of Virtual Visits at Cleveland Clinic

Outpatient on patients’ mobile devices

Inpatient critical care monitoring

Acute / ED subspecialty consults

Outpatient in retail settings

Inpatient consults

Pharmacy
Virtual Visit Platform

- Documented in Epic
- Consumer access options
  - Web, tablet, mobile
- Scheduled visits
- After Visit summary
  - Mychart
  - E-mail
Work Flow Before Virtual Visit

1. Pharmacist introduces virtual visits at initial face-to-face/telephone pharmacy appointment
2. Pharmacist/team member schedules virtual visit
3. Pharmacist/team member explains process of setting up virtual visit to patient
Work Flow After Virtual Visit

Patient given after visit summary

Patient automatically checked out when session has ended

Documentation per usual pharmacy practice in Epic
Good Candidates for Virtual Visits

• Current email address
• Technology is accessible
  - Desktop
  - Tablet
  - Mobile
  - iOS
  - Android
• Patients from other family health centers
Use of Virtual Visits in Pharmacy

- Medication reconciliation
- Hospital Discharge
- Follow-up visits
  - Diabetes
  - HTN
- Device Teaching
Healthy Life High Blood Pressure Program
Program Summary

- 80 patients actively monitored
- Received care coaching
- Interventions
  - Medication adjustments
  - Data received prompted virtual visits, in-office care, or telephone triage
Program Results

• Over 24 weeks, the cohort saw an estimated mean change of -7.4 points in SBP, and a -3.1 points in DBP, while HR levels remained flat.
Process Map

Patient eligibility verified

Patient agrees to participate

Usual care

Stratify patient into Tier 1-4

Tier 1

Remote monitoring + care mgmt. Team pushes EMMI's and action plan supports

Tier 2

Remote monitoring + care mgmt. Team EMMI's, action plan supports and eCoaching/group sessions (2-3)

Tier 3

Remote monitoring + care mgmt. Team EMMI's, action plan supports, group sessions (2 or 3) and individual coaching

Tier 4

Remote monitoring + PCP manages patient
Technology Platforms for Remote Monitoring
Freestyle CoPilot Management System

- Compatible with freestyle glucometers

Available at: https://www.myfreestyle.com/copilot-software.
Glooko Logbook

Available at [www.glooko.com](http://www.glooko.com)
Glooko Statistics

Available at www.glooko.com
Dexcom Clarity

![Graph showing glucose levels and time in range](https://clarity.dexcom.com/)

- **Average glucose (CGM):** 187 mg/dL
- **Standard deviation (CGM):** 45 mg/dL
- **Hypoglycemia risk:** High, Moderate, Low
- **Time in range:** 59%
- **Sensor usage:** 86% with CGM data
- **Avg. calibrations per day:** 1.9

Tracey had a pattern of significant highs between 1:20 AM and 3:35 AM.

Available at: [https://clarity.dexcom.com/](https://clarity.dexcom.com/)
Freestyle Libre

• Personal flash CGM expected to be more widely used in the near future

Available at www.libreview.com
Medtronic Carelink

Available at: https://carelink.medtronic.com/
Blood Pressure Monitoring
Blood Pressure Monitoring

Data automatically sinks with the EMR
Virtual Program Logistics
Equipment

• Virtual visit platform
• IT for troubleshooting
• Schedulers

• Device
  - Computer, iphone or ipad
  - Headphones/speaker
Patient Selection

- **Location**
  - Live far from the site
  - Prefer convenience of not commuting and paying for parking/gas
- **Busy professionals**
  - Can’t make normal, office hours
- **Physical limitations**
- **Those using technology**
  - IPhone apps
  - Insulin pumps
  - CGM
Pricing

• Challenges through insurance reimbursement

• Set pricing: $49 for a 15-30 min visit with doctor or other healthcare provider

• Pharmacists visits are free so far (improving health outcomes)
Scheduling

- Generally half hour slots
- Day time during usual slots (convert to virtual visit)
- Evening/weekend availability
- Ability for the health care professional to do these visits remotely
Group Visits

• Weight management virtual shared medical appointment (SMA) program
• Free for CCF employees
Inpatient Virtual Visits

- Telestroke – serves a broad network of hospital EDs ~1600/year
- Expansion
  - Skilled Nursing Facilities
  - Peds: Infectious disease/intensivists
  - Urology
  - Ortho/neuro surgical rounding
  - Psychiatric ED consults
  - Neurology consults
Challenges
• Not all patients ready for new technology
• Scheduling
• Visit vitals
• Caution about too much data
• After visit summaries

Successes
• See more patients in a shorter period of time
• Convenience for the patient/caregiver
• Less likely for patients to “no show”
• Easy incorporation of patient data into chart
Cleveland Clinic Express Care
Outcomes: Patient Experience

- This made it easier for me to get care when I needed it: 72% (Strongly Agree), 9% (Agree), 7% (Neither), 3% (Disagree), 9% (Strongly Disagree)
- I had enough time with the clinician: 64% (Strongly Agree), 22% (Agree), 7% (Neither), 1% (Disagree), 9% (Strongly Disagree)
- I am confident that my privacy is respected online: 61% (Strongly Agree), 24% (Agree), 11% (Neither), 4% (Disagree)
- I would use ExpressCare Online again: 66% (Strongly Agree), 19% (Agree), 5% (Neither), 2% (Disagree), 7% (Strongly Disagree)
- It was easy to see, hear, and talk to the clinician: 55% (Strongly Agree), 23% (Agree), 6% (Neither), 9% (Disagree), 6% (Strongly Disagree)
“I feel better with taking my medications in the morning. I am taking ownership and I feel great participating in this program…it only took me 20 years!”

“This program is great and is helping me become accountable for my BP. You guys are doing a great job.”

“This program has been very helpful. It has increased my awareness and has made me more accountable.”
How much time did your online visit save you?

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>None</td>
<td>7%</td>
</tr>
<tr>
<td>&lt; 1 hr</td>
<td>18%</td>
</tr>
<tr>
<td>1 - 3 hrs</td>
<td>47%</td>
</tr>
<tr>
<td>&gt; 3 hrs</td>
<td>28%</td>
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How do virtual visits affect your personal connection with this clinician?

<table>
<thead>
<tr>
<th>Effect</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Improve</td>
<td>45%</td>
</tr>
<tr>
<td>No affect</td>
<td>53%</td>
</tr>
<tr>
<td>Worsen</td>
<td>2%</td>
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Overall, were you satisfied with your visit on Express Care Online?

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Yes</td>
<td>90%</td>
</tr>
<tr>
<td>No</td>
<td>10%</td>
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Clinical Pearls

- Start small
- Find the technology platforms that work best
- Get in the habit of offering this option to patients
- Ensure accurate patient contact information
- Trial and error to streamline the process
- If all else fails, telephone is always a back-up
Summary

- Virtual visits offer an opportunity to expand accessibility of pharmacy services.
- Virtual visits improve patient access and accountability and have the potential to improve health outcomes.
- There are various technology platforms available for remote ambulatory monitoring.
- A successful virtual visit program includes appropriate patient selection, incorporation of new technology, and patience.
Cleveland Clinic
Every life deserves world class care.