

ORIGINAL RESEARCH

Balancing Access, Well-Being, and Collaboration When Considering Hybrid Care Delivery Models in Primary Care Practices with Team-Based Care

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Background: Hybrid models of care (ie, telehealth and in-person care delivery options) have been incorporated into primary care clinics to increase patient access to care. We examine the effects of these approaches on the work experiences and wellness of primary care clinical team members providing team-based care to patients.

Methods: In this qualitative study, we conducted semistructured interviews with clinical team members (primary care clinicians, behavioral health consultants, registered nurse) at 2 primary care practices at 2 time points (late 2021-mid 2022 (n = 14); midlate 2023 (n = 11)). We used an inductive approach to analyze data.

Key Results: Benefits of hybrid models of care included increased patient access and personal flexibility; however, it was noted that the fragmented in-clinic schedules that emerged from the hybrid model resulted in reduced in-clinic interactions. This led to less information sharing among team members and a degradation of informal support networks that could adversely impact patient care. To mitigate these challenges, many preferred that most of their clinical shifts occurred in-person, in the clinic, with 1 to 2 sessions per week for in-home (telework) shifts.

Conclusions: In team-based primary care clinics, hybrid care models can impact interactions among clinical team members and shape the day-to-day environment in which clinical teams work. To optimize hybrid care approaches in the primary care setting, organization leaders must consider the impact of hybrid care models on clinic and team culture, and the well-being of clinical team members. (J Am Board Fam Med 2025;38:475–489.)

Keywords: Care Coordination, Communication, Health Services Accessibility, Health Workforce, Organizational Innovation, Patient Care Team, Primary Health Care, Qualitative Research, Telehealth, Workplace

Introduction

Telehealth care, which we define as care delivered by phone or video, is now a common modality in primary care practices. Research highlights a number of

benefits of telehealth, including increasing patient access,^{1–5} opportunities for remote work for clinical teams,^{1,2,6–8} and flexibility of scheduling for both patients and clinical teams due to the decreased burden of travel time.^{1,4,6} A number of challenges of telehealth care have also been noted including access and equity issues,^{1,4,9} infrastructure and resource needs,¹ the impact of telehealth workflows on clinical teams,^{1,7,8,10} and how telehealth modalities effect communication and relationship building between patients and clinicians.^{2,8,11,12}

Many practices do not deliver care exclusively via telehealth, but blend in-office and telehealth care for patients, what we refer to as hybrid care models. Hybrid models include both how patient visits are conducted (by telephone/video or in-clinic), as well as where clinicians conduct the visits (at-home vs in-

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clinic). By offering both telehealth and in-person visits, hybrid models can provide flexibility to meet the unique needs of individual patients. While research is growing regarding the adoption, implementation, use and impact of telehealth care,^{1–12} few studies have examined the implementation and impact of hybrid models on clinical teams.^{7,8}

In prior work, we explored the impact of the incorporation of telehealth on the practice of delivering Opioid Use Disorder (OUD) care among interdisciplinary team members from 2 clinics within the same health system and patients' experiences with telehealth delivery for OUD.^{2,13,14} These teams are composed of primary care providers (PCPs), behavioral health consultants (BHCs), and registered nurses (RNs) who provide care to patients in the general primary care practice, as well as to those patients receiving care for OUD. Before the COVID-19 pandemic, the majority of care was conducted in-person, in the clinic.² Teams (eg, PCP, Medical Assistant, and nurse; the BH team) sat together in rooms (ie, in pods). In response to COVID-19, these clinics, shifted to a hybrid care delivery model, which allowed for both in-person and telehealth appointments for patients. It also accommodated clinical team members having a hybrid work schedule where some of the telehealth visits were conducted from the clinic and some remotely, typically from the clinical team member's home. This model has been sustained postpandemic.

In this study, we examined the experiences of these clinicians in delivery of care, in general, within the hybrid care models implemented at their clinic to determine how these models affected clinical teams, including teamwork, operations, culture and well-being.

Methods

Study Design

This was an observational, cross sectional, qualitative study in which we conducted semistructured interviews with clinical team members (PCP, BHC, RN) delivering team-based care in primary care practices at 2 time points [Fall 2021–Summer 2022 and Summer 2023]. This study was approved by the Oregon Health & Science University Institutional Review Board (IRB).

Setting

This study was conducted in 2 clinics that were part of the same hospital system located in the Pacific Northwest; one was a Rural Health Clinic (RHC)

and the other was an urban Federally Qualified Health Center (FQHC).

Participants

Clinical team members who provided care to patients with OUD, as well as to patients with other primary care or behavioral health needs, participated in this study.

Recruitment

Medical Directors at each clinic approved participation in the study. From among the clinical team, which delivered primary care and behavioral health care to patients in the clinic, these Medical Directors provided a list of clinicians (n = 16) who delivered OUD care. All participants were employed at these clinics before and during the COVID-19 pandemic, when telehealth visits were rapidly expanded. Ten clinical team members were initially contacted by e-mail, and interviews were conducted from December 2021–January 2022. Due to the influx of new and returning patients after the COVID-19 pandemic, and resulting limited availability of clinical team members, the project team was required to pause recruitment until August of 2022, when the remaining 6 clinical team members were recruited. One clinician declined to participate, and a care coordinator was excluded as they did not provide clinical care (n = 14; 5 rural and 9 urban). Understanding that the first round of interviews was largely conducted coming directly out of the COVID-19 pandemic, and with the hybrid care model being fairly new, we contacted these 14 clinicians again in June 2023 for a follow-up interview, to determine if the findings held true, once the protocols of the hybrid models of care were more established. One had left the clinic and 2 did not respond (n = 11 follow-up interviews).

Data Collection and Management

We conducted initial interviews of the clinical team from December 2021–January 2022. Remaining round 1 interviews were completed in August 2022. All follow-up interviews were conducted from July–August 2023. Interviews were conducted virtually (by video) and followed a semistructured guide (see Appendix A for the initial interview guide and Appendix B for the follow up interview guide) in which we asked a series of questions to prompt participants to reflect on both their experiences pre-COVID and their experiences delivering care during and postpandemic via different

modalities (ie, in-person, telephone, video). The interview guides were pilot tested with primary care clinicians from the same hospital system but not from the included study clinics. Edits were made to the guide to improve clarity of questions. Interviews, which were conducted by 2 experienced researchers, lasted approximately 60 minutes, were audio-recorded, with permission, and professionally transcribed. Transcripts were reviewed for accuracy, de-identified, and were entered into ATLAS.ti Version 9 (Scientific Software Development GmbH, 2021) along with audio-recordings for data management and analysis.

Analysis

In using an inductive approach¹⁵ in our primary study aim, where we examined how clinical team members experienced the incorporation of telehealth care modalities in OUD treatment,^{2,13} data emerged around the personal experiences of clinical team members, and the impact of the hybrid model of care on clinical team members' delivery of care and team collaboration, in general (eg, not just focused on OUD-related care), which we focus on in this article. Analysis of the first round of interviews focused on responses to 2 questions in the initial interview guide: "What has your experience been using virtual visits to deliver treatment to patients for opioid use disorder?" and "Can you describe for me how collaboration with the care team works when visits are conducted virtually?" Consistent with the aim of the second round of interviews to validate findings from the initial round of interviews, analysis of the second round of interviews used a deductive approach,¹⁵ with questions focused on clinical team members' current experience of delivering care for all patients served by the clinic within the hybrid care model and clinician wellbeing: "In general, how is the clinic working together, and what different ways is the team communicating/working with patients?" and "How is this similar or different for OUD treatment" and "I am interested in how you are doing, what I am going to call – your personal wellbeing. How are you?"

After the first set of interviews in round 1, 3 team members (TWL, SW, SB) listened to and analyzed 2 interviews, which included discussion, and tagging text (eg, "clinicians' personal experiences," "collaboration among the team," "clinician wellbeing," "dedicated virtual schedule," "providing remote care") so that the analytic team could come back to select text for deeper comparison and sense making.

Initial findings were then discussed with the larger project team, and it was at this time that the sub-themes around the impact on the interdisciplinary clinical team and clinician well-being with the shift to a hybrid approach and asynchronous work were identified. TWL and SW then analyzed the remaining data, with a specific focus on the subtopics identified around the impact of providing care via telehealth. This process was repeated after the remaining first round of interviews (August 2022) and after the follow up interviews (Summer 2023). Regular meetings with the larger project team confirmed that saturation (ie, the point at which no new findings emerge from data collection) was reached.

After all interviews were analyzed, the qualitative team synthesized the data to make comparisons across clinical roles, differences in type of care delivered (eg, OUD care, general primary care or behavioral health needs) and time periods, with a focus on determining if experiences described in the first round of interviews continued to be described in the subsequent interviews. The primary difference between the time periods was the amount of time spent in a hybrid schedule. Over the course of the first interviews (December 2021–January 2022 and August 2022), the amount of time spent providing care via telehealth, either remotely or from the clinic was still evolving. During the follow up interviews (Summer 2023), the time spent providing care via telehealth and engagement (or not) in hybrid work schedules were more standardized. Participants' reflections on their experiences had solidified during the follow up interviews, as they had more experience with the hybrid care model.

Results

Table 1 shows the number of participants we interviewed by clinic and professional role.

Hybrid work environments were described as leading to more personal flexibility in the workday, ease in scheduling/conducting patient appointments, allowing for mental breaks to decrease the mental burden, particularly that associated with OUD care, and decreasing the environmental impact due to decreased transportation needs. Table 2 highlights the benefits participants saw with the hybrid care delivery model. Participants also described the value of regular communication with their team members to optimize patient care delivery, and how the hybrid work schedule impacted clinical team member communication patterns.

Table 1. Number of Participants Interviewed by Clinic and Professional Role

	Initial Round of Interviews (2021–2022)	Follow-up Interviews (2023)
Clinic type		
Federally qualified health center	9	6
Rural health center	5	5
Role on clinical team		
MD/APP	9	7
BHC	3	2
RN	1	1
Number of years in practice		
<5	2	0
5 to 10	7	6
>10	5	5
Gender		
Male	10	9
Female	4	3

Abbreviations: MD/APP, Medical Doctor/Advanced Practice Provider; BHC, Behavioral Health Clinician; RN, Registered Nurse.

Below we report findings related to how the hybrid model changed clinical work and collaboration patterns, both within the subset of interdisciplinary communication utilized for OUD care and among clinician's broader care teams, highlighting the challenges clinical team members experienced and the impact of these changes on team culture and well-being. To demonstrate consistency of findings across the 2 time periods, illustrative quotes are included from each round of interviews for each finding below.

Information Sharing and Collaboration

Before the COVID-19 pandemic, teams described multiple forms of regular in-person communication. Team members shared offices, held meetings in-clinic, and engaged in informal exchanges (eg, running into a colleague in the hallway or during in-person meetings). In-person interactions provided opportunities for consultation, collaboration, and social support. Implementation of the hybrid model of care resulted in operational changes that physically separated clinical team members. This initially included a mandatory shift to a partially remote schedule for clinical team members, and a change in how clinic space was used (for example, behavioral health clinicians (BHCs) no longer shared office space). At the time of the second

round of interviews, both clinics continued to support a hybrid work schedule and at one of the clinics the BHC continued to sit in their own room in the clinic, on their own.

Team members recognized the incorporation of a hybrid approach resulted in fragmented schedules and reduced in-clinic interactions. Clinical team members shared their experiences by contrasting in-clinic, team interaction with asynchronous team interaction due to hybrid schedules.

Our meetings used to be all in one room. Like we could kind of turn around and collaborate pretty quickly with each other and a little bit of that is lost. . . I do miss the in-person days as it were. – RN 1; Round 1, Interview conducted December 2021

Well, I think that having people in the building [again] has been a big positive, one for morale among staff, more camaraderie. People have relationships again. There's our whole team cohort that we have built up for over years in these pod systems. People are sitting together again. . . that pod-based, team-based care is where the magic happens because you can just turn around and be like, "Hey, can you give this patient—" or, "Hey, this is—I have this question. What do you think about this?" Instead of sending an in-basket message that's 12 hours later they get back to you, and it just—it improves how quickly care can happen. . . I mean [the on-line messaging application] works great, but it's not the same as just, you know, sitting next to somebody. – PCP 7; Round 2, Interview conducted July 2023

Working together in the same space allowed team members to know how others on the team were doing during a clinic session, and adjust operations based on that, if needed. Nonvisual communication (eg, chatting via an online messaging application) with team members who were working remotely, and virtual meetings did not foster this kind of knowing, which was described as more personal and a way to get a pulse on how everyone on the team is doing.

It's easier to start seeing people less as people and more as place holders or role occupants. "Well, you're the BHC. I need you to do these things," versus we're talking every day. I know those daily struggles, and I know that maybe today you're not in the greatest place to deal with this. . . I don't have that now, and so if I feel like I'm busy and I need somebody else to help, I'm just trying to turf it to the person who's occupying the role that's similar to mine without really knowing or considering what might be happening that would actually make me better suited to address [a patient care issue]. – BHC 8; Round 1, Interview conducted January 2022

Table 2. Clinical Team Members' Descriptions of Benefits to the Hybrid Model of Care

Benefits	Quotes
Increased access for patients	I think for stable patients, yes. I think it is a very reasonable thing that if our goal of treating opioid use disorder is to maintain function in society and obligations, and one of those is work and family and childcare, that virtual visits help us better achieve that goal. [PCP 10] I'd say I've learned that it is an effective tool for communicating partnership and allegiance over time. That does build. I've learned to thank people for inviting me into their home. I've learned that providing virtual access is way better than providing no access. [PCP 1]
Personal flexibility	I've maintained a half day of only phone or virtual, partially to be at home, and I do find, certainly my pets think that's great, and my alarm going off 15 or 20 minutes later, that's great. More casual dress; that's great. Some of those things are the things that have made the still really unconsciously pressured, fast-paced days with onerous documentation requirements and computer order entry requirements a little bit more palatable. [PCP 7] It's nice to have the ability to be at home for that day. Often, my wife is working from home, and so, even in between patients, we can say hi to each other and connect. I can sit outside during lunch. I really enjoy that aspect of it. I think it's a decent balance between being in clinic and being at home. [PCP 10]
Decreased burden	It is much more common, if I'm on a completely virtual session, that I will see 10 people in that half-day, and I'll have all my notes finished and closed before noon if I start in the morning, whereas if I was seeing people in-person, I'd probably still be seeing patients by noon, let alone have everything done. That's a plus. The flip side of that is that, if I finish that half-day of virtual sessions, I feel exhausted. [PCP 13]
Allowing for mental health breaks	Affirmative trauma gets reported and exchanged and having to compartmentalize that trauma became a burden for me. But since I've been doing a lot of that work from home that has been less severe. I have noticed that at the end of the days I'm doing OUD I'm a lot less stressed or anxious or whatever I can—between appointments I can go pet my dog which you probably heard barking in the background a little bit ago. [Laughter] Or go play with my kid who's at home and just turned a year this August. There are ways I can decompress that aren't necessarily—they're just like you're in a room with a patient or your coworkers can provide some solace but being comfortable and at home is the best place to be, at least for me. [RN 1]
Decreased environmental impact	I think for stable patients when the relationship is well-established, ongoing opportunities to save carbon footprint should absolutely be maintained and fought for. [PCP 7]

If we could just talk things out in person, like we used to, really affects the way that we work. . . this push to be virtual, the push to have an agenda that is very objective, and the absence of agenda to just say, "hey, how are you doing? What's going on in your life? What did you do this weekend?" is gone, and we see each other as so transactional and not as human beings. – PCP 10; Round 2, Interview conducted July 2023

Individual Clinician Wellbeing When Delivering Care via a Telehealth Modality

While clinical team members appreciated the evolution to a dedicated, regular hybrid schedule, a preference emerged that most of their shifts occur in the clinic, with in-person patient visits. During sessions delivered to patients via telephone or video (either from home or the clinic), team members reported feeling less engaged and more distracted during patient encounters and described work as being less enjoyable.

I feel exhausted after a half-day of virtual sessions. It's not quite as energizing as seeing people face-to-face, and you feel just a little bit like a robot. You're just typing as fast as you can, putting in orders, signing—

all that stuff, and you don't really feel like maybe you did anything real. I think, from a satisfaction standpoint, most of us, we prefer a blend. – PCP 13; Round 1, Interview conducted January 2022

I think it's harder for me to stay engaged when it's virtually, especially when it's phone, 'cause I'm not looking at a person. I'm not in the room with a person. There's nothing to tie me to the connection, so I find myself having to try harder to stay connected. Not doing other things on my computer, not signing prescriptions or whatever. It's more of a challenge. – PCP 11; Round 2, Interview conducted August 2023

I've found my job satisfaction has dropped immensely with the transition to the new hybrid model. It's so much harder to actually feel connected to people. In this business, my currency is connection, and I don't have that a lot of the time. At least not the ways that I experience it as such. . . . I imagine having a high-or at least a relatively high proportion of telephone visits doesn't help my feelings of connection to the job. It's difficult to feel connected to the patients when I never get—you never get to see 'em or have any idea what they look like. I don't get to see their authentic reactions or really any of it. – BHC 8; Round 2, Interview conducted August 2023

To reduce the mental fatigue or decreased relational aspect of care, participants recognized the advantage of the hybrid work schedule. Clinic team members described 1 to 2 shifts per week for in-home, virtual care as being ideal. Having a clinical shift that blended in-person office visits and telehealth visits minimized the sense of loss from the absence of in-person in-clinic interactions with team members.

Discussion

As recognized by the National Academies of Sciences, Engineering and Medicine's endorsement of the primary care telehealth rule revisions introduced during the COVID-19 pandemic,¹⁶ primary care adoption of telehealth is here to stay. And, similar to what was found in our study, there is evidence of tangible and intangible benefits for clinical team members when telehealth is incorporated into care delivery.¹⁻⁸ Yet, there are many facets to a primary care team's clinical success, and 2 critical components include the health of the individual clinic team members and the health of the clinical team.^{17,18} What we learned about the hybrid care delivery model is that it effects both the mental health of the individual team members, as well as team dynamics. This study provides a unique lens into clinical teams' experiences with hybrid care delivery during 2 time periods and begins the discussion around factors clinical leaders need to consider when incorporating hybrid care models into their practices in a sustainable manner.

Through the implementation of hybrid policies and workflows, clinical teams have operationally changed the way they work together. Team members who used to work together in the same physical space may not see each other at all, see each other less frequently or engage in asynchronous work, even when copresent in the same office. Research has shown that the layout of a physical workspace can impact both the individuals who work in a space, as well as the work they are able to do together.¹⁹ In particular, being in close proximity to each other allows for increased visibility among team members, which in-turn enhances interprofessional interactions.^{20,21} It has also been shown that incorporating telehealth into primary care mental health integration can result in decreased communication between the behavioral health team and the primary care clinicians, and

that extra effort must be made to engage clinical teams in interdisciplinary activities.¹⁰ As seen in our study, the absence of physical proximity when teams provide care asynchronously has the potential to affect the mental health of individual team members as well as the degree and type of communication and social relationships among team members. Although the impact of this degradation on the work of the individual or the social capital of the clinical team is not yet known, our findings do suggest that clinical leaders need to think carefully about how to achieve the right mix of care delivery options because the incorporation of telehealth has the potential to have both positive and negative effects for the team and the individual clinician in terms of burnout, well-being, and meaningful collaboration, all which in turn enrich patient care.^{18,22}

Limitations

This article has limitations. The first is that we interviewed team members who worked together before the implementation of telehealth, and therefore we cannot explore the variation that would include a new team that did not have these relationships before the transition. Further, this can be seen as a special use case where teamwork among the interdisciplinary primary care team members who deliver care to patients with OUD is possibly more important than for other care delivered in primary care. And yet, when team members spoke about their care delivery practice, they were not exclusively talking about care provided as part of the OUD program, but rather about their daily rhythms and overall patient caseload, which included care for patients without OUD and engaging with other clinical team members outside of the OUD program. For this reason, although this exploratory work was conducted among a subset of clinicians who provide care to patients with OUD, we believe the findings are transferable to other team-based care. Second, there is a potential for recall bias, and it was possible that teams' memory of how they worked together was clouded by the pandemic. Finally, although the first round of interviews in this study were conducted when in-person restrictions were still stringent in health care settings, teams had returned to sharing space in the follow-up interviews. And yet, some team members continue to work in isolation. Thoughtful consideration needs to be put into practice redesign moving forward to keep attention on clinician and clinical team well-being.

Conclusion

Our findings highlight the need for further work to be conducted with clinical teams to create a hybrid environment that mitigates the potential for isolation and supports collaboration. Specifically, larger scale studies are needed to understand the effect of hybrid models of care on teams, burnout, and patient care. As hybrid care delivery and work schedules are rolled out and expanded on, work needs to be done to consider the impact on clinicians, their colleagues, and the broader clinical teams, to navigate toward achieving a balance of the benefits of telehealth and the (sometimes) intangible benefits of in-person team engagement.

To see this article online, please go to: <http://jabfm.org/content/38/3/475.full>.

References

- deMayo R, Huang Y, Lin ED, et al. Associations of telehealth care delivery with pediatric health care provider well-being. *Appl Clin Inform* 2022;13:230–41.
- Wyte-Lake T, Cohen DJ, Williams S, et al. Patients' and clinicians' experiences with in-person, video, and phone modalities for opioid use disorder treatment: a qualitative study. *J Gen Intern Med* 2024;39:2179–86.
- Fitzsimon J, Patel K, Peixoto C, Belanger C. Family physicians' experiences with an innovative, community-based, hybrid model of in-person and virtual care: a mixed-methods study. *BMC Health Serv Res* 2023;23:573.
- Senft Everson N, Jensen RE, Vanderpool RC. Disparities in telehealth offer and use among US adults: 2022 health information national trends survey. *Telemed J E Health* 2024;30:2752–8.
- Chang E, Penfold RB, Berkman ND. Patient characteristics and telemedicine use in the US, 2022. *JAMA Netw Open* 2024;7:e243354–e243354.
- Jones AM, Fan J, Thomas-Olson L, Zhang W, McLeod CB. Continuation of telework in the post-pandemic era: Healthcare employees' preference and determinants. *Health Manage Forum* 2023;36:256–62.
- Shih KK, Anderson A, Dai J, et al. Hybrid work from home clinical academic environment: a one-year follow-up survey of attitudes and beliefs of members of a department of palliative care, rehabilitation, and integrative medicine. *J Palliat Med* 2023;26:342–52.
- Bento SP, Stewart C, Conroy C, et al. The telehealth tradeoff: a multimethod study of the benefits and challenges associated with maintaining treatment outcomes using a hybrid model of pediatric intensive interdisciplinary pain treatment. *Clin J Pain* 2023;39:307–18.
- Rodriguez JA, Saadi A, Schwamm LH, Bates DW, Samal L. Disparities in telehealth use among California patients with limited English proficiency. *Health Aff (Millwood)* 2021;40:487–95.
- Howland M, Tennant M, Bowen DJ, et al. Psychiatrist and psychologist experiences with telehealth and remote collaborative care in primary care: a qualitative study. *J Rural Health* 2021;37:780–7.
- Andreadis K, Muellers K, Ancker JS, Horowitz C, Kaushal R, Lin JJ. Telemedicine impact on the patient-provider relationship in primary care during the COVID-19 pandemic. *Med Care* 2023;61:S83–S88.
- Ford J, Reuber M. Comparisons of communication in medical face-to-face and teleconsultations: a systematic review and narrative synthesis. *Health Commun* 2024;39:1012–26.
- Bailey SR, Wyte-Lake T, Lucas JA, et al. Use of telehealth for opioid use disorder treatment in safety net primary care settings: a mixed-methods study. *Subst Use Misuse* 2023;58:1143–51.
- Cantone RE, Fleishman J, Garvey B, Gideonse N. Interdisciplinary management of opioid use disorder in primary care. *Ann Fam Med* 2018;16:83–83.
- Thomas DR. A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation* 2006;27:237–46.
- National Academies of Sciences E, Medicine. *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care*. The National Academies Press; 2021:448.
- Lanham HJ, McDaniel RR, Jr, Crabtree BF, et al. How improving practice relationships among clinicians and nonclinicians can improve quality in primary care. *Jt Comm J Qual Patient Saf* 2009;35:457–66.
- Miller WL, Crabtree BF, Nutting PA, Stange KC, Jaén CR. Primary care practice development: a relationship-centered approach. *Ann Fam Med* 2010;8 Suppl 1:S68–79; S92.
- Halawa F, Madathil SC, Gittler A, Khasawneh MT. Advancing evidence-based healthcare facility design: a systematic literature review. *Health Care Manag Sci* 2020;23:453–80.
- Gunn R, Davis MM, Hall J, et al. Designing clinical space for the delivery of integrated behavioral health and primary care. *J Am Board Fam Med* 2015;28 Suppl 1:S52–S62.
- Nguyen M, Armoogum J. Perception and preference for home-based telework in the COVID-19 era: a gender-based analysis in Hanoi, Vietnam. *Sustainability* 2021;13:3179.
- Edwards ST, Marino M, Solberg LI, et al. Cultural and structural features of zero-burnout primary care practices. *Health Aff (Millwood)* 2021;40:928–36.

Appendices

Appendix A. Initial interviews Interview Guide Clinic Staff Member

Greeting

Hi.
My name is...
Thank you for agreeing to do this interview.

Information sheet review / Consent

Have you had a chance to look at the Information Sheet that I sent you? I can also email another copy if you need one. Do you want to take a look? What questions can I answer for you?

Permission to record

Do I have your permission to record this interview? Great. I am going to turn on the recording device and ask you that question again for the record.

[Turn on the recording device.]

Do I have your permission to record this interview?

Purpose of the interview

I am speaking with you today because your clinic has agreed to participate in a study related to telemedicine and opioid use disorder care in the context of COVID-19. We are interested in learning about your own experiences with the assessment and treatment of opioid use disorder before, during, after implementation of telemedicine in your clinic, as well as how the clinic has adapted to virtual care.

Introduction of Interviewer

I'd like to start by telling you a little bit about myself. I am [name]. I work at [name].

[Invite respondent to introduce themselves]

1. Could you tell me about yourself?

If they do not explicitly state it:

- What is your role in this practice?
- What are you responsible for?
- How long have you been with the Richmond clinic?

- How long have you been treating opioid use disorder at this clinic?
- How long have you been practicing?

[Say something like: *That's wonderful or That's so interesting. Alternatively: Thank you so much for that introduction. It is so nice to meet you.*]

2. Can you tell me a bit about your clinic?

- **Probe for:** Size, location, community/ patients served, priorities

3. What are the different ways a patient comes into the MAT program?

4. Can you tell me how your clinic provides care for patients with opioid use disorder?

5. Approximately how many patients with opioid use disorder you see in an average week?

Thanks for sharing that. Now, I would like to talk with you about how your clinic is delivering care to patients with opioid use disorder.

6. Thinking about the last week or so, about how many of your visits were virtual? How many were in the office?

- *Do patients have to choose between an in-person or virtual course of treatment? Or is there a hybrid option available?*
- *Under what circumstances is a virtual visit appropriate?*
- *Under what circumstance do you decide an in-person visit is needed?*

7. Can you share a story or two of your experiences delivering care via a virtual visit?

NOTE: If they are not using virtual visits currently, then we are going to ask them to reflect back to when they were, and to answer the questions in that light

Thank you for explaining that. This information is very helpful. Now I wanted to spend some time talking about how you have used virtual visits (phone or video) to deliver care to patients with opioid use disorder and what you have learned about that.

It might help to think of a few patient examples as you answer the next few questions.

8. What has your experience been using virtual visits to deliver treatment to patients for opioid use disorder?

Probes:

- *Do you use phone, video, or both for your virtual visits?*
 - *Explore decision making around modality choice*
 - *What has been your experience on whether your patients receive higher quality care when they participate in video visits compared to telephone?*
- *What has worked well?*

- *What needed to be in place for a visit to work well?*
 - *Good internet*
 - *Someone preparing the patient ahead of the visit*
 - *Knowledge of the patient (not a new patient)*
 - *Others?*
- *What has been difficult?*
 - *How have you been monitoring your patients' use of medication?*
 - *What could have been done to overcome these difficulties?*
- *How have you had to adjust your visit frequency, if you have a virtual course of treatment?*
 - *How has that impacted treatment progress and continuity?*

8. Can you describe for me how collaboration with the care team works when visits are conducted virtually?

Probes:

- *What do you do when a patient need requires input from another member on the team?*
- *Have how you document or share information about patients changed? If so, how?*
- *When you need to consult someone on the team about a patient, how do you do this? Does this change when you are working virtually? If so, how? What do you do?*
- *How has consulting or coordinating with other team members on mental health and medical care changed with the introduction of virtual visits?*
- *How do you feel the increase in virtual care has impacted the clinical team?*

9. How have you used virtual visits to assess whether a patient has an opioid use disorder?

Probe:

- *How do you become aware that a patient might have an opioid use disorder?*
- *How are you notified that a screening for opioid use disorder is needed?*

10. How have you used virtual visits to deliver opioid use disorder treatment?

Probes:

- *How have you used virtual visits for ongoing medical treatment, i.e., medication prescriptions or refills among patients with opioid use disorder?*
- *How have you used virtual visits for buprenorphine inductions?*
- *How have you used virtual visits for behavioral therapy among patients with opioid use disorder?*
- *How have you used virtual visits for group therapy?*
- *How have you handled urine screenings?*

11. What patients do you think virtual visits have worked best for, when it comes to treating opioid use disorder?

Probes:

- *What factors (such as patient age, sex, complexity) affect use of virtual visits for opioid use disorder? Can you share an example or a story?*
- *Patients that are stable? Why?*
- *Patients that you know well?*

12. What patients do you think virtual visits do not work well for, when it comes to treating opioid use disorder?

Probes:

- *Patients that are less stable?*
- *Why?*
- *Can you share an experience or story that show why this did work?*
- *What do you do when a virtual visit is not well aligned with patients' needs?*

We understand that sometimes the kind and amount of care that patients need might exceed what a practice or clinician can provide, e.g. when MAT is not enough and inpatient treatment may be needed.

13. How is the management of this situation different, when you're in the clinic, in the exam room with the patient versus when you are conducting this patient via telehealth?

Probes:

- *Can you provide me with an example or two of this scenario?*

14. What do you do (or would you do) if / when a patient with opioid use disorder has a crisis and you are in the middle of a virtual visit?

Probes:

- *Is referring patients to resources outside of the practice different? If so, please describe.*
- *Is what the team in the practice can manage different? If so, please describe?*
- *Are patients' needs different when care is delivered virtually?*

15. You have already touched on this a little, but what are the advantages of using virtual visits when it comes to treating opioid use disorder?

Potential advantages to probe on:

- *quality of their patient interactions*
- *increased access for patients*
- *clinician satisfaction – no need to commute; decreased childcare challenges*
- *being able to see the patient's home environment*
- *being able to actually increase frequency of visits*

16. And now can you describe some of the challenges of using virtual visits when it comes to treating opioid use disorder?

Potential challenges to probe on:

- *less structure and accountability*
- *less information to inform clinical decision-making*
- *challenges in establishing a connection*
- *patient missing having a "clinical home" (e.g., privacy for patient to talk freely; patient having a safe space to go to)*
- *heavier reliance on the clinician during off-hours?*

17. From your perspective, what needs to be done to address those challenges?

You have provided us with a lot of great information today. In closing, we have two final questions.

18. Do you feel the virtual care you have provided to treat patients with opioid use disorder has been as effective as in-person care? Why or why not?

19. Can you describe any changes due to the pandemic in terms of treating patients with opioid use disorder that you would like to see sustained into the future?

Finally, I have a few final questions related to your background. You have the right to decline to answer any or all of the following:

20. How would you describe your racial/ethnic background?

- American Indian/Alaska Native
- Asian
- Native Hawaiian/Other Pacific Islander
- Other, specify: _____
- Black/African American
- White/Caucasian
- More than one race
- Refused

21. Are you Spanish, Hispanic, or Latino?

- Yes
- No
- Refused

22. With which gender do you identify?

- Man
- Woman
- Non-binary
- Other: _____
- Prefer not to say

Thank you so much for taking the time out of your busy schedule to meet with us. We learned so much today about how the COVID-19 pandemic has impacted your clinic's treatment of patients with opioid dependence. Your insights were invaluable.

Thank you!

[Turn off the recording device.]

Appendix B. Follow-up interviews

Interview Guide

Clinic Staff Member

Greeting

Hi.
Thank you for agreeing to do this interview.

Permission to record

Do I have your permission to record this interview? Great. I am going to turn on the recording device and ask you that question again for the record.

[Turn on the recording device.]

Do I have your permission to record this interview?

Purpose of the interview

I am speaking with you today to follow up on your own experiences with providing care in a hybrid environment, as well as how the clinic has adapted to virtual care.

General care delivery

- 1. It has been a while since we talked. It's so nice to talk with you again. How are things going for you? How are things going at [clinic name]?**
- 2. As you probably recall, our work is focused on MOUD care delivery. Before we jump into that, I was hoping you could tell me about how the clinic is delivering care in general now.**
Probe about:
 - in person visits
 - telephone and video visits
 - talk about the general positives and challenges at this time.
- 3. Now that all of these options have been available for some time, can you tell me a little about your current experience of delivering care for patients?**
- 4. How do you think others on the team are experiencing care delivery?**
- 5. How do you think patients are doing now with the hybrid approach to delivering care?**
Probe about:
 - retention
 - treatment progress
 - strengths / opportunities to improve
 - Is this similar for OUD patients?

6. **What are the different ways that MOUD care is being delivered? By PC clinicians, BHCs, care coordinators?**

In-person vs telehealth

7. **Can you describe what has changed since the expiration of the public health emergency in terms of in-person vs telehealth (phone or video) visits?**
- For care in general
 - Care delivery for OUD treatment specifically
8. **Thinking about the last month or so, about how many of your OUD visits were telehealth (phone or video)? How many were in the office?**
9. **What are the factors that influence or lead to the choosing an in-person visit or telehealth visit?**
10. **How has your experience evolved using telehealth visits to deliver treatment to patients for opioid use disorder?**
- What do you feel you have learned about different visit modalities (in-person, telephone, video) since we last spoke?
 - Can you tell me a little bit about how you've learned this
 - through observation and your own practice?
 - is it something the clinic is looking at and working on?
 - is OHSU helping?
11. **How has what you've learned shaped how visit modality plays into OUD care?**
12. **What is happening in your clinic around urine drug testing?**
- Has your clinic come up with a guidelines related to testing frequency?
 - How have you been monitoring your patients' use of medication?

Clinical Team

13. **In general, how is the clinic working together, and what different ways is the team communicating / working with patients?**
- Hybrid schedule
 - How staff meetings are structured
 - Team rooms – where are team members sitting?
14. **How is this similar or different for OUD treatment/MAT team?**
- Hybrid schedule
 - How staff meetings are structured
- Team rooms – where are team members sitting?
 What is your experience with this way of the team working together? How does it work for you? For others on the team? For patients? How has this changed since we last talked? Why?
15. **In our last round of interviews, we also learned that clinics were really no longer able to effectively do warm handoff's. Can you talk about the state of warm handoffs now?**
- How has that impacted your ability to provide care to patients?

Wellbeing

16. I am interested in how you are doing, what I am going to call – your personal wellbeing. How are you?
17. When you think about your wellbeing today, how does it compare to your wellbeing when we last talked? That was a year and a half ago.
18. Can you tell me about that? What is affecting your wellbeing?

Closing Question

19. Can you describe any changes enacted as part of the public health emergency in terms of treating patients with opioid use disorder that you would like to see sustained into the future?
- *Virtual inductions?*
 - *Payment parity?*
 - *Video v phone?*

Thank you so much for taking the time out of your busy schedule to meet with us. We learned so much today about how your clinic has shifted into a hybrid model for care of patients with opioid dependence. Your insights were invaluable.

Thank you!

[Turn off the recording device.]