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A GLOBAL JOURNAL OF EMERGENCY MEDICINE

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ORIGINAL RESEARCH

The Practice of Emergency Medicine

Emergency physician perspectives on using telehealth with older adults during COVID-19: A qualitative study

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Abstract

Objectives: Emergency medicine physicians have played a pivotal role throughout the coronavirus disease 19 (COVID-19) pandemic through in-person and remote management and treatment. Our primary objectives were to understand emergency medicine physicians' experiences using telehealth throughout the pandemic, any facilitators/barriers to successful usage, lessons learned during implementation, and successful/abandoned strategies used to engage with older adults.

Methods: Using a semi-structured interview guide, we conducted 30-min interviews. We used purposeful sampling to recruit emergency medicine physicians from all United States regions, rural–urban settings, and academic and community practices, who reported caring for patients 65 years or older in-person or virtually during the pandemic. Interviews were audio-recorded, transcribed, double-coded, and analyzed for emergent themes using framework analysis.

Results: A total of 15 in-depth interviews were completed from September to November 2020. Physicians had a median age of 37 years, 7 were women, and 9 had experience with telehealth before the pandemic. We identified several themes: (1) there were various motivations for telehealth use; (2) telehealth was used primarily to supplement, not replace in-person care; (3) most platforms were easy to use; (4) patients and caregivers had high acceptability of telemedicine; and (5) older adults with sensory and cognitive impairments often relied on caregivers. Emergency medicine physicians played a critical role during primary care office closures during the first wave—dispelling misinformation about COVID-19, triaging patients to testing and treatment, and providing care that would otherwise have been deferred.

Conclusions: Our data show that telemedicine gained acceptability among emergency medicine physicians and provided options to patients who may have otherwise deferred care. These findings can inform future healthcare delivery for acute care needs or pandemic responses.

KEYWORDS
COVID-19, emergency medicine, qualitative methods, telehealth, telemedicine

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1 | INTRODUCTION

1.1 | Background

In March 2020, emergency department (ED) volumes decreased significantly because of coronavirus disease 19 (COVID-19) in the United States (US)[1] (eg, ED visits decreased by 41.5% in Colorado and 63.5% in New York). Telehealth provided an option for patients to receive information and medical treatment safely and conveniently.[1] Furthermore, emergency medicine physicians may have been motivated to employ telehealth because of personal protective equipment (PPE) shortages. Get Us PPE, the largest national organization for PPE distribution to frontline workers, reported that each emergency medicine physician should ideally have access to 70 N95 masks per day, but some were using 1 per week or 1 per month during the peak periods of the pandemic.[2] Individuals' hesitation to go to the ED led to deferred or completely forgone medical care.[3,4]

1.2 | Importance

Telehealth, defined as "the delivery of healthcare, health education, and health information services via remote technologies,"[5] includes real-time videoconferencing, asynchronous messaging via patient portals, remote patient monitoring technologies, and phone calls.[6] Existing literature on telemedicine in the ED has focused on telehealth as a solution to staffing shortages in rural EDs,[7,8] coordination of ED transfers,[9,10] and triaging patients to the right care setting.[11–13] Additionally, telehealth has been studied in the ED for stroke management[14] and to increase access to psychiatric services.[15–17] Little is known about using telehealth during a pandemic and which ED-specific telehealth strategies best addressed physician and patient concerns. The COVID-19 pandemic enhanced EDs' opportunities to use telehealth,[18] mostly because of the federal government minimizing restrictions on state licensure policies, types of services and which hospitals could offer them, reimbursement policies, Health Insurance Portability and Accountability Act regulations, and allowable devices and platforms, all of which previously constrained telehealth implementation.[19–21] This easing of regulatory restrictions and new motivations to use telehealth, including for infection control, provided an opportunity to explore emergency medicine physician perspectives on telehealth.

1.3 | Goals of this investigation

Because emergency medicine physicians were often the first physicians to care for patients, including older adults and other high-risk patients with COVID-19 and non-COVID-19 medical concerns, understanding their perspectives of using telehealth throughout the pandemic is critical. Our objectives were to (1) examine practical considerations of using telehealth during the pandemic with older adults, (2) identify motivations of use among emergency medicine physicians, and (3) enumerate solutions to caring for older adults with sensory or cog-

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The Bottom Line

Telehealth was an important tool for care delivery in the COVID-19 pandemic and unique challenges may exist for older adults. This qualitative study examined the practices, facilitators, and barriers during telehealth implementation and strategies used to engage with older adults.

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nitive impairments. Older adults make up a disproportionate share of ED visits and are 35 times more likely to be hospitalized with COVID-19 than children,[22,23] are more vulnerable to COVID-19 infection, and may have had greater rates of unmet needs during the pandemic.[3,24,25] Understanding the unique experiences of emergency medicine physicians using telehealth throughout the COVID-19 pandemic with older adults can inform future healthcare delivery for acute care needs or pandemic responses.

2 | METHODS

2.1 | Study design

In this qualitative study, we used thematic analysis to explore US-based emergency medicine physicians' perspectives on telemedicine during the COVID-19 pandemic. This analysis stems from a larger study in which we interviewed emergency physicians (n = 15), primary care physicians (n = 15), and geriatricians (n = 18) to explore their experiences with providing care through telehealth to older patients.[26] However, we focus solely on themes among emergency medicine physicians in this analysis. The principal investigator's (PI's) institutional review board approved the study (1598592). Study methods and results are presented according to the consolidated criteria for reporting qualitative research (COREQ).[27]

2.2 | Study setting and population

We used purposeful sampling to recruit US-based emergency medicine physicians. Eligible physicians were licensed to practice emergency medicine in the US and reported caring for patients 65 years and older (with or without COVID-19) in-person or virtually during the COVID-19 pandemic. To assess contextual factors for not adopting telehealth in the ED, eligibility was not restricted to physicians who used telehealth during the COVID-19 pandemic.

2.3 | Study protocol

We developed a semi-structured interview guide with a priori questions and prompts based on content knowledge and clinical experience.

The research staff piloted the interview guide. Questions included (1) telehealth modality (eg, phone call, web portals, etc), (2) usability (ability to navigate a device for its intended purpose),[28] (3) workflow adaptations, (4) motivations/barriers to using telehealth, (5) acceptability by physicians and patients, and (6) adaptations for older adults (see interview guide in the Supporting Information). This semi-structured interview guide was used with all participants in the larger study.[26] Semi-structured questions allow for answers that can be compared between participants while allowing leeway for interviewees to go into areas that are important to them,[29] such as details specific to their field of practice. Additionally, we used probes to obtain clarification in areas specific to their field, which is not reflected in the interview guide.

2.4 | Recruitment

We posted study flyers on Twitter, Facebook, and on the Academic Geriatric Emergency Medicine specialty listserv (158 members). We offered a $50 gift card as an incentive. We planned to recruit 12–18 physicians per specialty stratified by rural–urban region and academic/community setting or until saturation was reached (eg, no new concepts identified)[30]; Among a homogeneous group, 12 interviews are considered enough to achieve thematic saturation.[31]

2.5 | Procedures

Participants provided verbal consent to the interview and its' audio-recording. In the verbal consent, participants were made aware of the study intent, methods, and funding source (the National Institute on Aging). Interviewers included the last author, a female emergency medicine physician with formal qualitative research training (EG), and the fifth author, a female graduate student (FJ) with 3 years of professional experience with qualitative research techniques. The PI was known to some participating emergency medicine physicians. Interviews were audio-recorded, de-identified, and transcribed verbatim. Transcripts were reviewed by the authors and corrected against the audio recording for accuracy. Recordings were discarded after transcription for confidentiality. A debrief form recording demographic information and emerging themes was created after each interview. No repeat interviews were conducted, participant feedback was not sought, and no one refused or dropped out of interviews.

2.6 | Data analysis

We used principles of applied thematic analysis to guide the analysis.[29] A research team of 11 individuals, including the 2 interviewers, participated in the analysis. First, we noted initial observations about the transcripts. We developed a priori codes, or coding schema, based on our interview questions. Each transcript was independently coded by 2 team members and coding inconsistencies were resolved by discussion. Double-coding occurred in rotating pairs to ensure consistency across

coders, and an inductive approach was used to add codes or adjust definitions. Transcripts and the finalized coding schema were entered into NVivo (version 12).[32] We iteratively reduced the data, searching for common themes across interviews. We used framework analysis, a qualitative analytic technique, to summarize our transcripts, themes, and representative quotes.[33,34] Coding definitions and decisions, as well as ideas about emerging themes, were recorded in an audit trail to ensure analytic rigor.[35]

3 | RESULTS

3.1 | Characteristics of study subjects

We recruited 15 emergency medicine physicians (Table 1) between September and November 2020 with a median age of 37, 7 were women, 9 resided in the Northeast region of the United States, 7 practiced in a metro setting, and 10 worked in an academic practice. Interviews lasted a mean of 30 min. Physicians used various platforms inside the ED and in the outpatient setting (Figure 1; Table S1). Five major themes emerged (Tables 2 and 3).

3.2 | Theme 1: Emergency medicine physicians used telehealth to improve physician and patient safety, access to care, and to enhance convenience and efficiency of care

3.2.1 | Safety

Emergency medicine physicians used telehealth to preserve PPE, especially N95 masks, and minimize exposure to COVID-19. Physicians appreciated that telehealth conserved PPE and prevented transmission of SARS-CoV-2 between healthcare workers and patients.

> "If it can be completed over telehealth, then why not? It [telehealth] also makes the doctor's time much more efficient. You can see a lot of people without having to bounce around room to room or gear up with PPE. It's definitely a win-win." (Participant 5, Community, Metro)

3.2.2 | Increased convenience and efficiency extended reach

Emergency medicine physicians noted that telehealth was convenient and increased their efficiency.

> "It can sometimes add some efficiency to the emergency department, even if I don't do the whole video connection, if I'm just going to go in and tell a patient about their results or their CT scan, and they're sort of in the remote area of our emergency department, I'll just have
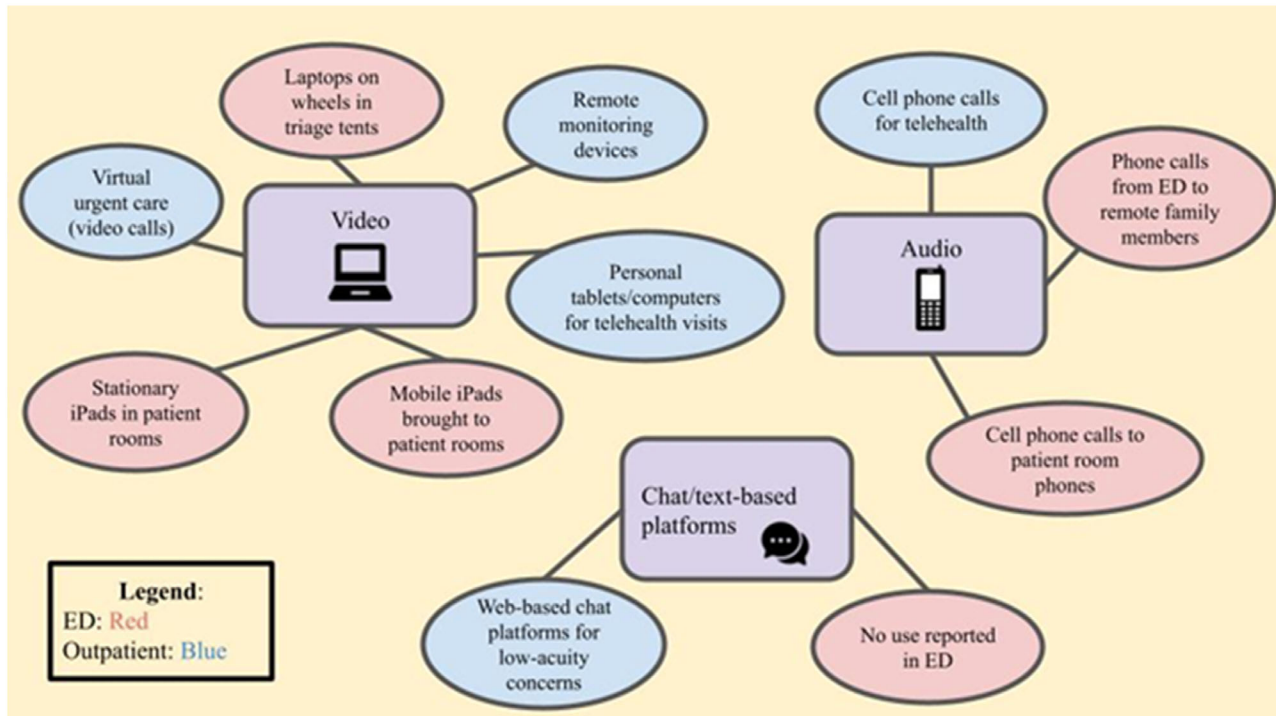
4 of 14 | **WILEY** JACEP OPEN
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DAVOODI ET AL.

FIGURE 1 Telehealth modalities and platforms used by emergency medicine physicians in the emergency department and outpatient settings

the nurse sort of hand the patient the phone […] so I'll just go over things with them then, and it saves me five, ten minutes of walking back and forth from that area." (Participant 12, Community, Suburban)

3.2.3 | Improved patient access to care

Some participants noted that telehealth was useful for involving the caregivers of older adults with dementia, while preventing long commutes and long ED wait times. Similarly, physicians reported that telehealth use in the ED could provide greater availability of psychiatric services to patients whose symptoms might worsen during extended wait times. Other participants highlighted that ED telehealth services provided needed services for rural populations.

3.2.4 | Addressing deferred and forgone primary care

Physicians found themselves providing primary care services and continuity of care during the pandemic, both in the ED and outpatient setting. Some EDs discharged patients with probable COVID-19 with pulse oximeters and used telehealth to contact patients after discharge.

"We've definitely seen an uptick in its [telehealth] use. A lot of people have said that they're scared to go to their primary care doctor to get refills or to get what-

ever ailment checked up on. I see a lot more people now who say, "I'm too scared to go into my doctor. I don't feel comfortable. Or they're so backed up that I can't see them for months and months because they've limited their appointments." That has definitely increased." (Participant 5, Community, Metro)

3.2.5 | Decline in telehealth use over time

Emergency medicine physicians reported that telehealth use decreased in their EDs once COVID-19 case counts declined and PPE was in greater supply. Physicians noted that in the case of another emergency, including a PPE shortage or pandemic, their ED would be ready to re-implement telehealth protocols.

3.3 | Theme 2: Emergency medicine physicians shared that telehealth should continue to have a place in emergency care as a supplement, rather than a replacement, for in-person care

3.3.1 | Acuity determined appropriateness of telehealth

Some emergency medicine physicians struggled with deciding whether a patient should be seen via telehealth in the outpatient setting when the diagnosis was uncertain. Physicians commonly felt that neurological problems, as well as abdominal and chest pain, were

TABLE 1 Interviewee demographic characteristics and telehealth use before and during the COVID-19 pandemic (n = 15)

Characteristic	No.	%
Age		
25–44 years	12	80.0%
45–64 years	3	20.0%
65 years and over	0	0.0%
Median (IQR)	37	(34-43)
Sex		
Male	8	53.3%
Female	7	46.7%
Years in practice		
0–10	11	73.3%
11–21	4	26.7%
Median (IQR)	7	(3–11)
Region		
Northeast	9	60.0%
Midwest	4	26.7%
South	1	6.7%
West	1	6.7%
Practice setting		
Metro	7	46.7%
Suburban	6	40.0%
Rural	2	13.3%
Practice type		
Academic	10	66.7%
Community	5	33.3%
Prior telehealth use		
Video-visit only	3	16.7%
Non-video visit only	3	16.7%
Video and non-video visits	3	16.7%
No telehealth	6	40%
Telehealth visits performed during the pandemic[a]		
Median (IQR)	100	(35–400)

Abbreviation: IQR, interquartile range.
Some emergency medicine physicians reported a secondary specialty: clinical informatics (n = 1); internal medicine (n = 1).
[a]Estimated pandemic period was 32 weeks between March 13 and October 16, 2020.

inappropriate for telehealth. Emergency medicine physicians reported that it was challenging to treat high-acuity patients via telehealth in the outpatient setting. Low-acuity concerns, however, such as ear infections or medication refills, were ideal for telehealth.

> "At least in our telemedicine program, […] you can only do simple diagnoses [like rashes], but you're not supposed to do abdominal pain and you're not supposed to do things that obviously are not amenable to telemedicine and are higher acuity, because …it's

just a waste of time for both the patient and me, if they're going to come in with, whatever, something more complicated that obviously … needs to be evaluated on an emergent basis." (Participant 14, Academic, Metro)

3.3.2 | Lack of physical exam and tests

Emergency medicine physicians reported that their remote care skills improved throughout the pandemic, but they remained concerned that lacking diagnostic tools could impact patient outcomes. However, no participants could identify an instance of a misdiagnosis or adverse event.

> "Part of why I do it [telehealth] less, I feel a little bit nervous trying to take care of patients without vital signs or, as much as the physical exam is archaic in some ways, like an abdominal exam I find useful. So sometimes I personally, as an ED trained person, get nervous about my utility in a telemedicine context." (Participant 7, Academic, Metro)

3.3.3 | Limited adaptability of telehealth for patients requiring translation

Many physicians noted that they had challenges using telehealth with non-English speaking patients, even when resorting to phone calls. Some physicians noted that their telehealth platforms lacked ways to integrate interpreters, so they preferred in-person visits for non-English speakers.

3.3.4 | Limited interoperability with electronic health record

Physicians described that their telehealth platform was different from their predominant electronic health record (EHR).

> "I think that my personal preference would be [to integrate the telehealth and EHR platform] because I would argue that it's challenging. Even in the ED sometimes, patients have had these encounters and I have no easy way to look it up. Then whatever work I do on the telemedicine side is not clearly communicated." (Participant 7, Academic, Metro)

3.3.5 | Medicolegal concerns

Because of the lack of legal protections for physicians performing telehealth, many physicians felt that retaining in-person care was critical for protecting themselves from liability.

TABLE 2 Summary of themes and illustrative quotes: physician-level use factors

Themes/subthemes	Quotes
Theme 1—Emergency medicine physicians used telehealth to improve physician and patient safety, access to care, and to enhance convenience and efficiency of care	
1A. Safety	"I think the idea of minimizing contact…is a great one. As you noted about procedures, not every patient needs a ton of hands-on care. I think with transmissible diseases, it's a lovely idea to try to minimize that. " (Participant 7, Academic, Metro)
1B. Convenience and efficiency	"I was worried it was going to be a big hassle to get this thing set up each time for a consult or like a barrier to consultation because people didn't want to deal with the telehealth thing. But it really didn't work out that way. I think the general thought, and again, most of what we used it for was these psych consults. And they were like, "Wow, this is much easier." (Participant 10, Academic, Suburban) "I think it's very helpful. It does save some time, but also helps you to check on your patients more often, because something that I think we lost with COVID was this ability to get into the room and say, "Hey, how are you doing?" You know, kind of check on them quickly" (Participant 4, Academic, Rural)
1C. Extended their reach	"The physician extended part, or extending physicians reach by using virtual visit only for stable patients in home hospital, definitely that's going to continue. And I think that more and more consults could be done on the phone like this, or on iPad in ED, I think. Especially for rural areas where they don't have … I don't see why they wouldn't be able to do this. And I think that will happen more" (Participant 2, Academic, Metro) "I think that the physicians and APPs that I've talked to, or that is communicated this way, have been happy. We can see a large number of patients in a shorter time. There aren't a lot of wait times, and potentially then just volume. I really think that is the biggest positive, as well as, patient satisfaction." (Participant 13, Academic, Suburban)
1D. Access	"I think it'd be very interesting as we see older adults using telehealth more and more and more, how do you get a caregiver involved? […]? But thinking about little things that could be addressed via telehealth, that would avoid a patient with dementia being put in a car, driven 10 miles and waiting for three hours in a waiting room, what an amazing impact that is on that patient's wellbeing and the caregiver's wellbeing, so where it can be leveraged appropriately." (Participant 6, Academic, Metro) "So, so far I've had, I would say mostly positive experiences. I think that you can, especially for those more rural community centers that we cover, it's an opportunity for them to have the voice of somebody else, like a second opinion right away, and you can see the patient. So, I feel for us, it's helped, again in the bigger telehealth experience in the community, rural areas that we cover. We cover some critical access hospitals and [pause] most are non-academic." (Participant 4, Academic, Rural) "But, I think there is definitely a place for telemedicine because I think, particularly, for mental health issues. A lot, maybe a lot of these people could, who really want to get referred to say detox, or they really need some access to like psychiatry care. They don't need to come to the ED if they really want to get plugged in to seeing some kind of therapist or mental health specialists. So I think there is a place for that…And I think it's something, to be honest, I think some people get worse by staying two days in the ED with their mental health complaints in the back room". (Participant 14, Academic, Metro)
1E. Addressing deferred and forgone primary care	"It wasn't like the patients were sicker. I think they would still, a lot of people still have the same issues that they did before COVID, which is, "I can't see my specialist, I can't see my PCP. And I just want to know if I need to…" A lot of it is like, "I just want to know if this needs to wait, if I could wait to make, to see someone or is it okay? Can there's something you can prescribe to me now?" (Participant 14, Academic, Metro) "I definitely got more comfortable managing a higher caseload. I think one of the other components of this too was I had to get more comfortable with managing patients' home medications because a lot of their outpatient offices actually closed down. I was refilling their blood pressure medications, diabetes medications. There were some people trying to request refills for some medications that I've never even heard of. I think that was kind of a challenging aspect to get me up to speed with more primary care work because a lot of these offices just straight up closed." (Participant 8, Academic, Suburban)
1F. Decline in telehealth use	"Really, this was more about protecting healthcare workers and minimizing transmission of disease, that it was. It doesn't actually increase our ability to see patients. I think at this stage in the pandemic, people feel a lot safer seeing COVID-19 patients because we've been using the PPE and it's been working. So as long as there's enough of it, I wouldn't see it coming back to widespread use." (Participant 10, Academic, Suburban) "We did, I think, transiently implement phones and have the patient have a phone in the room, and we would call in if there was like a question that we had forgotten to ask. But again, when the numbers went down a little bit in the place I was practicing, that dropped off as well." (Participant 3, Community, Suburban)
Theme 2—Emergency medicine physicians shared that telehealth should continue to have a place in emergency care as a supplement, rather than a replacement, for in-person care	
2A. Acuity determined appropriateness of telehealth	"People, they're just really reluctant to seek care. I hear that over and over and over again. That's why they're so excited to have this access to us, but unfortunately, it's pretty limited on what we can really assess." (Participant 5, Community, Metro) "I think that like in the chat-based platform, the things that I really struggle with is I don't really feel comfortable with managing anything neurological, dizziness or abdominal pain and then there's certain chest pain presentations definitely as well, so there's specific areas and I guess it's almost more think of it as things I am comfortable with and then things outside. So it's certainly a subset I'm like, I can do ear infections, and sinusitis, and UTI's and simple asthma, simple COPD, med refills. That's what I feel is comfortable and then there's a lot of times people have minor questions or complaints too. For the face-to-face post-discharge platform, I'm dealing with higher risk people and more complex people, but also people that have been worked up a lot." (Participant 11, Community, Rural)

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DAVOODI ET AL.

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WILEY | 7 of 14

TABLE 2 (Continued)

2B. Lack of physical exam and tests	"There's definitely an initial learning curve and it wasn't super challenging, but the main area is getting comfortable with what you feel you need to do and not do to be safe, to provide a good standard of care and also to not feel you're posing some medical legal risk by how you practice. The major anxiety of starting this off is how did I talk to people? What recommendations did I make? What things did I say? I can't deal with this you need to come in, what things I say, "Oh, that's fine. I can definitely take care of that." And getting that comfort level was the major learning curve. And now I feel certain things, I'm totally comfortable with that. Other things I'm like, "Nope, you coming in." [LAUGHTER] I think you have to adjust to a different frame of mind where you're like, you don't have all the physical exam and you know that you don't have any diagnostics, so if you feel like you need those things, you have to just calibrate your risk and think about whether they should come in. (Participant 11, Community, Rural) "That we could miss something that the patient didn't realize was a problem. If I'm just seeing them from the shoulders up and they have like an obvious cellulitis or something in the leg that I would have seen if I went to the emergency department. The fact that we don't have vital signs for the patients that are at home." (Participant 12, Community, Suburban)
2C. Limited adaptability of telehealth for patients requiring translation	"We had a couple people message that didn't speak English. I think that was difficult too because I really didn't have the means to have any translation over chat. Because I was not affiliated with my hospital, I really didn't have like a language services line I could use too to call them for translation. There were a couple of barriers from that perspective." (Participant 8, Academic, Suburban) "We did have someone who, was English is a second language and had some difficulty and typically used her family member as a translator, and I deferred to an inpatient visit, canceled and we rescheduled." (Participant 13, Academic, Suburban)
2D. Limited interoperability with electronic health record	"And I think another one is that the push for interoperability for electronic health records while it's getting better, there needs to be pushed for that, also for telehealth care there's a piece at least for emergency medicine where providing virtual care is very hard on the systems that are built for emergency medicine at telehealth just the way they sit between inpatient and ambulatory…And so I think there needs to be a recognition that if we truly are going to be doing more healthcare at home using telehealth, that we need to have more robust applications in our electronic health records and requirements for that." (Participant 15, Academic, Metro)
2E. Medicolegal concerns	"Then I think medical legal risk reform is also an important topic to me because in this setting you deal with low-acuity issues and you deal with incomplete information sometimes and you have to not be set to the same exacting standards or there has to be some protection because patient is accepting some risk by not having physical exam and vitals and full evaluation. I think providers are uncomfortable that they might be solely responsible for missing something that is not potentially a part of the platform and that's why people skewed to very conservative management and low-acuity issues. Thinking about how medical legal risk is handled in the telemedicine space, I think is also important." (Participant 11, Community, Rural) "And then these liability issues, like, what's my level of liability for missing something on an e-visit that maybe I would have caught if I put my hands on the patient." (Participant 10, Academic, Suburban)

Theme 3—Most emergency medicine physicians did not report that telehealth platforms were difficult to use despite varying degrees of training received, technological literacy, and prior experience

3A. Physician training	"I think the big advice I would have is that the technical barriers weren't as hard as we thought they would be. Our IS department was very competent." (Participant 10, Academic, Suburban) "We had some video sessions that helped us think through how we can do different types of physical exams with telehealth. And I think they were helpful in rethinking how you can examine someone's abdomen while they're pushing on it and you're watching it. I think one of the challenges is not just the creativity, but then the patient being able to both do your instructions, your being able to communicate it, them being able to replicate and you being able to see what they're doing, so trying to have someone do a gait exam not only involves your clearly explaining what you want and their being able to accomplish it, but their ability to have the camera facing while you're trying to do that exam. I think those are challenges… I more so got tips on how to do certain exams via training as opposed to getting tips on how to communicate to the patient, how to participate in this, and then the technology piece, how also to utilize the technology so I could see what's going on." (Participant 6, Academic, Metro)
3B. Platforms proved easy to use	"I would say I'm average tech savvy, and this platform that we use is really easy. It's really hard to mess it up. There's only a few things that you can do and it just helps you do it, which I love about it. It is not hard to do." (Participant 5, Community, Metro)
3C. Physicians preferred phone calls to other modes	"I think from my perspective, a simpler version, so forget the robot. The things that have the fewer opportunities for technological breakdown, I think could absolutely have a role. There is, at our community site, registration is not going into rooms. They're only talking on the phone. That seems to be working pretty well. I am a fan of potential using a telephone or something that seems reliable. Patients seem to have cell phones. Phones seem to work." (Participant 7, Academic, Metro) "I'd rather use the phone. So we have patient rooms phones now. And we try not to have patients in the hallway now, but it's COVID time and it's kind of hard. And I call the room, and we will get the [pause]… To talk to patients on the phone. So I don't really like using the iPad. I think no one uses it." (Participant 2, Academic, Metro)

APPs, advanced practice providers; COPD, chronic obstructive pulmonary disease; ED, emergency department; IS, information systems; PCP, primary care physician; PPE, personal protective equipment; UTI, urinary tract infection.

TABLE 3 Summary of themes and illustrative quotes: patient-level use factors

Themes/subthemes	Quotes
Theme 4—Emergency medicine physicians underestimated patient acceptance of telehealth and believed that including caregivers remotely was a crucial facilitator of that acceptance	
4A. Patient acceptance of technology	"I think most of them accept this as the new sort of normal, especially at the height of the pandemic […] So I don't think it's caused too much, you know not damage, but I don't think it's impaired the relationship too much because I think patients understand the reasons why there's been a change to this, to protect the physician, to protect the staff, to conserve PPE. That's my general sense." (Participant 9, Academic, Metro)"I think the whole system transitioned within days into some telehealth. Whether it was phone, Zoom, and I think it was pretty seamless. Actually, the patients really liked it, given the environment that they were in. They didn't want to come to any appointments. And, I think providers liked it as well because they were able to see a larger amount of patients and stay safe." (Participant 13, Academic, Suburban)
4B. Including caregivers allowed for more nuanced discussions on care	"I think the mentality used to be more that someone needed to be physically in the ED and that was the most important family member or caregiver. There's less of an assumption in COVID that the most important person is going to be there with them. So I think we are more proactive, or I'm at least more proactive, to make sure that we reach out to at least one person for someone who we probably need to talk to a family member. So often, an older adult, or someone who for whatever reason, we feel like we need to get a family member or caregiver involved, we probably do that… We should have been doing it constantly for everybody, but I feel like I do it probably for, I can't say for everyone, but for most of our patients when no one's allowed in the department. (Participant 7, Academic, Metro) "And you can have the family there and the patient can see their family member and also see the doctor at the same time and we can have a conversation as a group. And I think, especially in a country as big as this one, where family could live… somebody could live [pause] really far from the other one, that's a really way to bring families together. So, I do think there is a utility beyond [pause] just COVID." (Participant 4, Academic, Rural)
Theme 5—Physicians identified unique challenges for connecting with older adults	
5A. Recommended modalities	"Basically we just have the nurse take them in there, it's an iPhone or it's like FaceTime-based software. So, they were on a closed network and you just call over to the iPad and they pick up and it works pretty good. Generally works really good. Everyone knows how to use FaceTime, so it seemed like it was pretty easy." (Participant 1, Community, Suburban) "It was certainly a little bit more challenging I think with the chat platform, mainly with slow to respond. Where probably you and I could type out a full question and answer in response in less than a minute, I think it was a little bit … There was a technology gap with the older patients. Especially asking them specific or pointed questions, I think at times it was a little bit frustrating if they didn't know the answer. I really didn't have any great strategies to help manage them. I would offer to call them a couple of times, which I think talking on the phone would be easier, but yeah, I'm not sure of too many things that were successful." (Participant 8, Academic, Suburban)
5B. Hospital-level workflow changes	"Well, the laptop should already be in the room, it should already be opened. Usually registration has already informed the patient that the laptop might just suddenly turn on because we're using it. I open this app that's on my smartphone, I enter the patient's room number, and then I just basically start talking to the patient like I normally would. I introduced them. I say that I'm doing this initially to get the history, but that I will be coming in eventually to evaluate them. And from that point on, it's the same as if I was in the room." (Participant 9, Academic, Metro) "And so, other people that may be practicing telehealth, outpatient, they have to guide patients through the entire setup. But the way it was set up in your emergency department, the nurses were able to initiate the visit. All the devices were already approved, worked on prior visits. And so, in many ways you reduce the barriers that patients would have at home if they had to initiate this on their own…While they're sitting in the ED, you would just hand them a device that they could already have the camera up and running and everything is pretty easy." (Participant 10, Academic, Suburban)
5C. Hearing impairment	"But the different piece with the iPads, but we have the iPads in the department, we did find the iPads were put in rooms that were not great with the echoes, with the sound. And so we found that, especially for older patients that were like, oh, this is going to be hard doing the iPad because the sound quality in the room and from the actual iPad itself, without any other speakers there, that they were having a lot of trouble trying to hear and understand on there." (Participant 15, Academic, Metro) "In the emergency department, we've kind of had some patients where we tried to use telemedicine and realized that because of the hearing impairment it just wasn't going to work. So then we went in and just saw them in person, which is the advantage of if they're physically present in the ER. I think if they had signed on to our urgent care and the connection just wasn't working I would refer them to an in-person visit." (Participant 12, Community, Suburban)
5D. Adapting to sensory needs of older adults	"Younger people, because they're texting I think on their phones most of the time, use shorthand and slang and it's not really a complete sentence. Sometimes you mirror that when you're going back and forth quickly, especially because it's usually very quick with a younger person. It's just a yes, no answer, whereas an older person will go into more of an explanation, they've got a more formal engagement with you. I always try to mirror that, especially if that's how they're approaching me, [pause] make sure that I'm really explaining what I mean, making it really clear and using complete sentences and that kind of thing." (Participant 5, Community, Metro)

(Continues)

DAVOODI ET AL.

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WILEY | 9 of 14

TABLE 3 (Continued)

5E. Camera positioning	"I do remember actually a couple of occasions where somebody would go into the room ahead of me, like the nurse or the tech or a portable chest x-ray, and the stand that the laptop was on would get moved and so the screen no longer faced in the direction of the patient, so it faced like a wall. [LAUGHS] So in that case, I would activate it, look at a wall, start talking and say, "Can you hear me?" And they say, "Yes, but I can't see you." At that point, I would switch and then just call them on their phone." (Participant 9, Academic, Metro)
	"I would've just asked if they put them on a cart. Sometimes I would just have the nurse hold it for them. That was one thing that we did." (Participant 1, Community, Suburban)
5F. Patient preferences	"I still think an older generation just wants that physical contact and it's hard." (Participant 14, Academic, Metro)

Abbreviations: ED, emergency department; ER, emergency room; ICU, intensive care unit; PPE, personal protective equipment.

"This is not what we were trained to do. There's a lot of legal liability." (Participant 14, Academic, Metro)

3.4 | Theme 3: Most emergency medicine physicians did not report that telehealth platforms were difficult to use despite varying degrees of training received, technological literacy, and prior experience

3.4.1 | Physician training in telehealth

The physicians in our sample received varying degrees of telehealth training, with some hospitals providing none at all, some tailoring sessions based on prior experience, and others providing everyone with in-depth training, including how to perform exams virtually. One physician describing their lack of training, stated:

"Actually, no. We just realized the iPads were there one day and we started using them but nobody had told us about them at all." (Participant 1, Community, Suburban)

3.4.2 | Platforms proved easy to use

Study participants reported varying levels of technological literacy. Even those with poor technological literacy, who lacked prior telehealth experience, shared that they did not find the platforms difficult to use.

"I am one of the most non-techie people out there. I can't do anything. [SARCASTICALLY] Seriously. […] So having said that, I thought that the InTouch Health thing, once somebody showed me how to use it, was pretty straightforward. […] So, it was idiot-proof even for me. So, I liked the simplicity of it." (Participant 9, Academic, Metro)

3.4.3 | Physicians preferred phone calls to other modes

Traditional phone calls, either to a patient's personal cell phone or to installed phones in hospital rooms, emerged as the preferred method for reaching hospitalized patients. Phone calls were simple and regarded as the most inclusive way to reach ED patients in their rooms, and they often supplemented malfunctioning video calls or other devices.

3.5 | Theme 4: Emergency medicine physicians underestimated patient acceptance of telehealth and believed that including caregivers remotely was a crucial facilitator of that acceptance

3.5.1 | Patient acceptance of technology

Many emergency medicine physicians were surprised at how accepting and trusting patients were of telehealth, both in the ED and outpatient setting. Physicians believed that this was likely because of the understanding that remote care could increase protection from COVID-19.

"People, surrogates and family, were really trusting of us. Even though they couldn't see us. And there was a lot more trust than we had imagined. And they gave us so much control, which was really helpful … And actually, all these conversations went pretty … Not smoothly, but as well as it could." (Participant 2, Academic, Metro)

3.5.2 | Building rapport with patients and caregivers

Physicians described that their experience with building patient rapport was not as difficult as they anticipated, both in the ED and outpatient setting.

"I mostly think telehealth is beneficial. [Pause] I think you cannot touch your patients, and I like to kind of hold

their hands when they're sad, those types of things. Do I feel it's changing? No. Because I think you still could have a meaningful conversation like what we're having right now. You still could, I don't know, hang with friends and talk to your family, and in the same way, I think we can talk to patients this way." (Participant 4, Academic, Rural)

3.6 | Theme 5: Physicians identified unique challenges for connecting with older adults

3.6.1 | Recommended modalities

Many emergency medicine physicians recommended that simpler devices, such as iPads or cellphones, should be used with older patients. One physician (academic, suburban) who used an app-based outpatient telehealth platform mentioned that chat platforms were especially challenging for older adults and that it often took a long time to receive a response. Some EDs required patients to start the televisit from their hospital room by pushing a button, but physician-initiated platforms that limited need for patient involvement were preferable for older patients.

3.6.2 | Hospital-level workflow changes

Many physicians described that their ED had laptops or iPads in each room that would turn on when the physician was ready for the visit. Other times, patients were handed a device that already had the physician on the screen. Physicians noted telehealth success often relied on nurses, who brought devices directly to patients, helped troubleshoot any issues, held devices at the proper height, or set up the entire visit for their patients.

> "Within the emergency department it tends to work pretty well as long as the nurse sets up the other side." (Participant 12, Community, Suburban)

3.6.3 | Hearing impairment

Physicians shared that patients experienced hearing challenges with telehealth, even when devices were set at the highest volume, because of echoes in hospital rooms. Participants recommended supplying microphones for staff or hearing amplifiers for patients to improve sound for hearing-impaired patients.

> "You know, I think the biggest challenge is that they're usually hard of hearing. And I will say that even sometimes despite that you put the highest volume you can, sometimes it's hard for them to hear well…So then, our ED will try to give them hearing amplifiers if they

don't have their hearing aids." (Participant 4, Academic, Rural)

3.6.4 | Adapting to sensory needs of older adults

To address sensory needs of older adults emergency medicine physicians spoke more slowly, spent more time giving instructions, and left more room for questions. Physicians also tried to mirror the tone and formality used by older patients to increase patient comfort during virtual care.

> "Making sure they can hear you, making sure that you're talking at a cadence [pause] that works for them, that gives them the time to hear you, listen, process and respond. I think I would probably spend more time providing instructions if I needed them to do something for me and trying to make it as clear as possible." (Participant 6, Academic, Metro)

3.6.5 | Camera positioning

Older patients often had difficulty holding the device at the proper height, or making camera adjustments. Recommendations included mounting devices to fixed positions in hospital rooms or having the device wheeled to an exact location before the visit.

3.6.6 | Patient preferences

Despite these adaptations made by emergency medicine physicians and hospitals, some older patients preferred in-person care and were uncomfortable with telehealth visits in the ED.

> "And so, I think [telemedicine] was very uncomfortable for them and also just uncomfortable to have someone beaming into a room rather than having someone there in person with them. And I think for me, it seemed like there was much more discomfort from the patients who were older, than from younger patients on that aspect… Like, hey, I'm here right now. Why aren't you in the room with me?" (Participant 15, Academic, Metro)

3.7 | Limitations

Although our study included only 15 physicians, we achieved saturation. Furthermore, this study was not intended to generalize all emergency physicians who worked throughout the pandemic, but was meant to be exploratory to gather formative insights during a period of great change in healthcare delivery and emergency medicine practice patterns. Second, our study only includes physicians, but other

stakeholders in emergency care including nurses, patients, and caregivers, have important and potentially different perspectives. However, emergency medicine physicians are leaders in care delivery and have been at the forefront of telehealth implementation, so understanding their experiences is critical. Additionally, the interviewed physicians were likely more tech-savvy and generally younger than the median-aged emergency medicine physician because of recruitment through social media platforms.[36] However, we purposely included older physicians and those with greater practice experience in the sample.

4 | DISCUSSION

Our data highlight the diversity of telehealth approaches employed by emergency medicine physicians to connect with older patients during the pandemic. Emergency medicine physicians played a vital public health role during the pandemic, providing care when it would otherwise be deferred and ensuring access to high quality care for patients with probable COVID-19. Participating physicians shared that telehealth should continue as a supplement to in-person care within the ED beyond the pandemic. Many addressed still existing challenges; medicolegal concerns surrounding misdiagnosis, a need for integrating EHRs and telehealth platforms, and ensuring cross-state licensure and competitive reimbursement with in-person visits.

To our knowledge, this is the only qualitative assessment of emergency medicine physician's perspectives on telehealth use during COVID-19 from all regions of the United States. Similar to other studies, physicians in our sample were essential in providing COVID-19 triage,[18,37–39] information and management via virtual outpatient clinics, and post-discharge care.[40] Much like the experiences of physicians at a rural acute care hospital, many of our physicians reported that the physician-patient relationship was not harmed by telehealth,[41] although physicians in other studies described experiencing discomfort with the lack of hands-on assessments.[42,43] Participants' desires to see telehealth as a supplement to care within the ED beyond the pandemic align with other research findings.[44] In contrast to the emergency medicine physician recommendations for using telehealth with older patients referenced here, primary care physicians (PCPs) and geriatricians in our larger study shared that they often called older patients ahead of time to prepare for visits, involved caregivers in remote assessments, and resorted to phone calls when patients were unable to use audiovisual platforms.[26] Additionally, PCPs and geriatricians were in agreement with emergency medicine physicians in regards to using telehealth for chronic disease management and lower-acuity concerns, and shared that they were concerned about missing diagnoses via telehealth, although they were unaware of any adverse events related to telehealth.[26]

Telehealth technology has been available for decades in the US, yet its adoption and uptake in EDs was limited before the COVID-19 pandemic.[45] Our findings highlight the utility of telehealth in emergency care and suggest that telehealth should remain available to emergency medicine physicians as a means to communicate with patients beyond the pandemic, particularly for low-acuity concerns. One study of older adults residing in senior living communities found that 27% of all in-person ED visits were potentially suitable for telemedicine.[46] Physicians in our study recommended using telehealth with older adults needing medication refills, chronic disease management, and other concerns that do not require a physical examination. Potential uses of telehealth also include: virtual urgent care systems to address ED overflow, advising paramedics and surrounding medical centers, such as in rural areas, following up with discharged patients, and providing more frequent check-ins to admitted patients. Not mentioned, but likely, telehealth may have been an important source of income replacement for emergency medicine physicians when ED volumes were low among those within fee-for-service health systems. During the peak of the pandemic in the US, ED visits declined by 42% compared to the previous year[47]; concurrently, telehealth usage increased 4-fold and gradually offset the decrease in outpatient visits.[48] If the regulatory and payment policies adopted during the pandemic become permanent, telehealth healthcare delivery systems could be implemented long-term into ED workflows.

Physicians in our sample described personal and patient satisfaction with telehealth use during the pandemic. Although technology adoption among older adults is lower compared to younger Americans and is seen as indicating lack of interest in technology among older adults,[49] satisfaction with telehealth services were similar among older adult and young adult patients at one hospital,[50] suggesting that older adults can effectively receive digital care. To ensure widespread adoption of telehealth among older adults, the technology must address older patient needs and limitations. Barriers to older patient access to telemedicine described here are consistent with other studies—auditory impairments, low levels of digital literacy technological experience, and difficulty navigating multiple screen transitions—although past studies were not specific to the emergency medicine physicians.[51,52]

To make telehealth more accessible for older patients, our findings indicate that emergency medicine physicians can provide hearing devices such as Bluetooth headphones or pocket talkers, enlist assistance from nurses, and involve family members and caregivers in televisits, particularly for patients with dementia or those with cognitive impairment. Additionally, telehealth systems should use 1-click mechanisms or provider-initiated visits to reduce confusion when initiating a visit. Krishnaswami and colleagues[53] also identify smartphone features and solutions to digital health use barriers that should be considered when caring for older adults. To reduce the potential for telehealth solutions to inadvertently worsen health disparities among older adults, EDs can design telehealth systems with older adults in mind by incorporating older adults in the design and evaluation of telehealth systems, building in high-quality interpreter services for deaf or hard of hearing patients, and addressing low health and technology literacy through patient education.[54,55] Although efforts to evaluate telehealth specific to older adults in the ED are limited, models exist for EDs seeking to implement or adapt telehealth systems to be suitable for older adults, including geriatrician consultations in the ED,[56]

12 of 14 | **WILEY** JACEP OPEN
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DAVOODI ET AL.

provider-to-provider nursing home visits, rural and critical access hospital settings, and forward triage in the ED.[57]

Although many solutions have been developed to meet patient needs during the pandemic, telehealth integration into EDs is still a novel concept, and more research should evaluate patient-centered outcomes such as quality of care, cost, and convenience. Further research utilizing user-centered design principles is needed to evaluate the acceptability and usability of telehealth programs for older adult ED patients. Additional studies of telehealth usability could be performed using surveys, such as the telehealth usability questionnaire,[58] to refine and improve platforms. Finally, studies should assess the role of regulatory and payment considerations in ED telehealth adoption to inform future health policies.

In summary, our data highlight that telehealth can improve physician and patient experiences with emergency care, and expand access to care during pandemics. Older adults faced unique challenges with using telehealth, but these could often be overcome with adaptations to how care was provided. Ensuring still existing challenges are addressed such as medicolegal concerns with misdiagnosis, interoperability between telehealth platforms and the EHR, and enhancing platforms to make them more user friendly for non-English speakers and patients with sensory impairments, will be critical to long term sustainability of telemedicine in emergency care.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

ND, KC, MZ, and ML assisted with analysis and interpretation of the data, drafting of the manuscript, and critical revision of the manuscript for important intellectual content. FJ assisted with acquisition of the data, analysis and interpretation of the data, and critical revision of the manuscript for important intellectual content. TW assisted with critical revision of the manuscript for important intellectual content and statistical expertise. EG developed the study concept and design, assisted with acquisition of the data, analysis and interpretation of the data, critical revision of the manuscript for important intellectual content, and acquisition of funding.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.