Telehealth Implementation for Adults with Type II Diabetes and/or Hypertension in California's Community Health Centers

Hector Rodriguez, PhD, MPH (UC Berkeley)
Aaron Tierney (UC Berkeley)
Denise Payan, PhD, MPP (UC Merced)
Today

1. Review COVID-19 Pandemic’s **Impact on Primary Care Practice**
2. Describe **Decrements** to Hypertension and Diabetes Care Management **during COVID-19**
3. Present “**Work in Progress**” **Research Findings** related to Telehealth Implementation for Adults with Type II Diabetes and/or Hypertension in California Community Health Centers
   a. **Quantitative Research** of EHR data (Aaron Tierney, UC Berkeley)
   b. **Key Informant Interviews** with FQHC Patients, Clinicians, and Staff (Denise Payan, UC Merced)
4. **Clinic-Industry Partnership** to Advance Broadband Access (Javier Quezada, Sail Internet)
5. Q&A / Discussion
Acknowledgements

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Project Collaborators:
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- Lorena Garcia, DrPH (Davis)
- Susan Ivey, MD, MHSA (Berkeley)
- Karl Rubio, MIA (Berkeley)
- Community Health Partnership
COVID-19 and Financial Sustainability of Medical Practices

- Medicare spending dropped sharply in March and April of 2020, falling as much as 57% below expected.
- Medicare spending at the end of June 2020 was still 12% less than expected.
- Reduction in Medicare physician spending associated with the pandemic was $9.4 billion (19%) over first six months.

Source: Gilles, K. Changes in Medicare Physician Spending During the COVID-19 Pandemic, American Medical Association, March 2021
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Damage to Primary Care

- 39% of PCPs have personal knowledge of clinicians who have quit, retired early, or closed their practice
- 59% of PCP practices have clinicians out due to illness or redeployment to other locations
- 17% of PCP practices have empty clinician positions that cannot be filled

Source: Larry Green Center Quick COVID-19 Primary Care Survey, January 2021
Poll Questions- #1
The COVID-19 Pandemic Accelerated Telehealth Implementation for Diabetes and Hypertension Care

• Dramatic increase in use of telehealth during COVID-19 shelter-in-place ordinances
• Considerable heterogeneity in telehealth adoption across physician practices and health care systems.
• Quality of care declined during COVID-19
• Limited evidence exists about whether telehealth mitigated decrements to quality of diabetes and hypertension care associated with the COVID-19 pandemic
Quality of Care Decline during COVID-19 for Diabetes Management

Table 4. Content of Primary Care Office-Based and Telemedicine Visits, 2018-2020

<table>
<thead>
<tr>
<th>Variable</th>
<th>No., in thousands (%)</th>
<th>2018-2019 (Q2)</th>
<th>2020 (Q1)</th>
<th>2020 (Q2)</th>
<th>% Change (2020 Q2 vs 2018-2019 Q2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total visits, No. (95% CI)</td>
<td>119 199 (114 038-124 360)</td>
<td>110 705 (105 734-115 676)</td>
<td>93 712 (89 270-98 154)</td>
<td>-21.4</td>
<td></td>
</tr>
<tr>
<td>Blood pressure recorded</td>
<td>88 675 (74.4)</td>
<td>75 852 (68.5)</td>
<td>44 229 (47.2)</td>
<td>-50.1</td>
<td></td>
</tr>
<tr>
<td>Cholesterol assessed</td>
<td>27 617 (23.2)</td>
<td>22 803 (20.6)</td>
<td>17 413 (18.5)</td>
<td>-36.9</td>
<td></td>
</tr>
<tr>
<td>New medicines initiated</td>
<td>54 142 (45.4)</td>
<td>51 773 (46.8)</td>
<td>40 079 (42.8)</td>
<td>-26.0</td>
<td></td>
</tr>
<tr>
<td>Medicines continued</td>
<td>38 024 (31.9)</td>
<td>35 541 (32.1)</td>
<td>34 621 (36.9)</td>
<td>-8.9</td>
<td></td>
</tr>
<tr>
<td>New treatment visits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>3414 (2.9)</td>
<td>2714 (2.5)</td>
<td>2078 (2.2)</td>
<td>-39.1</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>1408 (1.2)</td>
<td>1226 (1.1)</td>
<td>1177 (1.3)</td>
<td>-16.4</td>
<td></td>
</tr>
<tr>
<td>High cholesterol</td>
<td>1274 (1.1)</td>
<td>1326 (1.2)</td>
<td>926 (1.0)</td>
<td>-27.3</td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>1266 (1.1)</td>
<td>1146 (1.0)</td>
<td>635 (0.7)</td>
<td>-49.8</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>193 (0.2)</td>
<td>157 (0.1)</td>
<td>149 (0.2)</td>
<td>-22.8</td>
<td></td>
</tr>
<tr>
<td>Insomnia</td>
<td>396 (0.3)</td>
<td>437 (0.4)</td>
<td>299 (0.3)</td>
<td>-24.5</td>
<td></td>
</tr>
</tbody>
</table>

Early Pandemic Visit Patterns of FQHC patients

Figure 3. Percentage of OCHIN’s Completed In-Person and Telehealth Encounters, California, January 2020 to June 2020

In California, telehealth encounters increased as in-person encounters declined in response to the COVID-19 pandemic.
Our Research Study (Work in Progress)

• **292 California community health center (CHC) sites** participating in the OCHIN Advance Collaborative during 2019-2020.
  - EHR (EPIC) data elements covering encounter, lab, vitals, and demographic information

• Analytic Sample of **363,576 adults with type II diabetes and/or HTN** receiving primary care in the FQHC during March 13, 2019-December 31, 2020.

• Key informant interviews conducted during the pandemic with clinic personnel and patients in two FQHCs (N=24 respondents)
Volume and Telehealth Trends Among Adults with Type II Diabetes and/or Hypertension in CA OCHIN CHCs

- **Ambulatory Visits or Telehealth**
- **% Telehealth**

The chart shows the trend of ambulatory visits or telehealth (blue bars) and the percentage of telehealth (orange line) from March 2019 to September 2020. The percentage of telehealth spikes significantly in March 2020, coinciding with the COVID-19 pandemic, and decreases sharply in April 2020.
Preliminary EHR Data Analyses

Analytic sample (n=80,008 adult patients, 289,098 unique encounters)

n=73,450 (92%) adults with diagnosed with type II diabetes and/or HTN, of them:

- Type II diabetes only: 11,053 (15%)
- Hypertension only: 36,255 (49%)
- Type II diabetes and HTN: 26,142 (36%)
- TH users: n=5922 patients (8%)
- Federal poverty line percentage average: 86.1% overall; 92.0% TH users
- Homeless: 492 (0.7%) [n=12 with TH usage]
- Average # of encounters per month:
  - Pre-COVID: 23,068
  - During COVID: 12,711
Age Distribution

- Mean: 56.6
- SD: 12.77
- Patients using telehealth tend to be slightly older than non-users (59.44 vs 59.03; p=0.0037)
"We have compliant patients that check their blood pressure five times a day and bring the log with them. We also have non-compliant patients, I think the biggest problem that the pandemic has had is for the ones that didn't have a machine. They used to be able to go to a pharmacy or a mall and get their blood pressures checked, but they're not able to do that, so we have no idea what their blood pressure has been for months."
~ FQHC Physician

"At the beginning, many patients were getting out of control because, with chronic disease management, it has to do a lot of with nutrition and physical activity. Because of the restrictions and shelter in place and everything, many patients decreased their physical activity and started eating more. So, sort of, it has been difficult for some patients. But as time continues and everything is now getting back to normal, patients are getting used to transitioning to the new normal and start making changes that won't affect them as much."
~ FQHC MA
Black and Latinx FQHC patients were less likely to be TH users compared to White and Asian FQHC patients.
Patient preferred language was comparable for telehealth users vs overall sample
A1c testing was more consistent for TH users compared to non-users during the pandemic period

- **Analytic Sample**
  - # of BP measurements: 222,872 -> 96,714
  - # of A1c measurements: 57,327 -> 38,537

- **TH Users**
  - # of BP measurements: 30,397 -> 15,599
  - # of A1c measurements: 8,206 -> 8,002
  - TH users maintained 97% of pre-COVID volume of A1c measurements, compared to 67% for entire population and 62% for non-TH users
### Mean BP and A1c: Pre-COVID-19 vs. COVID-19

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-COVID19</th>
<th>COVID-19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean(SD)</td>
<td>Mean(SD)</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>133.5(18.9)</td>
<td>134.0(19.2)</td>
</tr>
<tr>
<td></td>
<td>133.5(19.5)</td>
<td>132.0(22.8)</td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>77.8(11.0)</td>
<td>78.2(11.2)</td>
</tr>
<tr>
<td></td>
<td>77.3(10.5)</td>
<td>77.1(13.5)</td>
</tr>
<tr>
<td>A1c</td>
<td>7.4(1.9)</td>
<td>7.3(1.9)</td>
</tr>
<tr>
<td></td>
<td>7.6(1.9)</td>
<td>7.5(2.0)</td>
</tr>
</tbody>
</table>

**Key:** Non-Telehealth Users

Telehealth Users
Compared to non-users, telehealth users had lower systolic and diastolic BP during COVID-19, but not A1c

Systolic BP
- No difference between TH and non-TH users pre-pandemic
- During pandemic: TH users = 132.0 vs non-TH users = 134.0; p=~0.000

Diastolic BP
- TH users differ from non-TH users
  - Pre-pandemic: 77.3 vs 77.8; p=0.0005
  - During pandemic: 77.1 vs 78.2; p=~0.000

A1c
- TH users differ from non-TH users
  - Pre-pandemic: 7.6 vs 7.4; p=~0.000
  - During pandemic: 7.5 vs 7.3; p=~0.000
Poll Questions #2
Key informant interviews

- Recruited two FQHCs affiliated with the Community Health Partnership (Santa Clara/ San Mateo Counties)
  - N=24 respondents comprised of clinic personnel and patients
  - Each clinic has a sizable non-English speaking patient population

- Interviews with FQHC staff (7-8 per clinic)
  - Physicians, medical directors, health coaches, medical assistants, billing personnel, patient navigators

- Interviews with adult FQHC patients (4-5 per clinic)
  - Eligibility criteria: spoke either Spanish or Mandarin, diagnosed with either type II diabetes and/or hypertension, and had at least one telehealth encounter during the pandemic
Telehealth successes in FQHCs during COVID-19

- Providing health care remotely was feasible and reduced the risk of COVID-19 exposure to clinicians and patients
- Clinic personnel and patients reported **high satisfaction with the increased flexibility** afforded by video and audio-only visits.
  - For patients, a key benefit was the convenience (i.e., reduced transportation, lower waiting times compared to an in-person visit)
- **Very low “no show” telehealth visit rates.**
  - Use of audio-only visits supported these low no-show rates
- Increased self-efficacy for managing chronic conditions for some patients

“I have a lot more patients checking their blood sugar at home now for diabetes. I traditionally did not require my patients who are not on insulin to check their blood sugar at home...I’d rely on their regularly scheduled blood work to help monitor. But with COVID-19, I didn’t want my patients to come in so frequently. So it was actually helpful when we were doing follow-ups for diabetes to use their regular blood sugar checks as a way to gauge how well their glycemic control was instead of having to come in for a separate lab appointment.” ~ FQHC Provider
## Benefits and Challenges by Telehealth Visit Type (Audio/video vs. Phone)

<table>
<thead>
<tr>
<th>Modality</th>
<th>Benefits (+)</th>
<th>Challenges (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audio-video</strong></td>
<td><strong>Ability to visually see the patient and their environment</strong> (e.g., visual exams or see a patient’s response/home environment)</td>
<td>- <strong>Digital literacy skills required for use.</strong> Difficult for those with less technology experience (clinical personnel, patients)</td>
</tr>
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<td></td>
<td><strong>Ability to share visual information</strong> (e.g., medication management, screen sharing)</td>
<td>- <strong>Technological barriers:</strong> Patients may have limited or no broadband internet access, lack of dependable or consistent Wi-Fi, or other tech limitations (i.e., limited access to smartphones, iPads, computers)</td>
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<tr>
<td></td>
<td></td>
<td>- <strong>Privacy/confidentiality issues:</strong> Reduced privacy when sharing information on a screen and the potential to be overheard by other household members</td>
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<tr>
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<td></td>
<td>- <strong>Language:</strong> Phone-based translation services are hard to use with video appointments</td>
</tr>
<tr>
<td><strong>Audio-only/phone</strong></td>
<td><strong>Easy to use</strong> – no knowledge barrier</td>
<td>- <strong>Inability to visually see the patient</strong> (inappropriate for visual exams)</td>
</tr>
<tr>
<td></td>
<td><strong>Low technical skills required</strong> – does not rely on broadband internet access/any Wi-Fi access</td>
<td>- <strong>Providers noted less information was retained by some patients</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Higher degree of privacy</strong></td>
<td>- <strong>Lower level of reimbursement from Medicare</strong> (compared to video)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>Language:</strong> Delays using 3-way calling translation services</td>
</tr>
</tbody>
</table>
Language and translation challenges were mentioned for both telehealth modalities, particularly when a third-party translation service was required

“The ones who are left out, left behind by telehealth tend to be the elderly and non-English speaking and the ones who don't have technology proficiency.” ~ FQHC Provider

“Usually the way it works is the doctor calls the interpreter agency or the medical assistant calls the interpreter agency, and they place the phone call to the patient just because we need an interpreter on the line to even introduce ourselves. And so, sometimes the patients don't answer the phone, because they see a 1(800) number, and then it means the interpreter hangs up, the medical assistant calls the patient, tells them ‘Hey answer the phone, this is the number they’re calling from,’ [then] it’s at least 5-10 minutes added to your encounter where they're just getting the patient on the phone.” ~ FQHC Leader
Lessons learned using telehealth for diabetes and hypertension care management

- Telehealth is appropriate for a subset of patients and encounters, such as:
  - Established patients with semi-stable/consistent health indicators
  - Visits that rely on brief and/or verbal communication (i.e., a follow-up visit)

- Telehealth may not be an effective substitute for:
  - Certain physical/visual examinations (e.g., eye or foot exam)
  - Taking certain vital signs without additional support for patient use of remote monitoring devices

- While remote monitoring devices are promising, quantities were limited in these FQHCs and there were challenges to utilization
The future is **HYBRID** (combination of in-person + telehealth)

“We might have more like a hybrid model. You might keep the patient home for two visits, but whenever they’re due for their annual physicals or their foot exams, labs, eye exams, then you might just have them come in.” ~ FQHC Leader

“I think we could actually probably increase our patient volume and panels if we relied on telehealth a little bit more and we're able to really hone in on our workflow. I think it could be something that financially is beneficial to the organization.” ~ FQHC Staff
Identify patient preferences and strengthen shared decision making about telehealth use

Enhance patient experiences – e.g., Integrate community health workers/promotores de salud/health coaches

Important to consider…
- Provider-patient relationship and trust
- Communication mode preference (phone, virtual, in-person)
- Language access
- Health literacy

Document access, cost, and quality outcomes

Promote high quality interpretation and translation services
Produce literacy-appropriate and culturally sensitive health education and communication materials

Increase hiring and training of staff to assist with telehealth onboarding (include in workflows)
Recruit and retain a diverse workforce
COVID-era telehealth policies and flexibilities should be sustained

- High level of uncertainty around permanent telehealth reimbursement
  - Removing payment parity for audio-only visits will reduce access to care for low-income FQHC populations
- Policies and resources are still needed to incentivize digital health literacy
- Importance of addressing digital health inequities
  - Broadband infrastructure/ reduce anti-competitive behavior
  - Internet access in public spaces
  - Digital literacy training and set up

FQHC Challenges to Scaling and Sustaining Telehealth

- Address language barriers
- Use a full range of telehealth resources (video visits, remote monitoring)
- Consider patient preferences
- Leverage industry and community partnerships to ensure broadband access and improve digital literacy
- Streamline workflows and improve use of team-based care
Poll Questions #3
Moving the Field Forward

- Distinguishing between audio-only and video telehealth visits
  - Telephone visits essential for safety net patients
  - Build evidence about quality differences for in-person vs. audio-only vs. video visits to inform how best to deliver hybrid care for diabetes and hypertension care management.

- Patients need assistance to use video visits
  - New digital/tech support models are needed for FQHCs and safety net clinics

- Multisite implementation science research in FQHCs and safety net clinics focused on optimizing telehealth for diabetes and hypertension management