

Supplemental materials for

Rabinowitz G, Cho LD, Benda NC, et al. The telemedicine experience in primary care practices across the United States: insights from practice leaders. *Ann Fam Med*. 2023;21(3):207-212.

Supplemental Appendix 1. Final survey

Confidential

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Telemedicine Practice Interview

We are helping lead one of the largest federally funded telemedicine studies in primary care. Our goal is to understand how practices across the US pivoted to telemedicine, our challenges and how we overcame them.

As part of this, we want to speak with practice leaders like you in a brief Zoom interview. Of course, answers will be confidential, and we will de-identify you right after the interview.

We will also provide you a \$40 gift card for your time.

Thank you for your participation.

RESPONDENT

- 1 Which of the following best describes you [respondent]?
- ☐ Administrator
☐ Healthcare provider
☐ Both
☐ Other:

1a. If other:

PRIMARY CARE PRACTICE

2. We are going to ask about the telemedicine transition experienced in 2020. Which practice or practices can you answer questions about?
3. Which of the following applies to your practice?
- ☐ Hospital-based practice
☐ Community practice
☐ Private practice
☐ Solo practice
☐ Federally Qualified Health Center
☐ Affiliated with an academic medical center
☐ Other

3a. If other:

PROVIDERS

- 4a. How many physicians work at your primary care practice?
- 4b. How many non-physician staff work at your primary care practice?
5. Does your practice host medical residents?
- ☐ Yes
☐ No

PATIENTS

6. What (estimated) percentage of your patient population does NOT have English as their primary language? _____

TELEMEDICINE ROLL-OUT

The next questions concern your practice's telemedicine program. Here, telemedicine is defined as "the use of medical information exchanged from one site to another via electronic communications to improve patients' health status." (American Health Information Management Association).

7. Did your practice offer telemedicine services BEFORE the start of the COVID-19 pandemic (before March 2020)? ☐ Yes
☐ No

- 7a. If telemedicine did not start by March 2020, what month did it start? _____

We recognize that telemedicine programs were rolled out at a fast pace at the start of the pandemic and - with time - improvements to these programs were applied as we learned more about how to optimize telemedicine care.

- 8a. Looking back at the roll-out of your practice's telemedicine program, can you pinpoint the month in which you felt your program had matured? _____

The next set of questions will help us better understand your telemedicine program and how it was rolled out. Specifically, we want to make a comparison between telemedicine services at the start of the pandemic (March 2020) and the timepoint at which you felt your practice's telemedicine program had matured.

We ask that each question be answered for both your practice's INITIAL telemedicine program and your practice's MATURED telemedicine program.

Telemedicine technology**9. What type of telemedicine did your practice offer?**

	Interactive/synchronous telemedicine (video and audio)	Interactive/synchronous telemedicine (audio-only)	Remote patient monitoring
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maturation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Which vendor(s) provided telemedicine services? _____

11. What was the relationship between the telemedicine software and the electronic health record (EHR)?

	Stand-alone telemedicine platform, NOT INTEGRATED into the EHR	Stand-alone telemedicine platform, INTEGRATED into the EHR	Telemedicine platform is the EHR
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Access to telemedicine
12. How did patients access telemedicine services?

	Access through a patient portal (either smartphone app, or through a browser)	Access without a patient portal
March 2020	<input type="checkbox"/>	<input type="checkbox"/>
Maturation	<input type="checkbox"/>	<input type="checkbox"/>

13. If a patient portal was used for telemedicine, was it offered in languages other than English?

	No	Yes, Spanish	Yes, Mandarin	Yes, Cantonese	Yes, Tagalog (Filipino)	Yes, Vietnamese	Yes, Arabic	Yes, other language(s)
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maturation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13a. If other languages:

14. Were interpreter services available during telemedicine visits?

	No	Yes
March 2020	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>

14a. If interpreters were limited for certain languages, which ones?

15. Which patient education or services did you provide to help patients with telemedicine visits?

	None	Online material: text	Online material: video	Paper material	Available tech support staff	Phone call ahead of telemedicine visit	Real-time chatbots	Other (fill in below)
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March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maturation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15a. If other education services:

16. Was telemedicine limited to certain patients, health insurance plans, or visit types?

	Telemedicine was NOT limited to certain patients, health insurance plans, or visit types	Telemedicine was limited to only patients with certain CHRONIC DISEASES, please explain below	Telemedicine was limited to only patients with certain HEALTH INSURANCE PLANS, please explain below	Telemedicine was limited to certain VISIT TYPES only, please explain below
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maturation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16a. If further explanation for telemedicine limitations:

17. Were telemedicine visits offered outside of traditional office hours? [weekends and evenings]

	No	Yes
March 2020	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>

18. How would you rate your patient population's access to technology for telemedicine services?

	Very poor	Poor	Acceptable	Good	Very good
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Telemedicine may theoretically decrease or increase disparities in access to care. A decrease in disparities could occur, for example, by minimizing physical barriers to care. Likewise, an increase in disparities could occur due to widening of pre-existing disparities in access to technology or familiarity with technology.

19. How has your practice's telemedicine program impacted disparities in access to care?

	It has INCREASED disparities.	It has NEITHER decreased NOR increased disparities.	It has DECREASED disparities.	Don't know.
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Telemedicine in daily practice**20. Was telemedicine mainly used to supplement or substitute in-person care?**

	Telemedicine was mainly used to SUPPLEMENT in-person care	Telemedicine was mainly used to SUBSTITUTE in-person care	Telemedicine was mainly used to both SUPPLEMENT AND SUBSTITUTE in-person care
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maturation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

On a scale of 1-5 with 1 representing the most difficult and 5 representing the easiest:**21. How easy was it to schedule telemedicine visits?**

	1 - most difficult	2	3	4	5 - easiest
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. How easy was it to bill for telemedicine visits?

	1 - most difficult	2	3	4	5 - easiest
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. How easy was it to document the content of telemedicine visits?

	1 - most difficult	2	3	4	5 - easiest
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. How easy was it to get reimbursed for telemedicine visits?

	1 - most difficult	2	3	4	5 - easiest
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Did the CHECK-IN process for a telemedicine visit involve an interaction with a remote support staff member? [this can be either tech support or a medical assistant/nurse]

	Never	Sometimes	Always
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Did the CHECK-OUT process for a telemedicine visit involve an interaction with a remote support staff member? [this can be either tech support or a medical assistant/nurse]

	Never	Sometimes	Always
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. According to your estimation, how often were telemedicine visits disrupted due to a technological issue?
[for example, a lost connection or slow internet speed]

	Never	Seldom	Sometimes	Frequently	Always
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Certification and support staff
28. Did your practice offer training or certification before authorizing providers to use telemedicine?

	No, there was no formalized provider certification program at our practice	Yes, an online training	Yes, an in-person training	Yes, paper or electronic handouts	Yes, other
March 2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maturation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 28a. If other formal training/certification:
 29. Please rate the following statement: there was enough support staff available for our practice's telemedicine program.
[support staff can be either tech support or medical assistants/nurses supporting the telemedicine program]

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
March 2020	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Investment in telemedicine
30. Looking back, how much did your practice invest financially in these aspects of your telemedicine program?

	No investment	Minimal investment	Moderate investment	Significant investment	Don't know/unsure
Telemedicine equipment (phones, tablets, minutes or data plans, etc) for the OFFICE/STAFF/CLINICIANS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Telemedicine equipment (phones, tablets, minutes or data plans, etc) for the PATIENTS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training of providers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional medical support staff such as medical assistants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tech support staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vendor contract with telemedicine company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Financial investment notes:

-
31. Tell us more about the process of telemedicine roll-out in your practice, any specific additional things that you feel might be important for us to understand?

-
32. Telemedicine in the future

Which of the following best describes your future plans for telemedicine in your practice after the current public health emergency ends?

- ☐ We plan to SCALE DOWN our telemedicine program and return to in-person care as much as possible
☐ We plan to continue to offer telemedicine at the SAME AMOUNT as during the pandemic
☐ We plan to EXPAND our telemedicine program
☐ Unsure at this time

Supplemental Appendix 2. Illustrative quotations for each theme. Note: some excerpts have been edited for clarity.

Theme I. The ease of telemedicine adoption depended on both patients' and providers' prior experience using virtual health platforms

Interview Excerpts

1. *"For telemedicine, you have to have MyChart, which was 55% for our patients. During that time, it was even more important to have patients sign up for MyChart because there was a financial difference as well- there wasn't parity in the reimbursement for video visit versus telephonic visit, so there was a big push to get more people on video visit via MyChart."* (Respondent 9)
2. *"I think that the practices that had high patient portal usage were able to get to telemedicine easier. The practices that really struggled with patient portal use lost financially."* (Respondent 19)
3. *"Before the pandemic, we started doing lectures via Zoom for everyone to train them on how to use our EHR. So that really helped us to be able to do training remotely when it all hit in March. Having everyone comfortable with receiving education via Zoom helped us be able to educate everybody quickly."* (Respondent 19)

Theme II. Regulation of telemedicine varied across states and differentially impacted the roll-out processes

Interview Excerpts

1. *"Some of Florida's laws just put a monkey wrench in [telemedicine], because you used to be able to do controlled substance prescribing and now it is a little bit more difficult."* (Respondent 19)
2. *"Prescribing is difficult in Florida for controlled substances. Right now, we have an emergency order in place that allows us to prescribe controlled substances for existing patients with chronic pain, so it's highly specific. If you have a person who's taking testosterone, you can't prescribe that through telehealth. They would have to come into the clinic, which is kind of crazy to me. The prescribing needs to make more sense."* (Respondent 15)
3. *"A lot of our physicians have gotten a Georgia license just for the purpose of being able to treat their patients that were driving to see us, but now they're at home. It is a medical board thing. They want to keep their income stream and they see restrictive licensing rules as an opportunity to do that, rather than considering the patient's needs first."* (Respondent 15)
4. *"It probably would be better if we had had some type of more formal training with telemedicine and with the requirements to meet [State] guidelines. To me, it was a little bit loose."* (Respondent 6)
5. *"Licensure and legal issues related to a patient being out of state in a state where I am not licensed were moving targets throughout the past year. ---- guided us that we were able to continue in states that offered waivers, but we were informed at a certain point that patients from other states were not allowed to be on telehealth with us due to these licensure issues. Whether or not that's strictly enforced is a different question."* (Respondent 2)

Theme III: Unclear telemedicine visit triage rules

Interview Excerpts

1. *"During an emergency situation you do the best you can with what you have at hand. We are not going to take a person that might have appendicitis and say 'palpate your abdomen.' We're going to say 'come into the emergency department.'"* (Respondent 15)

2. *"There needs to be more work around what type of visit makes the most sense for telemedicine, as opposed to letting the patient dictate whether or not they want a telemedicine appointment. Some appointments end up being 'you need to come in' or 'this doesn't make sense', so there are some wasted appointments."* (Respondent 7)
3. *"We're still figuring out what requires a physical exam. Some people are more comfortable with triaging and some people are less comfortable. We are struggling a little bit with that. Right now, the providers are still very hands-on in selecting patients for telemedicine. We'd like to get away from that, so we'd like for the phone operator to make that decision. I don't know that the providers have clear guidelines yet to give the telephone operators."* (Respondent 17)

Theme IV. Positive and negative impacts of telemedicine on providers and patients

Interview Excerpts

1. *"I stayed late one day with a woman that had a 2:30 pm appointment and we figured out Zoom until 6:30 that night. The next day, she sent me the coolest email, saying 'thank you for doing this because I was able to see my grandkids for the first time in a month.'"* (Respondent 19)
2. *"Many providers now have the patients walk over to their medicine cabinet or the refrigerator during a visit, so telemedicine has offered us an enhanced glimpse into the lives of our patients."* (Respondent 17)
3. *"I think it was surprisingly pleasant to shift so many things out of the office that didn't need a visit. It was great to finally have an opportunity to jump on a Zoom for telemedicine to talk about a patient's 15th UTI or their anxiety or mental health issues without having to schlep over to the office."* (Respondent 14)
4. *"For our mental health team, this has been great because the patients have been able to stay healthy with their mental health issues."* (Respondent 11)
5. *"We have a depression care manager who does a lot of therapeutics and talk therapy. Psychiatry has been doing this forever. Also, we're able to do more quick follow-ups for medication management."* (Respondent 9)
6. *"Practically everyone has a smartphone, but not everyone has a car or access to public transportation, so I think telemedicine helps decrease disparities."* (Respondent 6)
7. *"If a patient came in and we drew labs (this goes for diabetes, hypertension, and most conditions actually), telemedicine allowed a follow up visit which reinforced and reviewed the results of the testing after the visit. I found that to be one of the better elements of telemedicine. A quick 10-minute phone call with a diabetic has tremendous long-term benefits."* (Respondent 6)
8. *"Telehealth is now providing access specifically for mental health visits, which is a big part of our primary care practice and substitutes the need for a face-to-face encounter."* (Respondent 2)
9. *"[the] pace of telehealth is such that you don't really feel like you have the opportunity to even ask for help, even if it was available"* (Respondent 2)
10. *"[providers] really do feel sort of alone when doing telemedicine"* (Respondent 2)
11. *"[I] think most providers are saying to themselves 'I don't ever want to do that again,' because a full day of telehealth is just extremely challenging and hard to sustain."* (Respondent 2)