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US clinicians' perspectives and experiences on their professional roles and relationships during the Coronavirus disease 2019 pandemic: A thematic analysis

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Abstract:

Objective: The Coronavirus disease 2019 (COVID-19) pandemic has transformed health care delivery in the US, but there has been little empirical work describing the impact of these changes on clinicians' professional roles and relationships. Herein, we describe clinicians' perspectives and experiences pertaining to their professional roles and relationships during the COVID-19 pandemic.

Design: Inductive thematic analysis of semi-structured interviews.

Setting: Clinical settings across the US in April and May of 2020.

Participants: Physicians and nurses with clinical or leadership roles during the COVID-19 pandemic.

Measures: Emergent themes related to professional roles and relationships.

Results: Sixty-one clinicians participated in semi-structured interviews during the early months of the pandemic. These clinicians were practicing in 15 states across the US and the majority were White, were physicians, and were practicing in large academic centers. Three overlapping and interrelated themes emerged from qualitative analysis: 1) Disruption: boundaries between work and home life became blurred and professional identity and usual clinical roles were upended; 2) Constructive adaptation: some clinicians were able to find new meaning in their work and described a spirit of collaboration, shared goals, open communication, and mutual respect among colleagues; 3) Discord and estrangement: other clinicians felt alienated from their clinical roles and described demoralizing work environments marked by division, value conflicts, and mistrust.

Conclusions: Our findings illuminate marked heterogeneity in how clinicians and clinical teams responded to profound disruption to their professional roles, identities, and relationships during the pandemic. Some clinicians experienced an elevated spirit of collaboration and comradery, while others felt alienated by their new roles and work environments marked by division, value

conflicts, and mistrust. Our findings call for deliberate efforts to foster effective teamwork and support clinician wellbeing during the COVID-19 pandemic.

Strengths and limitations of this study.

- This study represents the perspectives of a diverse national group of clinicians working during the COVID-19 pandemic and identifies opportunities to improve teamwork as the pandemic continues and for future health care emergencies.
- The main limitation of this study is that our results may not capture the perspectives of clinicians practicing in other parts of the world or regions of the US not included in our study.
- The dynamic nature of the pandemic means that challenges faced by clinicians early in the pandemic might differ from those faced in later months.

Key Words: coronavirus disease 2019, COVID-19, clinician experience, leadership, team-based care, teamwork, qualitative research

Introduction

The Coronavirus disease 2019 (COVID-19) pandemic has challenged health care systems around the world in unprecedented ways, requiring rapid and large-scale changes to health care delivery and exposing vulnerabilities, deficiencies, and rigidities in existing approaches.[1-3] While some institutions have reported protocols and approaches to rapidly adapt their systems and processes to meet the challenges of the pandemic[4-10], narratives and reports in the lay press and medical literature[11-14] and national surveys[15, 16] have also described extreme strain and burnout among health care workers.

Existing guidelines for institutional emergency responses offer a framework for how to adapt health care delivery during a pandemic.[17] However, there has been little empirical work to understand the real-world impact of the pandemic on clinicians and clinical teams and how best to support their work moving forward. As the number of cases of COVID-19 continues to rise in the US and many health care institutions are stretched to capacity,[18, 19] a detailed understanding of how the pandemic has shaped clinicians' professional roles and relationships may be helpful in identifying unmet needs of health care workers and institutions in adapting and responding to the challenges of the pandemic.

Methods

Participants

We conducted a qualitative study among clinicians practicing across the US who had cared for patients and/or occupied health care leadership roles during the COVID-19 pandemic with the goal of eliciting their perspectives and experiences pertaining to clinical care, leadership, and resource limitation. We have previously described themes pertaining to resource limitation during the pandemic that emerged from thematic analysis[13] and herein

describe themes pertaining to clinicians' roles and relationships that emerged from these same interviews.

We used purposive snowball sampling to select a group of clinicians with diverse experiences. Recruitment began at the University of Washington, then expanded to include clinicians practicing at other institutions around the country. We recruited clinicians with a range of clinical roles (e.g., physicians, trainees, nurses, care coordinators) and backgrounds (e.g., intensive care, nephrology, palliative care). Participants were asked to identify colleagues with relevant experience who were working during the pandemic. Because of uncertainty about the course of the pandemic, we prioritized recruitment and ultimately interviewed more participants than were strictly needed to achieve thematic saturation. Interviews were conducted between April 9, 2020 and May 26, 2020. The University of Washington Institutional Review Board approved this study and authorized verbal in lieu of written consent. We report details of our methods using the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guideline (Supplementary Table 1).[20]

Data Collection

Clinicians completed one 30- to 60-minute audio-recorded interview with CRB (a senior nephrology fellow trained in qualitative methodology). All interviews, except for one that included two participants at their request, were conducted one-on-one. Two interviews were completed in two sittings. A semi-structured interview guide (Supplementary Table 2) was developed by CRB, AMO, and SPYW (the latter two being academic nephrologists with experience in qualitative methodology) and included open-ended questions to elicit clinicians' perspectives and experiences pertaining to clinical care, professional interactions, institutional policies, and resource limitation during the pandemic. The interview guide was iteratively refined by CRB with input from AMO and SPYW to allow for elaboration of emerging themes. Interviews were recorded and transcribed verbatim. To protect confidentiality, participants were offered the

opportunity to review their written transcripts for accuracy and to identify passages that they did not wish to have published. Participants were also asked to complete an online survey with questions about their demographic characteristics and practice experience. The size of the primary hospital with which participants were affiliated or volunteered during the pandemic was ascertained from institutional websites.

Qualitative analysis

Two investigators (CRB and AMO) independently reviewed and openly coded interview transcripts until reaching thematic saturation (i.e., the point at which no new concepts were identified),[21, 22] which occurred after reviewing 30 transcripts. One coauthor (CRB) coded all of the remaining transcripts to identify additional exemplar quotations. Throughout the analysis, the two investigators iteratively reviewed codes, collapsed codes into groups with related meanings and relationships, and developed broader thematic categories, returning as needed to the transcripts to ensure that emergent themes were well-grounded in the data.[22, 23] All co-authors (including EKV, a palliative care physician and bioethicist, and CSN, a pediatrician with expertise in health care teams and leadership) reviewed exemplar quotations and themes and together developed the final thematic schema. We used Atlas.ti version 8 (Scientific Software Development GmbH) to organize and store text and codes.

Results

We approached a total of 97 clinicians by email, of whom 75 (77%) responded and were willing to participate. Of these, we purposively sampled 61 clinicians representing a range of perspectives and experiences to participate in semi-structured interviews. Interviews were conducted from April 9, 2020 to May 26, 2020 and all except one participant completed the online survey. Participants' mean age was 46 (±11) years and most were White (39 [65%]), were attending physicians (45 [75%]) and were practicing at large academic centers in 15

different US states, with the majority practicing in areas most heavily impacted by COVID-19 at the time of the study (e.g., Seattle, New York City) (Table 1).

Three overlapping and interrelated themes pertaining to professional roles and relationships emerged from thematic analysis of clinician interviews: 1) disruption; 2) constructive adaptation; and 3) discord and estrangement**.** Exemplar quotations for each of these themes are referenced in parentheses in the text and listed in Tables 2-5.

Theme 1. Disruption (Table 2)

Blurred boundaries between work and home life

Clinical concerns—including providing medical care and minimizing risk of infection—spilled over into clinicians' personal lives (1) and conversations with friends and family (2) such that home and social life no longer offered needed respite from work (3). Some clinicians voiced skepticism, cynicism, or frustration with perceived inconsistencies between approaches to infection control across different settings (4,5). They also worried about the risk of exposing their families to the virus (6) and/or subject them to stigmatization in their community (7).

Challenges to professional environment, roles, and identity

Work environments (8,9) and usual clinical practices (10,11) were transformed during the pandemic. Several physicians likened the high level of uncertainty and steep learning curve of practicing during the pandemic to internship training (12).

Caring for young and otherwise healthy patients with severe complications of COVID-19 and seeing their colleagues become sick could make clinicians feel vulnerable. Some had to consider for the first time the risks involved in their work (13), and whether and how their own health issues should shape their professional role and identity (14,15).

The boundaries between the roles of patient and clinician also became blurred, as for example, when clinicians experienced first-hand what it was like to be seriously ill (16). The

content of clinical encounters also tended to expand beyond strictly medical matters (17) and visitation restrictions could mean that clinicians sometimes substituted for family members at the bedside of seriously ill patients (18).

Demands on leaders

Leadership roles could be especially challenging during the pandemic. One clinician leader compared her experience during the pandemic to running "an ultra [marathon] without a finish line" (19). In addition to the increased volume of work (20), some leaders felt a substantial weight of responsibility for staff wellbeing while, at the same time, they might be constrained in their ability to prioritize staff interests in the face of other organizational needs and priorities (21,22).

Some of those in leadership roles felt compelled to present a united front and consistent message to staff even if they did not always agree with institutional policies (23). Many were also mindful of how their decisions and actions would be perceived by others (24,25) which might include choosing their words carefully (26) and consciously trying to project more confidence and competence than they might be feeling (27,28).

Theme 2. Constructive adaptation (Table 3)

Meaning-making

Many clinicians valued the opportunity to participate in direct patient care during the pandemic and to make a tangible difference in patients' lives (29,30). For some, work during the pandemic served as a reminder of why they had originally chosen a career in health care (31). Some clinicians, especially intensivists, appreciated the chance to make the most of their specialized training (32) while others embraced and found meaning in filling gaps in care even if this meant taking on tasks outside their specialized skill set(33).

Collaboration

Many clinicians experienced a degree of collaboration among colleagues that they would not have thought possible before the pandemic (34,35). Some made conscious efforts to work as part of a team by being more responsive (36,37), accepting (38) and accommodating (39) of colleagues' decisions and/or requests for help. A similar dynamic could occur at the organizational level, with competing institutions setting aside differences and working together toward a common goal (40).

Many clinicians voiced appreciation for more collaborative leadership styles and expressed admiration for leaders who led by doing (41) and sought input from practicing clinicians (42). This sentiment was mirrored by comments from some leaders emphasizing the importance of involving frontline clinicians in institutional planning and policy-making (43,44).

Building mutual respect and empathy

Clinicians described a shared sense of uncertainty and vulnerability, which could help build camaraderie and mutual respect among colleagues with diverse backgrounds and skill sets (45). Expressions of concern for personal wellbeing (46) and face-to-face interactions (47) could help to strengthen collegial relationships. Clinician-patient relationships could also be enriched by shared challenges and experiences (48,49) and expressions of reciprocal concern for one another's wellbeing (50).

Theme 3. Discord and estrangement (Table 4)

Alienation from clinical role

Some clinicians described feeling alienated from new clinical practices and roles that did not align with their professional values (51,52) and uncertain about how to assess the value or purpose of their work during the pandemic (53). Many expressed feelings of defeat and powerlessness when they were unable to curb the tragic loss of life during the pandemic (54).

Others less directly involved in caring for patients with COVID-19, described feeling ineffectual and guilty about not doing more to help (55,56).

Interprofessional power differentials

For some clinicians, more centralized institutional decision-making processes during the pandemic could feel unfamiliar or restrictive (57,58). Several clinicians offered concrete examples of how top-down and inflexible policies had adversely impacted patient care (59).

The pandemic could create, expose, and/or widen power differentials between staff with differing clinical roles. Intensivists sometimes assumed greater decision-making authority, which might leave other specialists feeling sidelined (60,61). Nurses generally had less power than physicians to control their work environment and to limit their exposure to the virus (62,63) and were often expected to fill gaps in care (64).

Exposing value conflicts

The pandemic also exposed differences in clinicians' core values and beliefs about their professional obligations (65). Differences in how individual clinicians prioritized and operationalized competing concerns could be a source of conflict, especially when institutional guidelines were unclear or evolving. Heterogeneity in the relative value placed on protecting oneself, preserving personal protective equipment, limiting viral spread, and examining patients with COVID-19 in person (66,67,68) could provoke moral judgements. Some clinicians felt unsupported and even ostracized by colleagues who seemed to be prioritizing their own safety over the needs of patients and colleagues (69,70,71). Physicians could also be highly critical of colleagues who they felt were insufficiently protective or unsupportive of nurses (72,73).

Mistrust of leadership

Clinicians did not always trust that institutional leadership had their best interests at heart (74). Legacy concerns about the trustworthiness of those in leadership roles could be magnified during the pandemic (75), particularly when communication was poor (76) or when there was a lack of transparency or apparent inconsistencies in new policies (77,78). Several clinicians described being more trusting of leaders with active clinical roles as opposed to "administrators" who were seen to be out of touch with clinicians' needs (79) and more likely to place their own interests above those of patients and staff (80).

Discussion

During the first few months of the COVID-19 pandemic, US clinicians encountered significant disruptions to their professional identities, roles, and relationships. How individual clinicians and clinical teams adapted to these challenges varied markedly. Some found new meaning in their work and described a spirit of collaboration, mutual respect, and shared goals among colleagues. Others felt alienated from their roles during the pandemic and described a demoralizing work environment marked by widening power differentials, value conflicts, and mistrust.

The pandemic not only disrupted clinicians' usual work environments and practices, but raised existential questions about their core professional identities and values.[24] Many clinicians grappled with competing priorities in their home and work life and faced deep value conflicts with colleagues. Those in leadership positions often had to juggle conflicting obligations to protect their staff and support institutional policies while also being mindful of how their actions would be perceived by others. In the midst of this turmoil, some clinicians were able to find meaning in their work, while others felt alienated from their new roles. This kind of challenging mental work likely contributes to the emotional fatigue and psychological trauma that has been observed among clinicians during the pandemic.[11, 12, 15 25]

A team-based approach is especially important in responding to complex and unpredictable disruption in clinical practice and care delivery.[8, 10, 26] Key tenets of effective team-based care include collaboration, open communication, shared goals and vision, and mutual respect and trust.[27, 28] Our findings suggest that some but not all clinical teams and organizations were able to capitalize on these strategies to support effective teamwork during the pandemic. Some clinician groups experienced an enhanced team mentality grounded in mutual respect, concern, and empathy,[29 30] in which they were able to collaborate effectively with colleagues to accomplish common goals and support a shared vision. However, others experienced work environments marked by division, value conflicts, and mistrust, which were not conducive to a collaborative approach.[31] While some clinicians described inclusive and collaborative styles of leadership, others encountered more hierarchical approaches in which leaders were siloed and there were few opportunities for front line clinicians to help shape institutional policies. This latter approach could undermine trust and contribute to a sense of powerlessness and demoralization among clinicians.[32]

These early experiences highlight the different ways in which clinicians and clinical teams adapted to the challenges of the COVID-19 pandemic and may be helpful in guiding institutional responses as the pandemic continues and in future emergency settings. In addition to improving patient care, an effective team-based approach can help clinicians to find meaning and adapt to new kinds of work.[33] While effective collaboration may sometimes occur spontaneously, deliberate efforts to promote and cultivate practices that are conducive to effective teamwork may be especially necessary at times of disruption and crisis.[34] Available literature on teamwork suggests that conscious efforts to establish a shared vision and common goals, reinforce core values guiding practice, and promote open and honest communication can help to build the kind of trust and understanding needed to support flexible adaptation to change.[35, 36] Attention to clinicians' personal wellbeing and emotional health through structured institutional programs[11, 37] as well as demonstrations of caring and respect from leaders and

colleagues can also be important in establishing trusting relationships, monitoring for fatigue,[35] and maintaining personal resilience.[35, 38]

Our results may not capture the experiences and perspectives of clinicians practicing in other parts of the world, of clinicians working in regions of the US not included in our study, or in settings or specialties not well represented among study participants including private practice, pediatric, and rural settings. We also recognize that participants may not have felt comfortable sharing their perspectives and experiences on sensitive topics. Finally, the dynamic nature of the pandemic means that our analysis of clinicians' experiences early in the pandemic may not reflect unique aspects of present or future challenges.

Clinicians' professional roles, identities, and relationships could be profoundly disrupted and reshaped during the pandemic. Our findings illuminate marked heterogeneity in how clinicians and clinical teams responded to these challenges. Some clinicians were able to find new meaning in their work and experienced a spirit of collaboration, mutual respect, and shared vision among colleagues. However, others felt alienated from their new roles and described work environments marked by division, value conflicts, and mistrust. These findings highlight the need for intentional efforts to support clinician wellbeing and promote effective teamwork as the pandemic continues.

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Competing interests statement.

The authors declare no competing interests relevant to this work.

Author contributions.

C.R.B. designed the study and analyzed the data, afted the initial manuscript and made the tables and figures, contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

S.P.Y.W contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

E.K.V contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

C.S.N contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

A.M.O. designed the study and analyzed the data; contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

Patient and public involvement

Patients and public were not involved in the design, analysis, or dissemination plan for this study.

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Table 1: Participant characteristics

Characteristic	Participants (N=60[a])
Age, years (mean [SD])	45.8 (11.1)
Gender	
Woman	38 (63.3)
Man	22 (36.6)
Race	
Asian or South Asian	15 (25.0)
Black or African American	2 (3.3)
White	39 (65.0)
More than one or other	3 (5.0)
Prefer not to say	1 (1.7)
Ethnicity	
Hispanic or Latino	1 (1.7)
Not Hispanic or Latino	58 (96.7)
Prefer not to say	1 (1.7)
Type of institution	
Academic	46 (76.7)
Private	9 (15.0)
Other	5 (8.3)
Clinical site[b]	
Clinic/Outpatient	38 (63.3)
Inpatient acute care	41 (68.3)
Inpatient intensive care and/or Emergency medicine	19 (31.7)
Non-clinical work	2 (3.3)
Research	8 (13.3)
Hospital size	
<300 beds	5 (8.3)

300-499 beds	30 (50.0)
≥500 beds	21 (35.0)
Clinic or outpatient only	4 (6.7)
Clinical role	
Registered nurse	7 (11.7)
Nurse practitioner	3 (5.0)
Attending physician	45 (75.0)
Trainee physician	5 (8.3)
Experience in current role, years (mean [SD])	17.9 (10.5)
US region	
Pacific coast; 3 states, 12 institutions	37 (61.7)
Midwest and Mountain West; 6 states, 6 institutions	6 (10.0)
Northeast; 4 states, 7 institutions	13 (21.)7
South; 3 states, 4 institutions	4 (6.7)
State deaths per 100,000 residents (before end of data collection on 5/26/2020)[c]	
>50/100,000	13 (21.7)
10-50/100,000	35 (58.3)
<10/100,000	12 (20.0)

[a] One participant did not complete the online survey, so demographic information was not included for this participant

[b] Clinicians could choose multiple answers

[c] The number of deaths was calculated as of the end of data collection on May 26, 2020, per the Institute for Health Metrics and Evaluation[39]

Tables 2. Theme 1: Disruption

Quotation number	Participant ID, US Region	Exemplar quotation
Blurred boundaries between work and home life		
1	B, Pacific	I spent all day...in my COVID rooms wiping down counters, making sure everything is clean, coming in and out of PPE, and now I'm doing the same thing at home. So I feel like I don't get that rest and that down time at home, like I normally do. I'm surrounded by it...Dad comes out in his N95 mask and is sitting at the breakfast table.

2	S, Northeast	We know what N-95s are, it's a part of our day to day life, but to hear people that are non-medical all of a sudden mentioning N-95s and BiPAP and CPAP and how you can rig a machine that's not a ventilator to operate like a ventilator, all of this medical stuff that's part of our world, that's not a part of society's thinking.
3	A, Pacific	That escape from the sort of everyday hospital life to your personal life, that line has been blurred... it's now a 24/7 thing...you don't have that release afterwards of normalcy
4	I, Pacific	People have said, if you are ill, you isolate yourself for 7 days...What about me as a family member?...There's no guidance for a healthcare worker with a sick family member in terms of what you should do to reduce risk to others....I felt very confused.
5	C, Northeast	They're telling people to mask at our grocery stores, and that literally happened before they were telling people to mask coming into our hospital...how does that make sense?
6	BB, Pacific	I was just so distracted that my mind was going a thousand places...I'm still sitting at my desk, and I'm not able to finish my work...what am I getting myself into? I do have a child at home and then my mother-in-law was here and she is 70s, so just coming back to home and the fear of bringing something to your family. That was probably the most scary thing.
7	HH, Pacific	It's easy to feel that you're a little bit of a pariah...My daughter has a close friend that wants to spend time with her…[her friend's] parents don't want them together...I had this sense that part of it is because of me and what I do for a living.
Challenges to professional environment, roles, and identity		
8	L, Pacific	I get off of a 4-hour clinic session that I did all over Zoom, and I feel like someone hit me over the head. Which is not how I felt before with in person visits...it's not what we signed up for.
9	B, Pacific	In the hot zone, there's this white curtain of plastic around the nursing station...once you're in, you spend an hour and half to 2 hours of time in full PPE...It's a little bit like a spaceship. You put on your gear, you're in there, and now you're in outer space .
10	AA, Northeast	Maybe I shouldn't tell you this but, we have not been carrying stethoscopes for like, for the past eight weeks! It's been completely different medicine than we were trained to do .
11	A, Pacific	A ventilator is part of my job...this is what we do. That was definitely a challenge...I had to be mindful of the others who might need it in my own hospital. And then having to go to my colleagues in the ER and say... if they're stable enough to go somewhere else, we have to send them. And that's not normal!
12	BB, Pacific	I was thinking about what it was like and it kind of reminded me of intern year...every day every hour, I was learning something new. And adapting to a change...There was no time for anything else in life. It was just that. And similarly, during the first week, it was just COVID! That's it. You are reading about COVID. You're learning about it. Your patients have to deal with it. How to protect yourself, the protocols, the protocol changes every hour.
13	K, Northeast	It's one of the few times in my career where I potentially felt unsafe...hearing stories about people who are young and healthy...when you see colleagues or people similar to yourself getting sick and affected, it hits very close to home. It made me feel vulnerable.
14	J, Northeast	I said to [my colleague], "You're an older person...Stay home." Right? But meanwhile, the hospital wanted her to come in a couple of days a week…Her family was telling her to retire.

15	F, Pacific	I knew it was serious and out in the community. But I didn't apply it to myself...I don't think of myself that way. I would think of myself as: I'm a nurse, I'm a healthcare provider, I should be working. I never would've thought, oh, I'm high risk, I can't work....it also felt like, am I also trying to cheat by not working?...My parents and my friends, they were like, you shouldn't be around all of these people all of the time. And I was like, that's so strange, why do I not think that way?
16	JJ, Pacific	It's not hard to have empathy for people who can't breathe. But I had never experienced it myself. And I remember not being able to shower I couldn't walk up the stairs, I just I would be turning the fan on to try to get air. It's the first time I've been really truly sick in my life.
17	LL, Pacific	I start all my visits off with patients asking, "Do you have food? Are you able to get your prescriptions? Who's helping you?"...I feel like a lot of my patient interactions are less medical and more social or emotional support.
18	II, Pacific	She had a peaceful death, so at the same time it's kind of, you've got to be kidding me, like this is just not happening...It was just horrible. You know, I can tell myself she didn't die alone, and I can give her last message to her families, but it should never be that way. They should have been there. They should have been able to be there. Any other time they all would have been there for her.
Demands on leaders		
19	H, Pacific	It started off running a sprint, moving into a marathon, [now] it feels like an ultra without a finish line; with bursts of speed in between that need to be added on, when you don't really have the energy.
20	H, Pacific	It has been unparalleled in the amount of items that have come up from the surface and thrown at us from left, right, have fallen on us from above. Just when we feel that we have something else under control...something else will have happened.
21	DD, Northeast	I explained to her that, you know, [this] is the hospital policy. They want you to use a surgical mask, not the N95 mask...She was one of the persons that got sick...If I had stood more firmly with her against what the hospital was doing...A lot of remorse, guilt, I wish I could do it again.
22	Q, South	The worst thing has really been seeing what the nurses have gone through during this crisis. I've felt a lot of guilt, I guess, about sort of overworking them and putting them in harm's way.
23	KK, Pacific	My gut feeling all along was we should be masking, just because we didn't know. But I wanted to support the [health care] organization and to set a good example to other staff...trying to follow policies.
24	W, Pacific	If you come up with a policy it may...be well thought out and make a lot of sense what you're doing. But how that gets perceived, communicated, all of those things are actually vitally important...the optics of fairness play a major role in some of these considerations.
25	C, Northeast	I've really been thinking about how a document like this in the light of day, how does it read, how it's interpreted. It makes sense to me, in my training, in my values and ethics, but does it make sense to, potentially the folks it will be affecting?
26	H, Pacific	I tried pretty hard not to use the word "frontline"...Because frontline really implies war...You don't want staff to feel like they're on a war front, it's not like a battle every day that they're at work, it's their job and they're there to take care of people who really need them.
27	D, Pacific	I'm not used to have to project confidence for the sake of the team when I myself have a certain amount of uncertainty. And it's not dishonest, I think for the sake of them and their [the staff's] daily ability to come to work and feel like they're supported and functional, I had to, a little bit, project more confidence than I had.

28	LL, Pacific	I think there's a lot of stress on healthcare workers during this time to be brave and to act like we know the answers, and to feel strong for those around us...that's sometimes a hard façade to keep up under a stressful and uncertain time, and I would feel emotionally exhausted at the end of the day.

Abbreviations: Coronavirus disease, COVID; personal protective equipment, PPE; continuous positive airway pressure, CPAP

Table 3. Theme 2: Constructive adaptation

Quotation number	Participant ID, US Region	Exemplar quotation
Meaning-making		
29	Z, Northeast	I have been a Medical Director of an outpatient home unit for several years, 8 years, and I've never in my life done a PD exchange...We'd go every morning with our carts and our bags, and prescriptions ...It felt different because you were in the thick of it, as the doctor, you were doing the therapy yourself...And we did save lives, I have to say for the first time in my career it was very obvious that we saved lives
30	P, Northeast	I like to be needed. I'm an ICU Doctor because I want to be needed and I want to feel like I'm making an impact clinically. And this felt like that. Whereas, I haven't had that feeling in a while.
31	E, Pacific	I think there's a group of people that will think about how much they want to risk and then I think there's this other group of people that live for this, that have that sense of duty...Remember when you said you were going to go to Med School and everyone said it was a sacrifice, to be a physician? Well, this is one of them.
32	HH, Pacific	As a pulmonary critical care doctor who trained in and worked in an ARDS center, I feel like this is what I trained to do, taking care of these patients. This is my comfort zone. This is what my training is about.
33	EE, Northeast	Some of the phone calls you make, it's like maybe not what you went to medical school to do. You're used to thinking about very complicated things and you're just sitting here sometimes making phone calls, just giving updates and reassurance. But it's just as important as our job.
Collaborating		
34	Z, Northeast	Maybe all of those lectures about coming together as an orchestra... I used to kind of poo-poo that and roll my eyes, and now I get it. So in that way, I think I'm humbled. And have a better appreciation of each person's role... I think inadvertently...I was probably discouraging that kind of open collaboration before.
35	U, Northeast	It was really like you see in MASH...It's wartime medicine. And you do what's needed, what's the immediate need is, what has to be done. You don't let egos get in the way. You don't get into big arguments. You do just what has to be done, and what's available to be done...In all my time in medicine I've never experienced anything like this.
36	J, Northeast	I dialyze every...person they ask for dialysis for...I certainly changed my attitude regarding my relationship with the ICU people...I did not want to argue with anybody. I wanted to be viewed as a cooperative and collaborative person...They're so adamant and dedicated, and interested, and motivated to do the right thing. Under those kinds of circumstances it's kind of hard and I didn't want to spend time arguing, it's just kind of like, 'ok, let's just do this, because we've got to get onto the next patient.'

37	Z, Northeast	We also had a lot of help from our surgeon, who put in the Tenckhoff, [peritoneal dialysis catheter] we would just text him and literally, the Tenckhoff catheter would go in 2 hours later...We really came together, it was impressive. Never had I experienced that, being here for 20 years.
38	CC, Pacific	We're [nephrologists] kind of bit players. You know, this whole situation is largely under the control of the intensivists...Their priorities are really different...We may or may not agree with that but we don't have control over it. So they don't want to ventilate and dialyze people down there who they think you're gonna die if they can save somebody else. And I didn't always agree but I had to respect it, the decision.
39	FF, Midwest/Mountain West	The dialysis unit nursing advocate called me up and said I just don't have enough staff to get through everybody...My first initial reaction was anger. You know, like figure this out please, why are you bothering me?...Why do I to make these decisions? But then after I gave my mind a minute to think about what's going on around us, then I calmed down. I realized that it was much more important that we collaborate.
40	H, Pacific	We're all in it together. All of us, whether we're working for a 29-state large dialysis organization, for profit, versus a non-profit. A lot of us have to address the same day to day issues as Chief Medical Officers.
41	AA, Northeast	One of the [dialysis shifts] was me, our division chief, and two fellows...my division chief did a great job sort of leading by doing. And not just sort of talking about it, but actually participating in it.
42	S, Northeast	These are the people running the program and we're the ones doing the work, and that's the relationship, like a hierarchy. But I'd say it did feel, during the peak of the pandemic, a lot more collaborative, and less hierarchal, because they needed us. We're the ones on the ground...Our perspective became a lot more important when we're dealing with something that's changing and evolving so rapidly, that they need our input, because we're the ones seeing every little change.
43	DD, Northeast	When decisions are made in anything, we have to do it together...I'm not at the bedside as much. These nurses are the ones at the bedside, and they really really know what's the best practice, and what's safe...I don't care how many books you read, experience will trump most things.
44	II, Pacific	The right people weren't always at the table at the right time. But I think that's what early on we figured out as colleagues, we're like okay, who gets it? Who understands what's happening? Who lives and breathes the hospital?...They're not always the people in direct leadership.
Building mutual respect and empathy		
45	B, Pacific	[Our hospitalists] were able to see what we were doing in the ICU firsthand and go around on rounds which really helped. I think they have more respect for what we do. And you get to see them in a different role temporarily while they are not as comfortable. It does kind of even the playing field. Everyone's wearing blue scrubs, and we're all trying to help each other get through this.
46	AA, Northeast	When I got sick...I slept really late. And there were like three missed calls from my division chief wondering if I was okay. So, I think there was a lot of people caring for each other...We sort of got together and became much closer than we would've otherwise.
47	MM, Pacific	I think if we have someone who is concerned about an aspect of the response, like the PPE they're wearing...You'd always like to talk to them face to face. It's just going to be more profitable. I think it puts people at ease...they know that it's not just some faceless, nameless email box.
48	H, Pacific	Of course [patients] were fearful; some people had anxiety attacks. But they weren't angry at us. They were thankful that we were willing to be tough and swallow whatever it is in terms of our own anxiety and sit with them and talk with them.

49	T, Pacific	A number of my patients who fell ill happened to come into the hospital while I was a patient, I think being able to have that continuity and be there at some of the most harrowing and intimate times of their lives, and at a place and time where they couldn't be with family, they didn't have family.
50	A, Pacific	We always try to be strong for our patients and their families...It felt like it was either more frequent or that I noticed it more, that families, they were really grateful, and they acknowledged that it was hard for us too.

Abbreviations: Peritoneal dialysis, PD; intensive care unit, ICU; acute respiratory distress syndrome, ARDS; mobile army surgical hospital, MASH

Table 4. Theme 3: Discord and estrangement

Quotation number	Participant ID, US Region	Exemplar quotation
Alienation from clinical role		
51	M, Pacific	That's what I do as a doctor. Not being able to go in and listen to a patient or to actually talk face to face to a patient, that was very foreign to me, so I think that made me feel like we can't take care of patients...I felt like I wasn't actually totally seeing a person or totally evaluating a person because I couldn't talk to them face to face to actually listen to them.
52	K, Northeast	People come into the hospital to get help, right?...Even though everyone deserves help and we want to help everyone, that we're just physically not able to. And that's really like a wartime thought process, and I am not in the Army, that is not how I approach Medicine.
53	GG, Pacific	I usually have a target at the beginning of the day; things I want to accomplish and accomplish in a certain way. And if I come home and I hit the target, I feel good about myself...Now, even if I come home and I hit the target, I'm not actually sure if that was the target I should've been shooting for, as we try to balance differing, competing obligations.
54	X, Northeast	At the height of the pandemic, there were a lot of people that weren't that old, we usually say like these are "salvageable" patients and we're going to try everything to keep them alive, but this was just a lot of times unsuccessful, like we're fighting hard and they would just die...It was difficult emotionally to deal with that amount of suffering and dying. In sort of the inability to prevent these people from dying...I would come home at night and feel really defeated. That was unique in the...20+ years of ICU care, it never felt like that.
55	G, Pacific	I know it sounds really morbidly weird, but I was a little disappointed because I was looking forward to being busy, being productive and holding peoples' hands and contributing to just doctoring...here I was less busy than I'd ever been because patients weren't showing up to clinic...[I was] feeling guilty that other people were working so hard while my schedule is easier than ever...It was like, here's my chance to make a difference and to help people during this period, and I saw like 3 COVID patients.
56	R, Pacific	To minimize COVID exposure, or to minimize PPE...The attendings have been going to see the patients on their own...I feel almost guilty about that. There's always the sense that the trainees should be doing most of the work and knowing the patients that well.
Interprofessional power differentials		

57	MM, Pacific	We have a structure, we have an ordering and responsibility hierarchy. Well holy cow, in academic medicine, it's got to be the least hierarchical...I think that cultural shift into, "We appreciate you, you're brilliant, but you're going to do it this way," that is not our way. We are not a military institution.
58	P, Northeast	As an ICU Doctor who's used to having the whole patient to themselves...I'm used to being able to have the final say. I'll take input from everybody, but I'm deciding. And the triage team was taking over that role.
59	II, Pacific	[I said] this is what this patient needs. Let's talk about how were going to get it. And there was no discussion, it was just like, nope, not gonna happen...Here we are, we're defining a new disease process, we're having an emerging evolving pandemic...I really feel like I'm pretty rational about this, and you haven't told me anything, it's sort of like arguing with a toddler.
60	V, Northeast	Nephrology should absolutely have a say in CRRT versus not. And what was told to us was that, well it's really going to be the ICU teams that are driving these decisions. And we were like well, how does that work, it's not their specialty...It feels weird to not be an integral part of that decision, I just don't think, I don't remember a time where the ward team is just specifically driving all the decisions, and we just sit back...we understand that this is critical care, this is critical care space, but we should be a part of those decisions.
61	II, Pacific	I get it now, that infection prevention is like, we have to sit on these resources and we have to guard them and use them wisely. But again, that's where the messaging wasn't there. The messaging was just "No"...So it did feel more of an us against them. Like are we really on the same team? Are we really working toward the same end point of keeping our staff safe and treating the patient?
62	Q, South	Particularly as a consulting physician, a nephrologist, you kind of have the luxury of doing everything remotely. I really think that the nurses have taken the brunt during all of this.
63	C, Northeast	COVID is highlighting the potential tensions that might already exist between nurses and physicians...Power dynamics or what have you. My colleague felt empowered in some ways to say, 'This is how I'm going to change my practice'. Our dialysis staff probably don't have that power to say, 'This is how I'm going to do my nursing practice'.
64	B, Pacific	There's no housekeeping allowed in patient rooms in the hot zone. So nursing...has been doing all the [cleaning] tasks like wiping down the rooms twice a day, cleaning out the bathroom...So there's a lot more, basic tasks put on nursing .
Exposing value conflicts		
65	JJ, Pacific	You think that most people who do critical care medicine would get it...I think one of the things that I've really learned over the last couple years is that I can't assume that my, this is just as we get older we all learn this, just when you think you can kind of say this is how all pulmonary critical care docs behave, is how all physicians behave...Actually some people, what makes them happy is taking care of patients and going home at the end of the day. Then I have to think about what my expectations are for people, as well.
66	G, Pacific	People had been shamed for wearing masks a few weeks ago, and then I wondered if it was some kind of, "I'm not going to use PPE", like it was just for weak people. I'm not sure. But I was really shocked...They were all sitting around talking, and I walked by with a mask, and it almost seemed like they kind of looked at me funny.

67	BB, Pacific	There was this incident about one of the physicians at the hospital being reported about wearing a mask by the nurses...The hospital administrators felt like he was giving a message that this is more serious than it is and everybody should be masked. So it was a big thing that the physician had to justify why he was wearing a mask going into patient's room...I felt better wearing a mask...It's better for my mental health that I wear one... But I did feel guilty about it.
68	G, Pacific	I really didn't feel comfortable starting dialysis on someone without physically examining them. And I felt very strange standing from the outside of the room while one of our dialysis nurses was inside the room. The patient is probably very scared, and if they look up and see me too scared to come in the room to see them, then what kind of doctoring is that?...At the beginning it had to do with conserving PPE, that we weren't going in. But [now] there's plenty of PPE...So I'm kind of surprised that we're not at least once, physically seeing each patient.
69	N, Northeast	Everybody else was not seeing patients...I would go back to my office and everybody treated me like a disease. Everybody freaked out when they saw me, in my scrubs and with my little baggie of PPE. They all like backed away from me, and I'm like, "Ok, we work together you guys, c'mon."…I was like, 'what do you think? It's going to hop off of me and go onto you?', and they said "yes!"
70	J, Northeast	I know these people forever…A couple of people just said, "my doctor said I have asthma, I can't work for the next 6 weeks"...I'm disappointed, I mean, I feel like she let us down.
71	JJ, Pacific	There were members of our group who were really afraid, and really freaking out, and really like, "I have a two-year-old, I can't do this". Which is normal, but also when you have a small group it's not helpful. People are having their own anxiety and you kind of need everyone on board, you signed up for this, you kinda have to get over it.
72	AA, Northeast	If you're not going to go into the room, how are you gonna go ask your nurse to go sit in there for two hours. I just think that's not right.
73	C, Northeast	She sent out an email to let the dialysis staff, the whole team know that she'd be rounding virtually. It was interpreted as, 'You're on your own, dialysis nurses. I am supposed to be the leader here in my role as a physician, and I don't have your back'.
Mistrust of leadership		
74	Y, Pacific	where I heard the most, I don't know, complaints or staff unhappiness, was with the unit that was not as aggressive with PPE...Even though...[the institution] was following the [CDC] guidelines. But I think that it just made the staff feel better... I think they felt like maybe they weren't being cared for, and as appreciated as they should be.
75	N, Northeast	I just felt like it wasn't transparent, I mean, communication issues have always been a problem, especially in big organizations. I've brought it up before, people were in denial about it. It's a leadership problem. I personally don't trust my leadership...I've been working in this hospital for a long time that I slowly started to understand that peoples' motivations aren't good in healthcare...people were kind of motivated by their own self-interests and by greed.
76	Q, South	We asked multiple times if there was a triage command center or a plan for what would occur if we got to the point where we had to triage resources. They said there was, but they wouldn't provide it to us...What is it? Where is it? I just felt total lack of support from the administration.

77	F, Pacific	They took the boxes [of masks] away...something that you used to make me use for my safety and the patient's safety, and suddenly you're like, you don't need it anymore...You have these policies in places because they're evidence-based, and a bunch of people sat down and thought about it and said this is the safest way to provide care for people. And then suddenly you're like, you don't need to do that because we don't have enough. And it really isn't that we don't need to do it, it's really that you should, but we don't have the supplies, so we can't do it. If they had explained it like that, not that that's any better, but it's at least being honest. I feel like they're downplaying a lot of things.
78	B, Pacific	Universal versus not universal masking. That one has been little harder for most of us to understand...Why were we making it optional a few weeks ago and now it's becoming a universal protocol? I think I understand what the rationale is, especially with a higher incidence of staff infections, but I think it's hard to go from these the changes where we were kind of lenient before, to something that's not so lenient with everybody on board. And I think since there's been such an emphasis on resource allocation and not using up limited PPE. Some people are concerned that this is going to use up a lot of PPE.
79	O, Midwest/Mountain West	She was reprimanded by the VP for Medical Affairs because she was wearing a mask...You're a physician administrator who doesn't have any patient contact, so you're the last person who should be giving advice.
80	JJ, Pacific	I think physicians everywhere were wanting to help, and be helpful. A lot of it was coming from hospital administrators being nervous about what this would mean for their hospital and wanting to protect their own beds so in case they have their own surge.

Abbreviations: Intensive care unit, ICU; Coronavirus disease, COVID; personal protective equipment, PPE; continuous renal replacement therapy, CRRT; Center for Disease Control, CDC; vice president, VP.

Supplementary Table 1. Consolidated Criteria for Reporting Qualitative Research Guidelines (COREQ) checklist

Item	Guide questions/description	Location in manuscript
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Methods, Paragraph 2
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Author list
3. Occupation	What was their occupation at the time of the study?	Methods, Paragraph 2
4. Gender	Was the researcher male or female?	Methods, Paragraph 2
5. Experience and training	What experience or training did the researcher have?	Methods, Paragraph 2
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	Methods, paragraph 1
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	The intention of the research (to better understand clinician experience during the pandemic) was included in written information materials.
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Methods, paragraph 2
Domain 2: Study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Methods, paragraph 3.
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Methods, paragraph 1
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Methods, paragraph 1
12. Sample size	How many participants were in the study?	Results, paragraph 1
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Results, paragraph 1
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Methods, paragraph 2
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No.

16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Results, paragraph 1
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Appendix, Table 1
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	Methods, paragraph 2
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Methods, paragraph 1
20. Field notes	Were field notes made during and/or after the interview or focus group?	Yes.
21. Duration	What was the duration of the interviews or focus group?	Methods, paragraph 1
22. Data saturation	Was data saturation discussed?	Methods, paragraph 3
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Methods, paragraph 2
Domain 3: Analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Methods, paragraph 3
25. Description of the coding tree	Did authors provide a description of the coding tree?	Method not used
26. Derivation of themes	Were themes identified in advance or derived from the data?	Methods, paragraph 3
27. Software	What software, if applicable, was used to manage the data?	Methods, paragraph 3
28. Participant checking	Did participants provide feedback on the findings?	Method not used
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Table 2-4
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Results, Tables 2-4
31. Clarity of major themes	Were major themes clearly presented in the findings?	Results, Paragraph 1
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Results, throughout

Based on Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care.* 2007;19(6):349-357

Supplementary Table 2: Sample semi-structured interview guide

Questions*	Prompt
First, can you tell me a little about yourself and your clinical role?	
What has it been like for you taking care of patients during the COVID-19 pandemic?	Can you give me some examples of situations that have been particularly challenging? Any situations that have gone well? In what ways have your practices changed?
How has the pandemic shaped your clinical practices and how you care for patients?	What was most difficult for you? What worked well? Can you give me some specific examples?
Have you encountered any situations in which medical resources were limited or you had difficulty getting patients the treatments they needed during the pandemic? What was that like for you?	Can you give me some examples?
Have you talked to patients or family about how their care might be different during the pandemic? What has that been like?	Can you give me some examples? What was that like for you?
Have you helped to develop new institutional policies during the pandemic? What has this been like?	Can you give me some examples? What has been difficult? What has worked well?
Is there anything else that we have not covered that you would like to bring up?	

*The interview guide was adapted throughout the study in response to emerging concepts and in order to promote thematic saturation.

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US clinicians' perspectives and experiences on their professional roles and relationships during the Coronavirus disease 2019 pandemic: A qualitative study

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Abstract:

Objective: The Coronavirus disease 2019 (COVID-19) pandemic has transformed healthcare delivery in the US, but there has been little empirical work describing the impact of these changes on clinicians. Herein, we describe the perspectives and experiences of US clinicians pertaining to their professional roles and relationships during the COVID-19 pandemic.

Design: Inductive thematic analysis of semi-structured interviews.

Setting: Clinical settings across the US in April and May of 2020.

Participants: Physicians and nurses with leadership and/or clinical roles during the COVID-19 pandemic.

Measures: Emergent themes related to professional roles and relationships.

Results: Sixty-one clinicians participated in semi-structured interviews during the early months of the COVID-19 pandemic. Study participants were practicing in 15 states across the US and the majority were White physicians from large academic centers. Three overlapping and interrelated themes emerged from qualitative analysis: 1) Disruption: boundaries between work and home life became blurred and professional identity and usual clinical roles were upended; 2) Constructive adaptation: some clinicians were able to find new meaning in their work and described a spirit of collaboration, shared goals, open communication, and mutual respect among colleagues; 3) Discord and estrangement: other clinicians felt alienated from their clinical roles and described demoralizing work environments marked by division, value conflicts, and mistrust.

Conclusions: We found marked heterogeneity in how clinicians and clinical teams responded to disruption to their professional roles, identities, and relationships during the pandemic. Some clinicians described a spirit of collaboration and camaraderie, while others felt alienated by their new roles and experienced work environments marked by division, value conflicts, and mistrust. Our findings highlight the importance of effective teamwork and efforts to support clinician wellbeing during the COVID-19 pandemic.

Strengths and limitations of this study.

- This study represents the perspectives of US clinicians working during the COVID-19 pandemic and suggests opportunities to better support clinicians and clinical teams in this setting.
- The main limitation of this study is that our results may not capture the perspectives of clinicians practicing in other parts of the world or regions of the US not included in our study or clinicians from demographic groups and clinical backgrounds not well represented in our study.
- The dynamic nature of the pandemic means that challenges faced by clinicians early in the pandemic might differ from those they are currently facing.

Key Words: coronavirus disease 2019, COVID-19, clinician experience, leadership, team-based care, teamwork, qualitative research

Introduction

The Coronavirus disease 2019 (COVID-19) pandemic has challenged healthcare systems around the world in unprecedented ways, requiring large-scale rapid changes to healthcare delivery and exposing vulnerabilities, deficiencies, and rigidities in existing healthcare systems, policies, and practices.[1-3] Some US healthcare institutions have reported being able to successfully adapt their health systems, processes, and clinical teams to meet the myriad challenges of the pandemic.[4-9] Nonetheless, personal narratives in the popular press and medical literature[10-12] and the results of surveys and qualitative studies[13-16] speak to a high degree of strain and burnout among healthcare workers.

Existing guidelines for institutional emergency responses offer a framework for how to adapt healthcare delivery during a pandemic.[17, 18] However, there has been little empirical work to understand the real-world impact of the pandemic on clinicians' approaches to their work and how best to support them moving forward.[14-16, 19] As the COVID-19 pandemic continues and many US healthcare institutions are stretched to capacity,[20] a detailed understanding of how the pandemic has shaped clinicians' professional experience may be helpful in identifying unmet needs of healthcare workers and institutions. We performed a qualitative study to describe clinicians' clinical and leadership roles and professional relationships during the pandemic.

Methods

Participants

We conducted a qualitative study among US clinicians who had cared for patients and/or occupied healthcare leadership roles during the COVID-19 pandemic with the goal of eliciting their perspectives and experiences pertaining to clinical care, leadership, and resource limitation. We have previously reported themes pertaining to resource limitation during the

pandemic that emerged from thematic analysis[19] and herein describe themes pertaining to clinicians' roles and relationships that emerged from thematic analysis of the same interviews.

We used purposive snowball sampling to select a group of clinicians with diverse work experiences practicing across the US. We began by recruiting clinicians practicing in Seattle, WA, then expanded to include clinicians practicing in other places around the country. We intentionally recruited clinicians with a range of clinical roles (e.g., physicians, trainees, nurses, care coordinators), formal or informal leadership responsibilities including participation in institutional planning for response to the pandemic, and clinical backgrounds (e.g., intensive care, nephrology, palliative care). Participants were invited to refer colleagues with relevant experience who were also working during the pandemic. Interviews were conducted between April 9, 2020 and May 26, 2020.

Data Collection

Clinicians completed one 30- to 60-minute audio-recorded interview with CRB (a senior nephrology fellow trained in qualitative methodology). All but one interview (that included two participants at their request) were conducted one-on-one. Two interviews were completed in two sittings to accommodate the participants' schedules. A semi-structured interview guide (Supplementary Table 1) was developed by CRB, AMO, and SPYW (the latter two being academic nephrologists with experience in qualitative methodology) and included open-ended questions to elicit clinicians' perspectives and experiences pertaining to clinical care, professional interactions, institutional policies, and resource limitation during the pandemic. The interview guide was iteratively refined by CRB with input from AMO and SPYW to allow for elaboration of emerging themes. Because of uncertainty about the course of the pandemic, we initially prioritized recruitment over analysis and ultimately interviewed more participants than needed to achieve thematic saturation. Interviews were recorded and transcribed verbatim. To protect confidentiality, participants were offered the opportunity to review their written transcripts

for accuracy and to identify passages that they did not wish to have published. Participants were also asked to complete an online survey with questions about their demographic characteristics and clinical practice. Information on the size of the primary hospital with which participants were affiliated or for which they volunteered during the pandemic was ascertained from institutional websites.

Qualitative analysis

Two investigators (CRB and AMO) independently reviewed and openly coded interview transcripts line-by-line until reaching thematic saturation (i.e., the point at which no new concepts were identified).[21-23] This occurred after reviewing 30 transcripts intentionally sampled to support saturation including a range of interview dates, participant locations, and participant backgrounds. One of these coauthors (CRB) coded all of the remaining transcripts to ensure congruence with emerging themes and to identify additional exemplar quotations. Throughout the analysis, the two investigators reviewed codes across transcripts, collapsing codes into groups with related meanings and relationships, developing broader thematic categories, and frequently returning to the transcripts to ensure that emergent themes were well-grounded in the data.[22-24] All co-authors (including EKV, a palliative care physician and bioethicist, and CSN, a pediatrician with expertise in healthcare teams and leadership) reviewed draft tables containing exemplar quotations and themes and together developed the final thematic schema. We used Atlas.ti version 8 (Scientific Software Development GmbH) to organize and store text and codes.

The University of Washington Institutional Review Board approved this study and authorized verbal in lieu of written consent. We report details of our methods using the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guideline (Supplementary Table 2).[25]

Results

We approached a total of 97 clinicians by email, of whom 75 (77%) responded and were willing to participate. Of these, we purposively sampled 61 clinicians representing a range of perspectives and experiences to participate in semi-structured interviews. Interviews were conducted from April 9, 2020 to May 26, 2020 and all except one participant completed the online survey. Participants' mean age was 46 (±11) years and most were White (39 [65%]), were attending physicians (45 [75%]) and were primarily practicing at large academic centers (Table 1). Participants were located in 15 different US states, with the majority practicing in areas most heavily impacted by COVID-19 at the time of the study (e.g., Seattle, New York City).

Three overlapping and interrelated themes pertaining to professional roles and relationships emerged from thematic analysis of clinician interviews: 1) disruption; 2) constructive adaptation; and 3) discord and estrangement**.** Exemplar quotations for each of these themes are referenced in parentheses in the text and listed in Tables 2-4.

Theme 1. Disruption (Table 2)

Clinicians experienced marked disruption in their personal and professional lives and their usual clinical roles and practices were upended.

Blurred boundaries between work and home life

Clinical concerns—including providing medical care and minimizing risk of infection—spilled over into clinicians' personal lives (1) and conversations with friends and family (2) such that home and social life no longer offered a needed respite from work (3). Some clinicians voiced skepticism, cynicism, or frustration with perceived inconsistencies between approaches to infection control across settings (4, 5). They also worried about the risk of exposing their families to the virus (6) and/or subjecting them to stigmatization in their community (7). For

some, the profound impact of the pandemic on personal and family life (eg, child care obligations and concerns for family safety) could distract from or overshadow challenges at work (8).

Challenges to professional environment, roles, and identity

Work environments (9, 10) and usual clinical practices (11, 12) were transformed during the pandemic. Several of the physicians with whom we spoke likened the high level of uncertainty and steep learning curve of practicing during the pandemic to internship training (13).

Caring for young and otherwise healthy patients with severe complications of COVID-19 and seeing their colleagues become sick could make clinicians feel personally vulnerable. This sense of vulnerability prompted them to consider for the first time the risks involved in their work (14), and whether and how their own health issues should shape their professional role and identity (15, 16).

The boundaries between the roles of patient and clinician also became blurred, as for example, when clinicians experienced first-hand what it was like to be seriously ill (17). The content of clinical encounters also tended to expand beyond strictly medical matters to include considerations of patients' general wellbeing (18) and visitation restrictions could mean that clinicians sometimes substituted for family members at the bedside of seriously ill patients (19).

Demands on leaders

Leadership roles could be especially challenging during the pandemic. One clinician leader compared her experience to running "an ultra [marathon] without a finish line" (20). In addition to the increased volume of work (21), some clinician-leaders felt a substantial weight of responsibility for staff wellbeing while also being constrained in their ability to prioritize staff interests in the face of other organizational needs and priorities (22, 23).

Some of those in leadership roles felt compelled to present a united front and consistent message to staff even if they did not always agree with institutional policies (24). Many were also mindful of how their decisions and actions might be perceived by others (25, 26) which could necessitate choosing their words carefully (27) and consciously trying to project more confidence and competence than they might be feeling (28, 29).

Theme 2. Constructive adaptation (Table 3)

Some clinicians were able to find new meaning in their work during the pandemic and described a spirit of collaboration, shared goals, open communication, and mutual respect among colleagues.

Meaning-making

Many clinicians valued the opportunity to participate in direct patient care during the pandemic and to make a tangible difference in patients' lives (30, 31). For some, work during the pandemic served as a reminder of why they had originally chosen a career in healthcare (32). Some clinicians, especially intensivists, appreciated the chance to put their specialized training to good use (33) while others embraced and found meaning in filling gaps in care even if this meant taking on tasks outside their specialized skill set (34).

Collaboration

Many clinicians described a spirit of collaboration among colleagues that they would not have thought possible before the pandemic (35, 36). Some made conscious efforts to be more responsive (37, 38), accepting (39), and accommodating (40) of colleagues' requests for help or clinical decisions. A similar dynamic could occur at the organizational level, with competing institutions setting aside differences and working together toward a common goal (41).

Many clinicians voiced appreciation for more collaborative leadership styles and expressed admiration for leaders who led by doing (42) and were responsive to the concerns of practicing clinicians (43). This sentiment was mirrored by comments from some leaders emphasizing the importance of involving frontline clinicians in institutional planning and policy-making (44, 45).

Building mutual respect and empathy

Clinicians described a shared sense of uncertainty and vulnerability, which could help build camaraderie and mutual respect among colleagues with diverse backgrounds and skill sets (46). Expressions of concern for personal wellbeing (47) and face-to-face interactions (48) could help to strengthen collegial relationships. Clinician-patient relationships could also be enriched by shared challenges and experiences (49, 50) and expressions of concern for one another's wellbeing (51).

Theme 3. Discord and estrangement (Table 4)

Some clinicians felt alienated from their clinical roles and described demoralizing work environments marked by division, value conflicts, and mistrust.

Alienation from clinical role

Some clinicians described feeling alienated from new clinical practices and roles that did not align with their professional values (52, 53) and expressed uncertainty about the value and purpose of their work during the pandemic (54). Many experienced feelings of defeat and powerlessness when unable to curb the enormous loss of life among seriously ill patients with COVID-19 (55). Others less directly involved in caring for patients with COVID-19, described feeling ineffectual and guilty about not doing more to help (56, 57).

Interprofessional power differentials

For some clinicians, more centralized institutional decision-making processes during the pandemic could feel unfamiliar or restrictive (58, 59). Several clinicians offered concrete examples of how inflexible, top-down policies had adversely impacted patient care (60).

The pandemic could create, expose, and/or widen power differentials between staff with differing clinical roles. Intensivists sometimes assumed greater decision-making authority, which might leave other specialists feeling sidelined (61, 62). Nurses generally had less power than physicians to control their work environment and to limit exposure to the virus (63, 64) and were often expected to fill a wide range of gaps in care (65).

Exposing value conflicts

The pandemic also exposed differences in clinicians' core values and beliefs about their professional obligations (66). Differences in how individual clinicians prioritized and operationalized competing concerns could be a source of conflict, especially when institutional guidelines were unclear or evolving. Heterogeneity in the relative value placed on obligations such as preserving limited healthcare resources, protecting oneself, limiting viral spread, and examining patients with COVID-19 in person could provoke moral judgements (67-69). Some clinicians felt unsupported and even ostracized by colleagues who seemed to be prioritizing their own safety over the needs of patients and colleagues (70-72). Physicians could be critical of colleagues who they felt were insufficiently protective or unsupportive of nurses (73, 74).

Mistrust of leadership

Clinicians did not always trust that institutional leadership had their best interests in mind (75). Legacy concerns about the trustworthiness of those in leadership roles could be magnified during the pandemic (76), particularly when communication was poor (77) or when there was a lack of transparency or apparent inconsistencies in new policies (78, 79). Several clinicians

described being more trusting of leaders with active clinical roles as opposed to “administrators” without clinical backgrounds, who were seen to be out of touch with clinicians’ needs (80) and more likely to place institutional interests above those of patients and staff (81).

Discussion

During the first few months of the COVID-19 pandemic, US clinicians experienced significant disruptions to their professional identities, roles, and relationships. How individual clinicians and clinical teams adapted to these challenges varied markedly. Some found new meaning in their work and described a spirit of collaboration, mutual respect, and shared goals among colleagues. Others felt alienated from their roles during the pandemic and described a demoralizing work environment marked by widening power differentials, value conflicts, and mistrust.

The pandemic not only disrupted clinicians’ usual work environments and practices, but raised existential questions about their professional identities and required them to re-evaluate core values.[26] Many clinicians grappled with competing priorities in their home and work life and encountered value conflicts with colleagues. Those in leadership positions often had to juggle conflicting obligations to protect their staff and to uphold institutional policies and mandates while also being mindful of optics and how their actions would be interpreted by others. In the midst of this turmoil, some clinicians were able to find meaning in their work, while others felt alienated from their new roles. This kind of challenging mental work likely contributes to the emotional fatigue and psychological trauma that has been observed among clinicians during the pandemic.[13, 27, 28]

A team-based approach can be especially valuable when responding to complex and unpredictable disruption in clinical practice and care delivery.[7, 9, 29] Key tenets of effective team-based care include collaboration, open communication, shared goals and vision, and mutual respect and trust.[30, 31] Our findings suggest that some but not all clinical teams and

organizations were able to capitalize on these strategies to support effective teamwork during the pandemic. Many clinicians experienced a strong team mentality grounded in mutual respect, concern, and empathy,[32 33] in which they were able to collaborate effectively with colleagues to accomplish common goals. However, others described work environments marked by division, value conflicts, and mistrust that likely presented barriers to a team-based approach.[34] While some clinicians described inclusive and collaborative styles of leadership, others encountered more rigid and hierarchical approaches in which leaders appeared less responsive to the concerns of front line clinicians and offered few opportunities for them to help shape institutional policies. This kind of top-down approach could undermine trust and contribute to a sense of powerlessness and demoralization among clinicians.[35]

These early experiences of US clinicians during the COVID-19 pandemic highlight the different ways in which clinicians and clinical teams adapted to the challenges of the pandemic and may be helpful in guiding institutional responses as the pandemic continues. In addition to improving patient care, an effective team-based approach can help clinicians to find meaning and adapt to new kinds of work.[36] While effective collaboration may sometimes occur spontaneously, our findings illustrate that stress can also create or propagate inter-personal conflict and explicit efforts to promote and cultivate practices that are conducive to effective teamwork may be especially important at times of disruption and crisis.[37] Available literature on teamwork suggests that deliberate efforts to establish a shared vision and common goals, reinforce core values guiding practice, and promote open and honest communication among all team members can help to build the kind of trust and understanding needed to support flexible adaptation to change.[38, 39] Attention to clinicians' personal wellbeing and emotional health through structured institutional programs[27, 40, 41] as well as more informal demonstrations of caring and respect from leaders and colleagues can also be important in building trusting relationships, monitoring for fatigue,[38] and maintaining personal resilience.[38, 42]

Our results may not capture the experiences and perspectives of clinicians practicing in other parts of the world, of clinicians working in regions of the US not included in our study, or in settings, specialties, or demographic groups not well represented in our study. Specifically, although we included clinicians from private practice and rural settings, the majority of participants were White non-Hispanic physicians practicing at academic centers. We also recognize that participants may not have always felt comfortable sharing their perspectives and experiences on sensitive topics. Finally, the dynamic nature of the pandemic means that our analysis of clinicians' experiences early in the pandemic may not reflect unique aspects of present or future challenges.

Clinicians' professional roles, identities, and relationships could be profoundly disrupted and reshaped during the pandemic. Our findings illuminate marked heterogeneity in how clinicians and clinical teams responded to these challenges. Some clinicians were able to find new meaning in their work and experienced a spirit of collaboration, mutual respect, and shared vision among colleagues. However, others felt alienated from their new roles and described work environments marred by division, value conflicts, and mistrust. These findings highlight the importance of intentional efforts to support clinician wellbeing and promote effective teamwork as the pandemic continues.

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Competing interests statement.

The authors declare no competing interests relevant to this work.

Author contributions.

C.R.B. designed the study and analyzed the data, drafted the initial manuscript and made the tables and figures, contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

S.P.Y.W contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

E.K.V contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

C.S.N contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

A.M.O. designed the study and analyzed the data; contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

Patient and public involvement

Patients and public were not involved in the design, analysis, or dissemination plan for this study.

Data availability

No additional data available.

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Table 1: Participant characteristics

Characteristic	Participants (N=60[a])
Age, years (mean [SD])	45.8 (11.1)
Gender	
Woman	38 (63.3)
Man	22 (36.6)
Race	
Asian or South Asian	15 (25.0)
Black or African American	2 (3.3)
White	39 (65.0)
More than one or other race	3 (5.0)
Prefer not to say	1 (1.7)
Ethnicity	
Hispanic or Latino	1 (1.7)
Not Hispanic or Latino	58 (96.7)
Prefer not to say	1 (1.7)
Type of institution	
Academic	46 (76.7)
Private	9 (15.0)
Other	5 (8.3)
Type of work[b]	
Outpatient clinic	38 (63.3)
Inpatient acute care	41 (68.3)
Inpatient intensive care and/or emergency medicine	19 (31.7)
Non-clinical	2 (3.3)
Research	8 (13.3)
Hospital size	
<300 beds	5 (8.3)
300-499 beds	30 (50.0)

≥500 beds	21 (35.0)
Clinic or outpatient work only	4 (6.7)
Clinical role	
Registered nurse	7 (11.7)
Nurse practitioner	3 (5.0)
Attending physician	45 (75.0)
Trainee physician	5 (8.3)
Experience in current role, years (mean [SD])	17.9 (10.5)
US region	
Pacific coast; 3 states, 12 institutions	37 (61.7)
Midwest and Mountain West; 6 states, 6 institutions	6 (10.0)
Northeast; 4 states, 7 institutions	13 (21.)7
South; 3 states, 4 institutions	4 (6.7)
State deaths per 100,000 residents (before end of data collection on 5/26/2020)[c]	
>50/100,000	13 (21.7)
10-50/100,000	35 (58.3)
<10/100,000	12 (20.0)

[a] One participant did not complete the online survey, so demographic information was not included for this participant

[b] Clinicians could choose multiple answers

[c] The number of deaths was calculated as of the end of data collection on May 26, 2020, per the Institute for Health Metrics and Evaluation (Institute for Health Metrics and Evaluation. COVID-19 Projections. Accessed July 30, 2020. https://covid19.healthdata.org/global?view=total-deaths&tab=trend)

This table is adapted from an earlier publication (Butler CR et al.. US Clinicians' Experiences and Perspectives on Resource Limitation and Patient Care During the COVID-19 Pandemic. *JAMA Netw Open*. 2020;3(11):e2027315.)

Tables 2. Theme 1: Disruption

Quotation number	Participant ID, US Region	Exemplar quotation
Blurred boundaries between work and home life		

1	B, Pacific	I spent all day...in my COVID rooms wiping down counters, making sure everything is clean, coming in and out of PPE, and now I'm doing the same thing at home. So, I feel like I don't get that rest and that down time at home like I normally do. I'm surrounded by it...Dad comes out in his N-95 mask and is sitting at the breakfast table.
2	S, Northeast	We know what N-95s are, it's a part of our day-to-day life, but to hear people that are non-medical all of a sudden mentioning N-95s and BiPAP and CPAP and how you can rig a machine that's not a ventilator to operate like a ventilator, all of this medical stuff that's part of our world, that's not a part of society's thinking.
3	A, Pacific	That escape from the sort of everyday hospital life to your personal life, that line has been blurred...It's now a 24/7 thing...You don't have that release afterwards of normalcy
4	I, Pacific	People have said, if you are ill, you isolate yourself for 7 days...What about me as a family member?...There's no guidance for a healthcare worker with a sick family member in terms of what you should do to reduce risk to others....I felt very confused.
5	C, Northeast	They're telling people to mask at our grocery stores, and that literally happened before they were telling people to mask coming into our hospital...How does that make sense?
6	BB, Pacific	I was just so distracted that my mind was going a thousand places...I'm still sitting at my desk, and I'm not able to finish my work...what am I getting myself into? I do have a child at home and then my mother-in-law was here and she is 70s, so just coming back to home and the fear of bringing something to your family. That was probably the most scary thing.
7	HH, Pacific	It's easy to feel that you're a little bit of a pariah...My daughter has a close friend that wants to spend time with her…[her friend's] parents don't want them together...I had this sense that part of it is because of me and what I do for a living.
8	L, Pacific	The actual clinical effects of the pandemic have not been super profound here. I would say the effects have been more personal with respect to like work/life stuff and dealing with kids at home all the time…The effect of this pandemic on parents of small children is just gigantic…You sort of take that [daycare] away, and it's like oh my God, this is really a disaster.
Challenges to professional environment, roles, and identity		
9	L, Pacific	I get off of a 4-hour clinic session that I did all over Zoom, and I feel like someone hit me over the head. Which is not how I felt before with in person visits...It's not what we signed up for.
10	B, Pacific	In the hot zone [COVID unit], there's this white curtain of plastic around the nursing station...Once you're in, you spend an hour and half to 2 hours of time in full PPE...It's a little bit like a spaceship. You put on your gear, you're in there, and now you're in outer space.
11	AA, Northeast	Maybe I shouldn't tell you this but, we have not been carrying stethoscopes for like, for the past eight weeks! It's been completely different medicine than we were trained to do.
12	A, Pacific	A ventilator is part of my job...This is what we do. That was definitely a challenge...I had to be mindful of the others who might need it in my own hospital. And then having to go to my colleagues in the ER and say..."if they're stable enough to go somewhere else, we have to send them." And that's not normal!
13	BB, Pacific	It kind of reminded me of intern year...Every day every hour, I was learning something new and adapting to a change...There was no time for anything else in life. It was just that. And similarly, during the first week, it was just COVID! That's it. You are reading about COVID. You're learning about it. Your patients have to deal with it. How to protect yourself, the protocols, the protocol changes every hour.

14	K, Northeast	It's one of the few times in my career where I potentially felt unsafe...Hearing stories about people who are young and healthy...When you see colleagues or people similar to yourself getting sick and affected, it hits very close to home. It made me feel vulnerable.
15	J, Northeast	I said to [my colleague], "You're an older person...Stay home." Right? But meanwhile, the hospital wanted her to come in a couple of days a week…Her family was telling her to retire.
16	F, Pacific	I knew it was serious and out in the community. But I didn't apply it to myself...I don't think of myself that way. I would think of myself as: I'm a nurse, I'm a healthcare provider, I should be working. I never would've thought, oh, I'm high risk, I can't work....It also felt like, am I also trying to cheat by not working?...My parents and my friends, they were like, you shouldn't be around all of these people all of the time. And I was like, that's so strange, why do I not think that way?
17	JJ, Pacific	It's not hard to have empathy for people who can't breathe. But I had never experienced it myself. And I remember not being able to shower I couldn't walk up the stairs, I would be turning the fan on to try to get air. It's the first time I've been really truly sick in my life.
18	LL, Pacific	I start all my visits off with patients asking, "Do you have food? Are you able to get your prescriptions? Who's helping you?"...I feel like a lot of my patient interactions are less medical and more social or emotional support.
19	II, Pacific	It was just horrible. You know, I can tell myself she didn't die alone, and I can give her last message to her families, but it should never be that way. They should have been there. They should have been able to be there. Any other time they all would have been there for her.
Demands on leaders		
20	H, Pacific	It started off running a sprint, moving into a marathon, [now] it feels like an ultra without a finish line; with bursts of speed in between that need to be added on, when you don't really have the energy.
21	H, Pacific	It has been unparalleled in the amount of items that have come up from the surface and thrown at us from left, right, have fallen on us from above. Just when we feel that we have something else under control...something else will have happened.
22	DD, Northeast	I explained to her [a nurse under the participant's supervision] that, you know, [this] is the hospital policy. They want you to use a surgical mask, not the N-95 mask...She was one of the persons that got sick...If I had stood more firmly with her against what the hospital was doing...A lot of remorse, guilt, I wish I could do it again.
23	Q, South	The worst thing has really been seeing what the nurses have gone through during this crisis. I've felt a lot of guilt, I guess, about sort of overworking them and putting them in harm's way.
24	KK, Pacific	My gut feeling all along was we should be masking, just because we didn't know. But I wanted to support the [healthcare] organization and to set a good example to other staff...trying to follow policies.
25	W, Pacific	If you come up with a policy it may...be well thought out and make a lot of sense, what you're doing. But how that gets perceived, communicated, all of those things are actually vitally important...The optics of fairness play a major role in some of these considerations.
26	C, Northeast	I've really been thinking about how a document like this in the light of day, how does it read, how it's interpreted. It makes sense to me, in my training, in my values and ethics, but does it make sense to potentially the folks it will be affecting?
27	H, Pacific	I tried pretty hard not to use the word "frontline"...Because frontline really implies war...You don't want staff to feel like they're on a war front, it's not like a battle every day that they're at work, it's their job and they're there to take care of people who really need them.

28	D, Pacific	I'm not used to having to project confidence for the sake of the team when I myself have a certain amount of uncertainty. And it's not dishonest, I think for the sake of them [the staff] and their daily ability to come to work and feel like they're supported and functional, I had to, a little bit, project more confidence than I had.
29	LL, Pacific	I think there's a lot of stress on healthcare workers during this time to be brave and to act like we know the answers, and to feel strong for those around us...That's sometimes a hard façade to keep up under a stressful and uncertain time, and I would feel emotionally exhausted at the end of the day.

Abbreviations: Coronavirus disease, COVID; personal protective equipment, PPE; Bi-level positive airway pressure, BiPAP; continuous positive airway pressure, CPAP

Table 3. Theme 2: Constructive adaptation

Quotation number	Participant ID, US Region	Exemplar quotation
Meaning-making		
30	Z, Northeast	I have been a medical director of an outpatient home unit for several years, 8 years, and I've never in my life done a PD exchange...We'd go every morning with our carts and our bags, and prescriptions ...It felt different because you were in the thick of it, as the doctor, you were doing the therapy yourself...And we did save lives. I have to say for the first time in my career it was very obvious that we saved lives
31	P, Northeast	I like to be needed. I'm an ICU doctor because I want to be needed and I want to feel like I'm making an impact clinically. And this felt like that. Whereas, I haven't had that feeling in a while.
32	E, Pacific	I think there's a group of people that will think about how much they want to risk and then I think there's this other group of people that live for this, that have that sense of duty...Remember when you said you were going to go to med school and everyone said it was a sacrifice, to be a physician? Well, this is one of them.
33	HH, Pacific	As a pulmonary critical care doctor who trained in and worked in an ARDS center, I feel like this is what I trained to do, taking care of these patients. This is my comfort zone. This is what my training is about.
34	EE, Northeast	Some of the phone calls you make, it's like maybe not what you went to medical school to do. You're used to thinking about very complicated things and you're just sitting here sometimes making phone calls, just giving updates and reassurance. But it's just as important as our job.
Collaborating		
35	Z, Northeast	All of those lectures about coming together as an orchestra...I used to kind of poo-poo that and roll my eyes, and now I get it. So, in that way, I think I'm humbled and have a better appreciation of each person's role...I think inadvertently...I was probably discouraging that kind of open collaboration before.
36	U, Northeast	It was really like you see in MASH...It's wartime medicine. And you do what's needed, what's the immediate need is, what has to be done. You don't let egos get in the way. You don't get into big arguments. You do just what has to be done, and what's available to be done...In all my time in medicine I've never experienced anything like this.

37	J, Northeast	I dialyze every...person they ask for dialysis for...I certainly changed my attitude regarding my relationship with the ICU people...I did not want to argue with anybody. I wanted to be viewed as a cooperative and collaborative person...They're so adamant and dedicated, and interested, and motivated to do the right thing. Under those kinds of circumstances, it's kind of hard and I didn't want to spend time arguing, it's just kind of like, "ok, let's just do this, because we've got to get onto the next patient."
38	Z, Northeast	We also had a lot of help from our surgeon, who put in the Tenckhoff, [peritoneal dialysis catheter] we would just text him and literally, the Tenckhoff catheter would go in 2 hours later...We really came together, it was impressive. Never had I experienced that, being here for 20 years.
39	CC, Pacific	We're [nephrologists] kind of bit players. You know, this whole situation is largely under the control of the intensivists...Their priorities are really different...I didn't always agree but I had to respect it, the decision.
40	FF, Midwest/Mountain West	The dialysis unit nursing advocate called me up and said I just don't have enough staff to get through everybody...My first initial reaction was anger. You know, like figure this out please, why are you bothering me?...Why do I to make these decisions? But then after I gave my mind a minute to think about what's going on around us, then I calmed down. I realized that it was much more important that we collaborate.
41	H, Pacific	We're all in it together. All of us, whether we're working for a 29-state large dialysis organization, for profit, versus a non-profit. A lot of us have to address the same day to day issues as chief medical officers.
42	AA, Northeast	One of the [dialysis shifts] was me, our division chief, and two fellows...My division chief did a great job sort of leading by doing. And not just sort of talking about it, but actually participating in it.
43	S, Northeast	These are the people running the program and we're the ones doing the work, and that's the relationship, like a hierarchy. But I'd say it did feel, during the peak of the pandemic, a lot more collaborative, and less hierarchal, because they needed us. We're the ones on the ground...Our perspective became a lot more important when we're dealing with something that's changing and evolving so rapidly, that they need our input.
44	DD, Northeast	When decisions are made in anything, we have to do it together...I'm not at the bedside as much. These nurses are the ones at the bedside, and they really really know what's the best practice, and what's safe. I don't care how many books you read, experience will trump most things.
45	II, Pacific	The right people weren't always at the table at the right time. But I think that's what early on we figured out as colleagues, we're like okay, who gets it? Who understands what's happening? Who lives and breathes the hospital?...They're not always the people in direct leadership.
Building mutual respect and empathy		
46	B, Pacific	[Our hospitalists] were able to see what we were doing in the ICU firsthand and go around on rounds, which really helped. I think they have more respect for what we do. And you get to see them in a different role temporarily while they are not as comfortable. It does kind of even the playing field. Everyone's wearing blue scrubs, and we're all trying to help each other get through this.
47	AA, Northeast	When I got sick...I slept really late and there were like three missed calls from my division chief wondering if I was okay. So, I think there was a lot of people caring for each other...We sort of got together and became much closer than we would've otherwise.

48	MM, Pacific	I think if we have someone who is concerned about an aspect of the response, like the PPE they're wearing...You'd always like to talk to them face-to-face. It's just going to be more profitable. I think it puts people at ease...they know that it's not just some faceless, nameless email box.
49	H, Pacific	Of course [patients] were fearful; some people had anxiety attacks. But they weren't angry at us. They were thankful that we were willing to be tough and swallow whatever it is in terms of our own anxiety and sit with them and talk with them.
50	T, Pacific	A number of my patients who fell ill happened to come into the hospital while I was an inpatient, I think being able to have that continuity and be there at some of the most harrowing and intimate times of their lives, and at a place and time where they couldn't be with family, they didn't have family.
51	A, Pacific	We always try to be strong for our patients and their families...It felt like it was either more frequent or that I noticed it more, that families, they were really grateful, and they acknowledged that it was hard for us too.

Abbreviations: Peritoneal dialysis, PD; intensive care unit, ICU; acute respiratory distress syndrome, ARDS; mobile army surgical hospital, MASH; personal protective equipment, PPE

Table 4. Theme 3: Discord and estrangement

Quotation number	Participant ID, US Region	Exemplar quotation
Alienation from clinical role		
52	M, Pacific	That's what I do as a doctor. Not being able to go in and listen to a patient or to actually talk face to face to a patient, that was very foreign to me, so I think that made me feel like we can't take care of patients...I felt like I wasn't actually totally seeing a person or totally evaluating a person because I couldn't talk to them face-to-face to actually listen to them.
53	K, Northeast	People come into the hospital to get help, right?...Even though everyone deserves help and we want to help everyone, that we're just physically not able to. And that's really like a wartime thought process, and I am not in the army, that is not how I approach medicine.
54	GG, Pacific	I usually have a target at the beginning of the day; things I want to accomplish and accomplish in a certain way. And if I come home and I hit the target, I feel good about myself...Now, even if I come home and I hit the target, I'm not actually sure if that was the target I should've been shooting for, as we try to balance differing, competing obligations.
55	X, Northeast	At the height of the pandemic, there were a lot of people that weren't that old. We usually say like these are "salvageable" patients and we're going to try everything to keep them alive. But this was just a lot of times unsuccessful, like we're fighting hard and they would just die...It was difficult emotionally to deal with that amount of suffering and dying. And sort of the inability to prevent these people from dying...I would come home at night and feel really defeated. That was unique in the...20+ years of ICU care, it never felt like that.
56	G, Pacific	I know it sounds really morbidly weird, but I was a little disappointed because I was looking forward to being busy, being productive and holding peoples' hands and contributing to just doctoring...Here I was less busy than I'd ever been because patients weren't showing up to clinic...[I was] feeling guilty that other people were working so hard while my schedule is easier than ever...Here's my chance to make a difference and to help people during this period and I saw like 3 COVID patients.

57	R, Pacific	To minimize COVID exposure, or to minimize PPE...The attendings have been going to see the patients on their own...I feel almost guilty about that. There's always the sense that the trainees should be doing most of the work and knowing the patients that well.
Interprofessional power differentials		
58	MM, Pacific	We have a structure, we have an ordering and responsibility hierarchy. Well holy cow, in academic medicine, it's got to be the least hierarchical...I think that cultural shift into, "We appreciate you, you're brilliant, but you're going to do it this way," that is not our way. We are not a military institution.
59	P, Northeast	As an ICU doctor who's used to having the whole patient to themselves...I'm used to being able to have the final say. I'll take input from everybody, but I'm deciding. And the triage team was taking over that roll.
60	II, Pacific	[I said] "this is what this patient needs. Let's talk about how were going to get it." And there was no discussion, it was just like, "nope, not gonna happen"...Here we are, we're defining a new disease process, we're having an emerging evolving pandemic...I really feel like I'm pretty rational about this, and you haven't told me anything, it's sort of like arguing with a toddler.
61	V, Northeast	Nephrology should absolutely have a say in CRRT versus not. And what was told to us was that, well it's really going to be the ICU teams that are driving these decisions. And we were like well, how does that work, it's not their specialty...It feels weird to not be an integral part of that decision...We understand that this is critical care, this is critical care space, but we should be a part of those decisions.
62	II, Pacific	I get it now, that infection prevention is like, we have to sit on these resources and we have to guard them and use them wisely. But again, that's where the messaging wasn't there. The messaging was just "No"...So it did feel more of an us-against-them. Like are we really on the same team? Are we really working toward the same end point of keeping our staff safe and treating the patient?
63	Q, South	Particularly as a consulting physician, a nephrologist, you kind of have the luxury of doing everything remotely. I really think that the nurses have taken the brunt during all of this.
64	C, Northeast	COVID is highlighting the potential tensions that might already exist between nurses and physicians...Power dynamics or what have you. My colleague felt empowered in some ways to say, "This is how I'm going to change my practice." Our dialysis staff probably don't have that power to say, "this is how I'm going to do my nursing practice."
65	B, Pacific	There's no housekeeping allowed in patient rooms in the hot zone. So, nursing...has been doing all the [cleaning] tasks like wiping down the rooms twice a day, cleaning out the bathroom...So, there's a lot more basic tasks put on nursing.
Exposing value conflicts		
66	JJ, Pacific	You think you can kind of say this is how all pulmonary critical care docs behave, is how all physicians behave...Actually, some people, what makes them happy is taking care of patients and going home at the end of the day. Then I have to think about what my expectations are for people.
67	G, Pacific	People had been shamed for wearing masks a few weeks ago, and then I wondered if it was some kind of, "I'm not going to use PPE", like it was just for weak people. I'm not sure. But I was really shocked...They were all sitting around talking, and I walked by with a mask, and it almost seemed like they kind of looked at me funny.

68	BB, Pacific	There was this incident about one of the physicians at the hospital being reported about wearing a mask by the nurses...The hospital administrators felt like he was giving a message that this is more serious than it is and everybody should be masked. So, it was a big thing that the physician had to justify why he was wearing a mask...I felt better wearing a mask...It's better for my mental health...But I did feel guilty about it.
69	G, Pacific	I really didn't feel comfortable starting dialysis on someone without physically examining them. And I felt very strange standing from the outside of the room while one of our dialysis nurses was inside the room. The patient is probably very scared, and if they look up and see me too scared to come in the room to see them, then what kind of doctoring is that?...At the beginning it had to do with conserving PPE, that we weren't going in. But [now] there's plenty of PPE...So I'm kind of surprised that we're not, at least once, physically seeing each patient.
70	N, Northeast	Everybody else was not seeing patients...I would go back to my office and everybody treated me like a disease. Everybody freaked out when they saw me, in my scrubs and with my little baggie of PPE. They all like backed away from me, and I'm like, "Ok, we work together you guys, c'mon."…I was like, "what do you think? It's going to hop off of me and go onto you?" And they said "yes!"
71	J, Northeast	I know these people forever…A couple of people just said, "my doctor said I have asthma, I can't work for the next 6 weeks"...I'm disappointed, I mean, I feel like she let us down.
72	JJ, Pacific	There were members of our group who were really afraid, and really freaking out, and really like, "I have a two-year-old, I can't do this." Which is normal, but also when you have a small group it's not helpful. People are having their own anxiety and you kind of need everyone on board, you signed up for this, you kinda have to get over it.
73	AA, Northeast	If you're not going to go into the room, how are you gonna go ask your nurse to go sit in there for two hours. I just think that's not right.
74	C, Northeast	She sent out an email to let the dialysis staff, the whole team know that she'd be rounding virtually. It was interpreted as, "you're on your own, dialysis nurses. I am supposed to be the leader here in my role as a physician, and I don't have your back."
Mistrust of leadership		
75	Y, Pacific	Where I heard the most, I don't know, complaints or staff unhappiness, was with the unit that was not as aggressive with PPE...Even though...[the institution] was following the [CDC] guidelines. But I think that it just made the staff feel better...I think they felt like maybe they weren't being cared for and as appreciated as they should be.
76	N, Northeast	I just felt like it wasn't transparent, I mean, communication issues have always been a problem, especially in big organizations. I've brought it up before, people were in denial about it. It's a leadership problem. I personally don't trust my leadership...I've been working in this hospital for a long time that I slowly started to understand that peoples' motivations aren't good in healthcare...People were kind of motivated by their own self-interests and by greed.
77	Q, South	We asked multiple times if there was a triage command center or a plan for what would occur if we got to the point where we had to triage resources. They said there was, but they wouldn't provide it to us...What is it? Where is it? I just felt total lack of support from the administration.

78	F, Pacific	Something that you used to make me use for my safety and the patient's safety [masks], and suddenly you're like, you don't need it anymore...You have these policies in places because they're evidence-based, and a bunch of people sat down and thought about it and said this is the safest way to provide care for people. And then suddenly you're like, you don't need to do that because we don't have enough. And it really isn't that we don't need to do it, it's really that you should, but we don't have the supplies, so we can't do it. If they had explained it like that, not that that's any better, but it's at least being honest. I feel like they're downplaying a lot of things.
79	B, Pacific	Universal versus not universal masking. That one has been little harder for most of us to understand...Why were we making it optional a few weeks ago and now it's becoming a universal protocol? I think I understand what the rationale is, especially with a higher incidence of staff infections. But I think it's hard to go from these the changes where we were kind of lenient before, to something that's not so lenient with everybody on board. And I think since there's been such an emphasis on resource allocation and not using up limited PPE. Some people are concerned that this is going to use up a lot of PPE.
80	O, Midwest/Mountain West	She was reprimanded by the VP for Medical Affairs because she was wearing a mask...You're a physician administrator who doesn't have any patient contact, so you're the last person who should be giving advice.
81	JJ, Pacific	I think physicians everywhere were wanting to help and be helpful. A lot of it was coming from hospital administrators being nervous about what this would mean for their hospital and wanting to protect their own beds so in case they have their own surge.

Abbreviations: Intensive care unit, ICU; Coronavirus disease, COVID; personal protective equipment, PPE; continuous renal replacement therapy, CRRT; Center for Disease Control, CDC; vice president, VP.

Supplementary Table 1: Sample semi-structured interview guide

Questions*	**Prompt**
First, can you tell me a little about yourself and your clinical role?	
What has it been like for you taking care of patients during the COVID-19 pandemic?	Can you give me some examples of situations that have been particularly challenging? Any situations that have gone well? In what ways have your practices changed?
How has the pandemic shaped your clinical practices and how you care for patients?	What was most difficult for you? What worked well? Can you give me some specific examples?
Have you encountered any situations in which medical resources were limited or you had difficulty getting patients the treatments they needed during the pandemic? What was that like for you?	Can you give me some examples?
Have you talked to patients or family about how their care might be different during the pandemic? What has that been like?	Can you give me some examples? What was that like for you?
Have you helped to develop new institutional policies during the pandemic? What has this been like?	Can you give me some examples? What has been difficult? What has worked well?
Is there anything else that we have not covered that you would like to bring up?	

*The interview guide was adapted throughout the study in response to emerging concepts and in order to promote thematic saturation.

Supplementary Table 2. Consolidated Criteria for Reporting Qualitative Research Guidelines (COREQ) checklist

Item	Guide questions/description	Location in manuscript
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Methods, Paragraph 2
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Author list
3. Occupation	What was their occupation at the time of the study?	Methods, Paragraph 2
4. Gender	Was the researcher male or female?	Methods, Paragraph 2
5. Experience and training	What experience or training did the researcher have?	Methods, Paragraph 2
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	Methods, paragraph 1
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	The intention of the research (to better understand clinician experience during the pandemic) was included in written information materials.
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Methods, paragraph 2
Domain 2: Study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Methods, paragraph 3.
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Methods, paragraph 1
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Methods, paragraph 1
12. Sample size	How many participants were in the study?	Results, paragraph 1
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Results, paragraph 1
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Methods, paragraph 2
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No.

16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Results, paragraph 1
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Appendix, Table 1
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	Methods, paragraph 2
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Methods, paragraph 1
20. Field notes	Were field notes made during and/or after the interview or focus group?	Yes.
21. Duration	What was the duration of the interviews or focus group?	Methods, paragraph 1
22. Data saturation	Was data saturation discussed?	Methods, paragraph 3
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Methods, paragraph 2
Domain 3: Analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Methods, paragraph 3
25. Description of the coding tree	Did authors provide a description of the coding tree?	Method not used
26. Derivation of themes	Were themes identified in advance or derived from the data?	Methods, paragraph 3
27. Software	What software, if applicable, was used to manage the data?	Methods, paragraph 3
28. Participant checking	Did participants provide feedback on the findings?	Method not used
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Table 2-4
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Results, Tables 2-4
31. Clarity of major themes	Were major themes clearly presented in the findings?	Results, Paragraph 1
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Results, throughout

Based on Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care.* 2007;19(6):349-357

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Professional roles and relationships during the Coronavirus disease 2019 pandemic: A qualitative study among US clinicians

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Abstract:

Objective: The Coronavirus disease 2019 (COVID-19) pandemic has transformed healthcare delivery in the US, but there has been little empirical work describing the impact of these changes on clinicians. We designed a study to address the following question: How has the pandemic impacted US clinicians' professional roles and relationships?

Design: Inductive thematic analysis of semi-structured interviews.

Setting: Clinical settings across the US in April and May of 2020.

Participants: Physicians and nurses with leadership and/or clinical roles during the COVID-19 pandemic.

Measures: Emergent themes related to professional roles and relationships.

Results: Sixty-one clinicians participated in semi-structured interviews. Study participants were practicing in 15 states across the US and the majority were White physicians from large academic centers. Three overlapping and interrelated themes emerged from qualitative analysis of interview transcripts: 1) Disruption: boundaries between work and home life became blurred and professional identity and usual clinical roles were upended; 2) Constructive adaptation: some clinicians were able to find new meaning in their work and described a spirit of collaboration, shared goals, open communication, and mutual respect among colleagues; 3) Discord and estrangement: other clinicians felt alienated from their clinical roles and described demoralizing work environments marked by division, value conflicts, and mistrust.

Conclusions: Clinicians described marked disruption of their professional roles, identities, and relationships during the pandemic to which they responded in a range of different ways. Some described a spirit of collaboration and camaraderie, while others felt alienated by their new roles and experienced work environments marked by division, value conflicts, and mistrust. Our findings highlight the importance of effective teamwork and efforts to support clinician wellbeing during the COVID-19 pandemic.

Strengths and limitations of this study.

- This study represents the perspectives of US clinicians working during the COVID-19 pandemic and suggests opportunities to better support clinicians and clinical teams as the pandemic continues.
- The main limitation of this study is that our results may not capture the perspectives of clinicians practicing in other parts of the world or regions of the US not included in our study or clinicians from demographic groups and clinical backgrounds not well represented in our study.
- The dynamic nature of the pandemic means that challenges faced by clinicians early in the pandemic might differ from those they are currently facing.

Key Words: coronavirus disease 2019, COVID-19, clinician experience, leadership, team-based care, teamwork, qualitative research

Introduction

The Coronavirus disease 2019 (COVID-19) pandemic has challenged healthcare systems around the world in unprecedented ways, requiring large-scale rapid alterations to healthcare delivery and exposing vulnerabilities, deficiencies, and rigidities in existing healthcare systems, policies, and practices.[1-3] Some US healthcare institutions have reported being able to successfully adapt their health delivery systems, care processes, and clinical teams to meet the myriad challenges of the pandemic.[4-9] Nonetheless, personal narratives in the popular press and medical literature[10-12] and the results of surveys and qualitative studies[13-16] suggest a high degree of strain and burnout among healthcare workers.

Existing guidelines for institutional emergency responses offer a theoretical framework for how to adapt healthcare delivery during a pandemic.[17, 18] However, there has been little empirical work to understand the real-world impact of the pandemic on clinicians and care processes.[14-16, 19] As the COVID-19 pandemic continues and many US healthcare institutions are stretched to capacity,[20] a detailed understanding of how the pandemic has shaped clinicians' professional experience may be helpful in identifying unmet needs of healthcare workers and institutions and opportunities to support clinicians going forward. We performed a qualitative study to learn about clinicians' professional roles and relationships during the pandemic.

Methods

Participants

We conducted a qualitative study among US clinicians who had cared for patients and/or occupied healthcare leadership roles during the COVID-19 pandemic with the goal of eliciting their perspectives and experiences pertaining to clinical care, leadership, and resource

limitation. Herein, we describe emergent themes pertaining to clinicians' roles and relationships. Themes related to resource limitation are described elsewhere.[19]

We used purposive snowball sampling to select a group of clinicians with diverse work experiences. We began by recruiting clinicians practicing in Seattle, WA, then expanded recruitment to include clinicians practicing at other locations around the US. We intentionally recruited clinicians with a range of different clinical roles (e.g., physicians, trainees, nurses, care coordinators), formal or informal leadership responsibilities including participation in institutional pandemic response planning, and clinical backgrounds (e.g., intensive care, nephrology, palliative care). Participants were invited to refer colleagues with relevant experience working during the pandemic. Interviews were conducted between April 9, 2020 and May 26, 2020.

Data Collection

Clinicians completed one 30- to 60-minute audio-recorded interview with CRB (a senior nephrology fellow trained in qualitative methodology). All but one interview (for which two participants asked to be interviewed together) were conducted one-on-one. Two interviews were completed over two sittings to accommodate the participants' schedules. A semi-structured interview guide (Supplementary Table 1) was developed by CRB, AMO, and SPYW (the latter two being academic nephrologists with experience in qualitative methodology) and included open-ended questions to elicit clinicians' perspectives and experiences pertaining to clinical care, professional interactions, institutional policies, and resource limitation during the pandemic. The interview guide was iteratively refined by CRB with input from AMO and SPYW to allow for elaboration of emerging themes. Because of uncertainty about the course of the pandemic, we initially prioritized recruitment over analysis and ultimately interviewed more participants than needed to achieve thematic saturation. Interviews were recorded and transcribed verbatim. To protect confidentiality, participants were offered the opportunity to review their written transcripts for accuracy and to identify passages that they did not wish to

have published. Participants were also asked to complete an online survey with questions about their demographic characteristics and clinical practice. At the beginning of the interview, clinicians were asked to list their clinical, administrative, and/or leadership roles. Those with positions that included the terms director, chief, head, leader, and/or manager were considered to have a formal leadership role. Information on the size of the primary hospital with which participants were affiliated or for which they volunteered during the pandemic was obtained from institutional websites.

Qualitative analysis

Two investigators (CRB and AMO) independently reviewed and openly coded interview transcripts line-by-line until reaching thematic saturation (i.e., the point at which no new concepts were identified).[21-23] This occurred after reviewing 30 transcripts intentionally sampled to support saturation including a range of interview dates, participant locations, and participant backgrounds. One of these coauthors (CRB) coded all of the remaining transcripts to ensure congruence with emerging themes and to identify additional exemplar quotations. Throughout the analysis, the two investigators reviewed codes across transcripts, collapsing codes into groups with related meanings and relationships, developing broader thematic categories, and returning as needed to the transcripts to ensure that emergent themes were well-grounded in the data.[22-24] All co-authors (including EKV, a palliative care physician and bioethicist, and CSN, a pediatrician with expertise in healthcare teams and leadership) reviewed draft tables containing exemplar quotations and themes and all authors worked together to refine the final thematic schema. We used Atlas.ti version 8 (Scientific Software Development GmbH) to organize and store text and codes.

The University of Washington Institutional Review Board approved this study and authorized verbal in lieu of written consent. We report details of our methods using the

Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guideline (Supplementary Table 2).[25]

Results

We approached a total of 97 clinicians by email, of whom 75 (77%) agreed to participate. Of these, we purposively sampled 61 clinicians representing a range of perspectives and experiences to participate in semi-structured interviews. Interviews were conducted from April 9, 2020 to May 26, 2020 and all except one participant completed the online survey. Participants' mean age was 46 (±11) years and most were White (39 [65%]), were attending physicians (45 [75%]) and were primarily practicing at large academic centers (Table 1). Participants were located in 15 different US states, with the majority practicing in areas most heavily impacted by COVID-19 at the time of the study (e.g., Seattle, New York City).

Three overlapping and interrelated themes pertaining to professional roles and relationships emerged from thematic analysis of clinician interviews: 1) disruption; 2) constructive adaptation; and 3) discord and estrangement. Exemplar quotations (from 39 different participants) are referenced in parentheses in the text and listed in Tables 2-4.

Theme 1. Disruption (Table 2)

Clinicians experienced marked disruption in their personal and professional lives and their usual clinical roles and practices were upended.

Blurred boundaries between work and home life

Clinical concerns—including providing medical care and minimizing risk of infection—spilled over into clinicians' personal lives (1) and conversations with friends and family (2) such that home and social life no longer offered respite from work (3). Some clinicians voiced skepticism, cynicism, or frustration with perceived inconsistencies between approaches to

infection control across settings (4, 5). They also worried about the risk of exposing their families to the virus (6) and/or subjecting them to stigmatization in their community (7). For some, the profound impact of the pandemic on personal and family life (e.g., child care obligations and concerns for family safety) could distract from or overshadow challenges at work (8).

Challenges to professional environment, roles, and identity

Work environments (9, 10) and usual clinical practices (11, 12) were transformed during the pandemic. Several of the physicians with whom we spoke likened the high level of uncertainty and steep learning curve of practicing during the pandemic to internship training (13).

Caring for young and otherwise healthy patients with severe complications of COVID-19 and seeing their colleagues become sick could make clinicians feel personally vulnerable. This sense of vulnerability prompted them to consider for the first time the risks involved in their work (14), and whether and how their own health issues should shape their professional role and identity (15, 16).

The boundaries between the roles of patient and clinician also became blurred, as for example, when clinicians experienced first-hand what it was like to be seriously ill (17). The content of clinical encounters also tended to expand beyond strictly medical matters to include considerations of patients' general wellbeing (18) and visitation restrictions could mean that clinicians sometimes substituted for family members at the bedside of seriously ill patients (19).

Demands on leaders

Leadership roles could be especially challenging during the pandemic. One clinician leader compared her experience to running "an ultra [marathon] without a finish line" (20). In addition to the increased volume of work (21), some clinician-leaders felt a substantial weight of

responsibility for staff wellbeing while also being constrained in their ability to prioritize staff interests in the face of other organizational needs and priorities (22, 23).

Some of those in leadership roles felt compelled to present a united front and consistent message to staff even if they did not always agree with institutional policies (24). Many were also mindful of how their decisions and actions might be perceived by others (25, 26) and described needing to choose their words carefully (27) and project more confidence and competence than they might be feeling (28, 29).

Theme 2. Constructive adaptation (Table 3)

Some clinicians were able to find new meaning in their work during the pandemic and described a spirit of collaboration, shared goals, open communication, and mutual respect among colleagues.

Meaning-making

Many clinicians valued the opportunity to participate in direct patient care during the pandemic and being able to make a tangible difference in patients' lives (30, 31). For some, work during the pandemic served as a reminder of why they had originally chosen a career in healthcare (32). Some clinicians, especially intensivists, appreciated the chance to put their specialized training to good use (33) while others embraced and found meaning in filling gaps in care even if this meant taking on tasks outside their specialized skill set (34).

Collaboration

Many clinicians described a spirit of collaboration among colleagues that they would not have thought possible before the pandemic (35, 36). Some made conscious efforts to be more responsive (37, 38) to colleagues' requests for help and more accepting (39) and accommodating (40) of their clinical decisions. A similar dynamic could occur at the

organizational level, with competing institutions setting aside differences and working together toward a common goal (41).

Many clinicians voiced appreciation for more collaborative leadership styles and expressed admiration for leaders who led by doing (42) and were responsive to the concerns of practicing clinicians (43). This sentiment was mirrored by comments from some leaders emphasizing the importance of involving frontline clinicians in institutional planning and policy-making (44, 45).

Building mutual respect and empathy

Clinicians described a shared sense of uncertainty and vulnerability, which could help build camaraderie and mutual respect among colleagues with diverse backgrounds and skill sets (46). Expressions of concern for personal wellbeing (47) and face-to-face interactions (48) could help to strengthen collegial relationships. Clinician-patient relationships could also be enriched by shared challenges (49, 50) and expressions of concern for one another's wellbeing (51).

Theme 3. Discord and estrangement (Table 4)

Some clinicians felt alienated from their clinical roles and described demoralizing work environments marked by division, value conflicts, and mistrust.

Alienation from clinical role

Some clinicians described feeling alienated from new clinical practices and roles that did not align with their professional values (52, 53) and questioned the value and purpose of their work during the pandemic (54). Many experienced feelings of defeat and powerlessness when faced with the enormous loss of life among seriously-ill patients with COVID-19 (55). Others

less directly involved in caring for infected patients, described feeling ineffectual and guilty about not doing more to help (56, 57).

Interprofessional power differentials

For some clinicians, more centralized institutional decision-making processes during the pandemic could feel unfamiliar or restrictive (58, 59). Several clinicians offered concrete examples of how inflexible, top-down policies had adversely impacted patient care (60).

The pandemic could create, expose, and/or widen power differentials between staff with differing clinical roles. Intensivists sometimes assumed greater decision-making authority, which might leave other specialists feeling sidelined (61, 62). Nurses generally had less power than physicians to control their work environment and to limit exposure to the virus (63, 64) and were often expected to fill a wide range of different gaps in care (65).

Exposing value conflicts

The pandemic also exposed divergent values and beliefs about professional obligations among clinicians (66). Differences in how individual clinicians prioritized and operationalized competing concerns could be a source of conflict, especially when institutional guidelines were unclear or evolving. Heterogeneity in the relative value placed on obligations such as preserving limited healthcare resources, protecting oneself, limiting viral spread, and directly examining infected patients could provoke moral judgements (67-69). Some clinicians felt unsupported and even ostracized by colleagues who they perceived to be prioritizing their own safety over the needs of patients and other clinicians (70-72). Physicians could also be critical of colleagues who they felt were insufficiently protective or unsupportive of nurses (73, 74).

Mistrust of leadership

Clinicians did not always trust that institutional leadership had their best interests at heart (75). Legacy concerns about the trustworthiness of those in leadership roles could be magnified during the pandemic (76), particularly when communication was poor (77) or when there was a lack of transparency or apparent inconsistencies in new policies (78, 79). Several clinicians described being more trusting of leaders with active clinical roles as opposed to "administrators" without clinical backgrounds, who were seen to be out of touch with clinicians' needs (80) and more likely to place institutional interests above those of patients and staff (81).

Discussion

During the first few months of the COVID-19 pandemic, US clinicians experienced significant disruptions to their professional identities, roles, and relationships. How individual clinicians and clinical teams responded to these challenges varied markedly. Some found new meaning in their work and described a spirit of collaboration, mutual respect, and shared goals among colleagues. Others felt alienated from their roles and described a demoralizing work environment marked by widening power differentials, value conflicts, and mistrust.

The pandemic not only disrupted clinicians' usual work environments and practices, but raised existential questions about professional identity and required them to re-evaluate core values.[26] Many grappled with competing priorities in their home and work lives and encountered value conflicts with colleagues. Those in leadership positions often had to juggle conflicting obligations to protect their staff and to uphold institutional policies and mandates while also being mindful of optics and how their actions would be interpreted by others. In the midst of this turmoil, some clinicians were able to find meaning in their work, while others felt alienated from their new roles. This kind of challenging mental work likely contributes to the emotional fatigue and psychological trauma that has been observed among clinicians during the pandemic.[13, 27, 28]

A team-based approach can be especially valuable when responding to complex and unpredictable disruption in clinical practice and care delivery.[7, 9, 29] Key tenets of effective team-

based care include collaboration, open communication, shared goals and vision, and mutual respect and trust.[30, 31] Our findings suggest that some but not all clinical teams and organizations were able to capitalize on these strategies to support effective teamwork during the pandemic. Many of those with whom we spoke experienced a strong team mentality grounded in mutual respect, concern, and empathy,[32 33] in which they were able to collaborate effectively with colleagues to accomplish common goals. However, others described work environments marked by division, value conflicts, and mistrust that likely worked against a team based approach.[34] While some clinicians described inclusive and collaborative styles of leadership, others encountered more rigid and hierarchical approaches in which leaders appeared less responsive to the concerns of front line clinicians and offered few opportunities for them to help shape institutional policies. This kind of top-down approach could undermine trust and contribute to a sense of powerlessness and demoralization among clinicians.[35]

These early experiences of US clinicians during the COVID-19 pandemic highlight the different ways in which clinicians and clinical teams responded to the challenges of the pandemic and may be helpful in guiding institutional responses as the pandemic continues. In addition to improving patient care, an effective team-based approach can help clinicians to find meaning and adapt to new kinds of work.[36] While effective collaboration may sometimes occur spontaneously, explicit efforts to promote and cultivate practices that are conducive to effective teamwork may be especially important at times of disruption and crisis.[37] Available literature on teamwork suggests that deliberate efforts to establish a shared vision and common goals, reinforce core values guiding practice, and promote open and honest communication among all team members can help to build the kind of trust and understanding needed to support flexible adaptation to change.[38, 39] Attention to clinicians' personal wellbeing and emotional health through structured institutional programs[27, 40, 41] along with informal demonstrations of caring and respect from leaders and colleagues can also be important in building trusting relationships, monitoring for fatigue,[38] and maintaining personal resilience.[38, 42]

Our results may not capture the experiences and perspectives of clinicians practicing in other parts of the world, of clinicians working in regions of the US not included in our study, or in settings, specialties, or demographic groups not well represented in our study. Specifically, although we included clinicians from private practice and rural settings, the majority of participants were non-Hispanic White physicians practicing at academic centers. We also recognize that participants may not have always felt comfortable sharing their perspectives and experiences on sensitive topics. Leadership roles were identified when participants reported formal titles, but many clinicians took on informal leadership roles that we do not capture in our report of participant characteristics. Finally, the dynamic nature of the pandemic means that our analysis of clinicians' experiences early in the pandemic may not reflect present or future challenges.

Clinicians' professional roles, identities, and relationships were profoundly disrupted and reshaped during the pandemic. Our findings illuminate marked heterogeneity in how clinicians and clinical teams responded to these challenges. Some clinicians were able to find new meaning in their work and experienced a spirit of collaboration, mutual respect, and shared vision among colleagues. However, others felt alienated from their new roles and described work environments marred by division, value conflicts, and mistrust. These findings highlight the importance of intentional efforts to support clinician wellbeing and promote effective teamwork during the pandemic.

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Competing interests statement.

The authors declare no competing interests relevant to this work.

Author contributions.

C.R.B. designed the study and analyzed the data, drafted the initial manuscript and made the tables and figures, contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

S.P.Y.W contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

E.K.V contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

C.S.N contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

A.M.O. designed the study and analyzed the data; contributed to the interpretation and presentation of data, revised the manuscript, and approved the final version of the manuscript for submission.

Patient and public involvement

Patients and public were not involved in the design, analysis, or dissemination plan for this study.

Data availability

No additional data available.

Ethical approval statement

The University of Washington Institutional Review Board approved this study and authorized verbal in lieu of written consent (Study ID: STUDY00009894).

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Table 1: Participant characteristics

Characteristic	Participants (N=60[a])
Age, years (mean [SD])	45.8 (11.1)
Gender	
Woman	38 (63.3)
Man	22 (36.6)
Race	
Asian or South Asian	15 (25.0)
Black or African American	2 (3.3)
White	39 (65.0)
More than one or other race	3 (5.0)
Prefer not to say	1 (1.7)
Ethnicity	
Hispanic or Latino	1 (1.7)
Not Hispanic or Latino	58 (96.7)
Prefer not to say	1 (1.7)
Type of institution	
Academic	46 (76.7)
Private	9 (15.0)
Other	5 (8.3)
Type of work[b]	
Outpatient clinic	38 (63.3)
Inpatient acute care	41 (68.3)
Inpatient intensive care and/or emergency medicine	19 (31.7)
Non-clinical	2 (3.3)
Research	8 (13.3)
Formal leadership role	27 (45.0)
Hospital size	
<300 beds	5 (8.3)

300-499 beds	30 (50.0)
≥500 beds	21 (35.0)
Clinic or outpatient work only	4 (6.7)
Clinical role	
Registered nurse	7 (11.7)
Nurse practitioner	3 (5.0)
Attending physician	45 (75.0)
Trainee physician	5 (8.3)
Experience in current role, years (mean [SD])	17.9 (10.5)
US region	
Pacific coast; 3 states, 12 institutions	37 (61.7)
Midwest and Mountain West; 6 states, 6 institutions	6 (10.0)
Northeast; 4 states, 7 institutions	13 (21.)7
South; 3 states, 4 institutions	4 (6.7)
State deaths per 100,000 residents (before end of data collection on 5/26/2020)[c]	
>50/100,000	13 (21.7)
10-50/100,000	35 (58.3)
<10/100,000	12 (20.0)

[a] One participant did not complete the online survey, so demographic information was not included for this participant

[b] Clinicians could choose multiple answers

[c] The number of deaths was calculated as of the end of data collection on May 26, 2020, per the Institute for Health Metrics and Evaluation (Institute for Health Metrics and Evaluation. COVID-19 Projections. Accessed July 30, 2020. https://covid19.healthdata.org/global?view=total-deaths&tab=trend)

This table is adapted from an earlier publication (Butler CR et al.. US Clinicians' Experiences and Perspectives on Resource Limitation and Patient Care During the COVID-19 Pandemic. *JAMA Netw Open*. 2020;3(11):e2027315.)

Tables 2. Theme 1: Disruption

Quotation number	Participant ID, US Region	Exemplar quotation
Blurred boundaries between work and home life		
1	B, Pacific	I spent all day...in my COVID rooms wiping down counters, making sure everything is clean, coming in and out of PPE, and now I'm doing the same thing at home. So, I feel like I don't get that rest and that down time at home like I normally do. I'm surrounded by it...Dad comes out in his N-95 mask and is sitting at the breakfast table.
2	S, Northeast	We know what N-95s are, it's a part of our day-to-day life, but to hear people that are non-medical all of a sudden mentioning N-95s and BiPAP and CPAP and how you can rig a machine that's not a ventilator to operate like a ventilator, all of this medical stuff that's part of our world, that's not a part of society's thinking.
3	A, Pacific	That escape from the sort of everyday hospital life to your personal life, that line has been blurred...It's now a 24/7 thing...You don't have that release afterwards of normalcy
4	I, Pacific	People have said, if you are ill, you isolate yourself for 7 days...What about me as a family member?...There's no guidance for a healthcare worker with a sick family member in terms of what you should do to reduce risk to others....I felt very confused.
5	C, Northeast	They're telling people to mask at our grocery stores, and that literally happened before they were telling people to mask coming into our hospital...How does that make sense?
6	BB, Pacific	I was just so distracted that my mind was going a thousand places...I'm still sitting at my desk, and I'm not able to finish my work...what am I getting myself into? I do have a child at home and then my mother-in-law was here and she is 70s, so just coming back to home and the fear of bringing something to your family. That was probably the most scary thing.
7	HH, Pacific	It's easy to feel that you're a little bit of a pariah...My daughter has a close friend that wants to spend time with her…[her friend's] parents don't want them together...I had this sense that part of it is because of me and what I do for a living.
8	L, Pacific	The actual clinical effects of the pandemic have not been super profound here. I would say the effects have been more personal with respect to like work/life stuff and dealing with kids at home all the time…The effect of this pandemic on parents of small children is just gigantic…You sort of take that [daycare] away, and it's like oh my God, this is really a disaster.
Challenges to professional environment, roles, and identity		
9	L, Pacific	I get off of a 4-hour clinic session that I did all over Zoom, and I feel like someone hit me over the head. Which is not how I felt before with in person visits...It's not what we signed up for.
10	B, Pacific	In the hot zone [COVID unit], there's this white curtain of plastic around the nursing station...Once you're in, you spend an hour and half to 2 hours of time in full PPE...It's a little bit like a spaceship. You put on your gear, you're in there, and now you're in outer space.
11	AA, Northeast	Maybe I shouldn't tell you this but, we have not been carrying stethoscopes for like, for the past eight weeks! It's been completely different medicine than we were trained to do.
12	A, Pacific	A ventilator is part of my job...This is what we do. That was definitely a challenge...I had to be mindful of the others who might need it in my own hospital. And then having to go to my colleagues in the ER and say..."if they're stable enough to go somewhere else, we have to send them." And that's not normal!

13	BB, Pacific	It kind of reminded me of intern year...Every day every hour, I was learning something new and adapting to a change...There was no time for anything else in life. It was just that. And similarly, during the first week, it was just COVID! That's it. You are reading about COVID. You're learning about it. Your patients have to deal with it. How to protect yourself, the protocols, the protocol changes every hour.
14	K, Northeast	It's one of the few times in my career where I potentially felt unsafe...Hearing stories about people who are young and healthy...When you see colleagues or people similar to yourself getting sick and affected, it hits very close to home. It made me feel vulnerable.
15	J, Northeast	I said to [my colleague], "You're an older person...Stay home." Right? But meanwhile, the hospital wanted her to come in a couple of days a week…Her family was telling her to retire.
16	F, Pacific	I knew it was serious and out in the community. But I didn't apply it to myself...I don't think of myself that way. I would think of myself as: I'm a nurse, I'm a healthcare provider, I should be working. I never would've thought, oh, I'm high risk, I can't work....It also felt like, am I also trying to cheat by not working?...My parents and my friends, they were like, you shouldn't be around all of these people all of the time. And I was like, that's so strange, why do I not think that way?
17	JJ, Pacific	It's not hard to have empathy for people who can't breathe. But I had never experienced it myself. And I remember not being able to shower I couldn't walk up the stairs, I would be turning the fan on to try to get air. It's the first time I've been really truly sick in my life.
18	LL, Pacific	I start all my visits off with patients asking, "Do you have food? Are you able to get your prescriptions? Who's helping you?"...I feel like a lot of my patient interactions are less medical and more social or emotional support.
19	II, Pacific	It was just horrible. You know, I can tell myself she didn't die alone, and I can give her last message to her families, but it should never be that way. They should have been there. They should have been able to be there. Any other time they all would have been there for her.
Demands on leaders		
20	H, Pacific	It started off running a sprint, moving into a marathon, [now] it feels like an ultra without a finish line; with bursts of speed in between that need to be added on, when you don't really have the energy.
21	H, Pacific	It has been unparalleled in the amount of items that have come up from the surface and thrown at us from left, right, have fallen on us from above. Just when we feel that we have something else under control...something else will have happened.
22	DD, Northeast	I explained to her [a nurse under the participant's supervision] that, you know, [this] is the hospital policy. They want you to use a surgical mask, not the N-95 mask...She was one of the persons that got sick...If I had stood more firmly with her against what the hospital was doing...A lot of remorse, guilt, I wish I could do it again.
23	Q, South	The worst thing has really been seeing what the nurses have gone through during this crisis. I've felt a lot of guilt, I guess, about sort of overworking them and putting them in harm's way.
24	KK, Pacific	My gut feeling all along was we should be masking, just because we didn't know. But I wanted to support the [healthcare] organization and to set a good example to other staff...trying to follow policies.
25	W, Pacific	If you come up with a policy it may...be well thought out and make a lot of sense, what you're doing. But how that gets perceived, communicated, all of those things are actually vitally important...The optics of fairness play a major role in some of these considerations.

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26	C, Northeast	I've really been thinking about how a document like this in the light of day, how does it read, how it's interpreted. It makes sense to me, in my training, in my values and ethics, but does it make sense to potentially the folks it will be affecting?
27	H, Pacific	I tried pretty hard not to use the word "frontline"...Because frontline really implies war...You don't want staff to feel like they're on a war front, it's not like a battle every day that they're at work, it's their job and they're there to take care of people who really need them.
28	D, Pacific	I'm not used to having to project confidence for the sake of the team when I myself have a certain amount of uncertainty. And it's not dishonest, I think for the sake of them [the staff] and their daily ability to come to work and feel like they're supported and functional, I had to, a little bit, project more confidence than I had.
29	LL, Pacific	I think there's a lot of stress on healthcare workers during this time to be brave and to act like we know the answers, and to feel strong for those around us...That's sometimes a hard façade to keep up under a stressful and uncertain time, and I would feel emotionally exhausted at the end of the day.

Abbreviations: Coronavirus disease, COVID; personal protective equipment, PPE; Bi-level positive airway pressure, BiPAP; continuous positive airway pressure, CPAP

Table 3. Theme 2: Constructive adaptation

Quotation number	Participant ID, US Region	Exemplar quotation
Meaning-making		
30	Z, Northeast	I have been a medical director of an outpatient home unit for several years, 8 years, and I've never in my life done a PD exchange...We'd go every morning with our carts and our bags, and prescriptions ...t felt different because you were in the thick of it, as the doctor, you were doing the therapy yourself...And we did save lives. I have to say for the first time in my career it was very obvious that we saved lives
31	P, Northeast	I like to be needed. I'm an ICU doctor because I want to be needed and I want to feel like I'm making an impact clinically. And this felt like that. Whereas, I haven't had that feeling in a while.
32	E, Pacific	I think there's a group of people that will think about how much they want to risk and then I think there's this other group of people that live for this, that have that sense of duty...Remember when you said you were going to go to med school and everyone said it was a sacrifice, to be a physician? Well, this is one of them.
33	HH, Pacific	As a pulmonary critical care doctor who trained in and worked in an ARDS center, I feel like this is what I trained to do, taking care of these patients. This is my comfort zone. This is what my training is about.
34	EE, Northeast	Some of the phone calls you make, it's like maybe not what you went to medical school to do. You're used to thinking about very complicated things and you're just sitting here sometimes making phone calls, just giving updates and reassurance. But it's just as important as our job.
Collaborating		
35	Z, Northeast	All of those lectures about coming together as an orchestra...I used to kind of poo-poo that and roll my eyes, and now I get it. So, in that way, I think I'm humbled and have a better appreciation of each person's role...I think inadvertently...I was probably discouraging that kind of open collaboration before.

36	U, Northeast	It was really like you see in MASH...It's wartime medicine. And you do what's needed, what's the immediate need is, what has to be done. You don't let egos get in the way. You don't get into big arguments. You do just what has to be done, and what's available to be done...In all my time in medicine I've never experienced anything like this.
37	J, Northeast	I dialyze every...person they ask for dialysis for...I certainly changed my attitude regarding my relationship with the ICU people...I did not want to argue with anybody. I wanted to be viewed as a cooperative and collaborative person...They're so adamant and dedicated, and interested, and motivated to do the right thing. Under those kinds of circumstances, it's kind of hard and I didn't want to spend time arguing, it's just kind of like, "ok, let's just do this, because we've got to get onto the next patient."
38	Z, Northeast	We also had a lot of help from our surgeon, who put in the Tenckhoff, [peritoneal dialysis catheter] we would just text him and literally, the Tenckhoff catheter would go in 2 hours later...We really came together, it was impressive. Never had I experienced that, being here for 20 years.
39	CC, Pacific	We're [nephrologists] kind of bit players. You know, this whole situation is largely under the control of the intensivists...Their priorities are really different...I didn't always agree but I had to respect it, the decision.
40	FF, Midwest/Mountain West	The dialysis unit nursing advocate called me up and said I just don't have enough staff to get through everybody...My first initial reaction was anger. You know, like figure this out please, why are you bothering me?...Why do I to make these decisions? But then after I gave my mind a minute to think about what's going on around us, then I calmed down. I realized that it was much more important that we collaborate.
41	H, Pacific	We're all in it together. All of us, whether we're working for a 29-state large dialysis organization, for profit, versus a non-profit. A lot of us have to address the same day to day issues as chief medical officers.
42	AA, Northeast	One of the [dialysis shifts] was me, our division chief, and two fellows...My division chief did a great job sort of leading by doing. And not just sort of talking about it, but actually participating in it.
43	S, Northeast	These are the people running the program and we're the ones doing the work, and that's the relationship, like a hierarchy. But I'd say it did feel, during the peak of the pandemic, a lot more collaborative, and less hierarchal, because they needed us. We're the ones on the ground...Our perspective became a lot more important when we're dealing with something that's changing and evolving so rapidly, that they need our input.
44	DD, Northeast	When decisions are made in anything, we have to do it together...I'm not at the bedside as much. These nurses are the ones at the bedside, and they really really know what's the best practice, and what's safe. I don't care how many books you read, experience will trump most things.
45	II, Pacific	The right people weren't always at the table at the right time. But I think that's what early on we figured out as colleagues, we're like okay, who gets it? Who understands what's happening? Who lives and breathes the hospital?...They're not always the people in direct leadership.
Building mutual respect and empathy		
46	B, Pacific	[Our hospitalists] were able to see what we were doing in the ICU firsthand and go around on rounds, which really helped. I think they have more respect for what we do. And you get to see them in a different role temporarily while they are not as comfortable. It does kind of even the playing field. Everyone's wearing blue scrubs, and we're all trying to help each other get through this.

47	AA, Northeast	When I got sick...I slept really late and there were like three missed calls from my division chief wondering if I was okay. So, I think there was a lot of people caring for each other...We sort of got together and became much closer than we would've otherwise.
48	MM, Pacific	I think if we have someone who is concerned about an aspect of the response, like the PPE they're wearing...You'd always like to talk to them face-to-face. It's just going to be more profitable. I think it puts people at ease...they know that it's not just some faceless, nameless email box.
49	H, Pacific	Of course [patients] were fearful; some people had anxiety attacks. But they weren't angry at us. They were thankful that we were willing to be tough and swallow whatever it is in terms of our own anxiety and sit with them and talk with them.
50	T, Pacific	A number of my patients who fell ill happened to come into the hospital while I was inpatient, I think being able to have that continuity and be there at some of the most harrowing and intimate times of their lives, and at a place and time where they couldn't be with family, they didn't have family.
51	A, Pacific	We always try to be strong for our patients and their families...It felt like it was either more frequent or that I noticed it more, that families, they were really grateful, and they acknowledged that it was hard for us too.

Abbreviations: Peritoneal dialysis, PD; intensive care unit, ICU; acute respiratory distress syndrome, ARDS; mobile army surgical hospital, MASH; personal protective equipment, PPE

Table 4. Theme 3: Discord and estrangement

Quotation number	Participant ID, US Region	Exemplar quotation
Alienation from clinical role		
52	M, Pacific	That's what I do as a doctor. Not being able to go in and listen to a patient or to actually talk face to face to a patient, that was very foreign to me, so I think that made me feel like we can't take care of patients...I felt like I wasn't actually totally seeing a person or totally evaluating a person because I couldn't talk to them face-to-face to actually listen to them.
53	K, Northeast	People come into the hospital to get help, right?...Even though everyone deserves help and we want to help everyone, that we're just physically not able to. And that's really like a wartime thought process, and I am not in the army, that is not how I approach medicine.
54	GG, Pacific	I usually have a target at the beginning of the day; things I want to accomplish and accomplish in a certain way. And if I come home and I hit the target, I feel good about myself...Now, even if I come home and I hit the target, I'm not actually sure if that was the target I should've been shooting for, as we try to balance differing, competing obligations.
55	X, Northeast	At the height of the pandemic, there were a lot of people that weren't that old. We usually say like these are "salvageable" patients and we're going to try everything to keep them alive. But this was just a lot of times unsuccessful, like we're fighting hard and they would just die...It was difficult emotionally to deal with that amount of suffering and dying. And sort of the inability to prevent these people from dying...I would come home at night and feel really defeated. That was unique in the...20+ years of ICU care, it never felt like that.

56	G, Pacific	I know it sounds really morbidly weird, but I was a little disappointed because I was looking forward to being busy, being productive and holding peoples' hands and contributing to just doctoring...Here I was less busy than I'd ever been because patients weren't showing up to clinic...[I was] feeling guilty that other people were working so hard while my schedule is easier than ever...Here's my chance to make a difference and to help people during this period and I saw like 3 COVID patients.
57	R, Pacific	To minimize COVID exposure, or to minimize PPE...The attendings have been going to see the patients on their own...I feel almost guilty about that. There's always the sense that the trainees should be doing most of the work and knowing the patients that well.
Interprofessional power differentials		
58	MM, Pacific	We have a structure, we have an ordering and responsibility hierarchy. Well holy cow, in academic medicine, it's got to be the least hierarchical...I think that cultural shift into, "We appreciate you, you're brilliant, but you're going to do it this way," that is not our way. We are not a military institution.
59	P, Northeast	As an ICU doctor who's used to having the whole patient to themselves...I'm used to being able to have the final say. I'll take input from everybody, but I'm deciding. And the triage team was taking over that role.
60	II, Pacific	[I said] "this is what this patient needs. Let's talk about how were going to get it." And there was no discussion, it was just like, "nope, not gonna happen"...Here we are, we're defining a new disease process, we're having an emerging evolving pandemic...I really feel like I'm pretty rational about this, and you haven't told me anything, it's sort of like arguing with a toddler.
61	V, Northeast	Nephrology should absolutely have a say in CRRT versus not. And what was told to us was that, well it's really going to be the ICU teams that are driving these decisions. And we were like well, how does that work, it's not their specialty...It feels weird to not be an integral part of that decision...We understand that this is critical care, this is critical care space, but we should be a part of those decisions.
62	II, Pacific	I get it now, that infection prevention is like, we have to sit on these resources and we have to guard them and use them wisely. But again, that's where the messaging wasn't there. The messaging was just "No"...So it did feel more of an us-against-them. Like are we really on the same team? Are we really working toward the same end point of keeping our staff safe and treating the patient?
63	Q, South	Particularly as a consulting physician, a nephrologist, you kind of have the luxury of doing everything remotely. I really think that the nurses have taken the brunt during all of this.
64	C, Northeast	COVID is highlighting the potential tensions that might already exist between nurses and physicians...Power dynamics or what have you. My colleague felt empowered in some ways to say, "This is how I'm going to change my practice." Our dialysis staff probably don't have that power to say, "this is how I'm going to do my nursing practice."
65	B, Pacific	There's no housekeeping allowed in patient rooms in the hot zone. So, nursing...has been doing all the [cleaning] tasks like wiping down the rooms twice a day, cleaning out the bathroom...So, there's a lot more basic tasks put on nursing.
Exposing value conflicts		
66	JJ, Pacific	You think you can kind of say this is how all pulmonary critical care docs behave, is how all physicians behave...Actually, some people, what makes them happy is taking care of patients and going home at the end of the day. Then I have to think about what my expectations are for people.

67	G, Pacific	People had been shamed for wearing masks a few weeks ago, and then I wondered if it was some kind of, "I'm not going to use PPE", like it was just for weak people. I'm not sure. But I was really shocked...They were all sitting around talking, and I walked by with a mask, and it almost seemed like they kind of looked at me funny.
68	BB, Pacific	There was this incident about one of the physicians at the hospital being reported about wearing a mask by the nurses...The hospital administrators felt like he was giving a message that this is more serious than it is and everybody should be masked. So, it was a big thing that the physician had to justify why he was wearing a mask...I felt better wearing a mask...It's better for my mental health...But I did feel guilty about it.
69	G, Pacific	I really didn't feel comfortable starting dialysis on someone without physically examining them. And I felt very strange standing from the outside of the room while one of our dialysis nurses was inside the room. The patient is probably very scared, and if they look up and see me too scared to come in the room to see them, then what kind of doctoring is that?...At the beginning it had to do with conserving PPE, that we weren't going in. But [now] there's plenty of PPE...So I'm kind of surprised that we're not, at least once, physically seeing each patient.
70	N, Northeast	Everybody else was not seeing patients...I would go back to my office and everybody treated me like a disease. Everybody freaked out when they saw me, in my scrubs and with my little baggie of PPE. They all like backed away from me, and I'm like, "Ok, we work together you guys, c'mon."…I was like, "what do you think? It's going to hop off of me and go onto you?" And they said "yes!"
71	J, Northeast	I know these people forever…A couple of people just said, "my doctor said I have asthma, I can't work for the next 6 weeks"...I'm disappointed, I mean, I feel like she let us down.
72	JJ, Pacific	There were members of our group who were really afraid, and really freaking out, and really like, "I have a two-year-old, I can't do this." Which is normal, but also when you have a small group it's not helpful. People are having their own anxiety and you kind of need everyone on board, you signed up for this, you kinda have to get over it.
73	AA, Northeast	If you're not going to go into the room, how are you gonna go ask your nurse to go sit in there for two hours. I just think that's not right.
74	C, Northeast	She sent out an email to let the dialysis staff, the whole team know that she'd be rounding virtually. It was interpreted as, "you're on your own, dialysis nurses. I am supposed to be the leader here in my role as a physician, and I don't have your back."
Mistrust of leadership		
75	Y, Pacific	Where I heard the most, I don't know, complaints or staff unhappiness, was with the unit that was not as aggressive with PPE...Even though [the institution] was following the [CDC] guidelines. But I think that it just made the staff feel better...I think they felt like maybe they weren't being cared for and as appreciated as they should be.
76	N, Northeast	I just felt like it wasn't transparent, I mean, communication issues have always been a problem, especially in big organizations. I've brought it up before, people were in denial about it. It's a leadership problem. I personally don't trust my leadership...I've been working in this hospital for a long time that I slowly started to understand that peoples' motivations aren't good in healthcare...People were kind of motivated by their own self-interests and by greed.
77	Q, South	We asked multiple times if there was a triage command center or a plan for what would occur if we got to the point where we had to triage resources. They said there was, but they wouldn't provide it to us...What is it? Where is it? I just felt total lack of support from the administration.

78	F, Pacific	Something that you used to make me use for my safety and the patient's safety [masks], and suddenly you're like, you don't need it anymore...You have these policies in places because they're evidence-based, and a bunch of people sat down and thought about it and said this is the safest way to provide care for people. And then suddenly you're like, you don't need to do that because we don't have enough. And it really isn't that we don't need to do it, it's really that you should, but we don't have the supplies, so we can't do it. If they had explained it like that, not that that's any better, but it's at least being honest. I feel like they're downplaying a lot of things.
79	B, Pacific	Universal versus not universal masking. That one has been little harder for most of us to understand...Why were we making it optional a few weeks ago and now it's becoming a universal protocol? I think I understand what the rationale is, especially with a higher incidence of staff infections. But I think it's hard to go from these the changes where we were kind of lenient before, to something that's not so lenient with everybody on board. And I think since there's been such an emphasis on resource allocation and not using up limited PPE. Some people are concerned that this is going to use up a lot of PPE.
80	O, Midwest/Mountain West	She was reprimanded by the VP for Medical Affairs because she was wearing a mask...You're a physician administrator who doesn't have any patient contact, so you're the last person who should be giving advice.
81	JJ, Pacific	I think physicians everywhere were wanting to help and be helpful. A lot of it was coming from hospital administrators being nervous about what this would mean for their hospital and wanting to protect their own beds so in case they have their own surge.

Abbreviations: Intensive care unit, ICU; Coronavirus disease, COVID; personal protective equipment, PPE; continuous renal replacement therapy, CRRT; Center for Disease Control, CDC; vice president, VP

Supplementary Table 1: Sample semi-structured interview guide

Questions*	**Prompt**
First, can you tell me a little about yourself and your clinical role?	
What has it been like for you taking care of patients during the COVID-19 pandemic?	Can you give me some examples of situations that have been particularly challenging? Any situations that have gone well? In what ways have your practices changed?
How has the pandemic shaped your clinical practices and how you care for patients?	What was most difficult for you? What worked well? Can you give me some specific examples?
Have you encountered any situations in which medical resources were limited or you had difficulty getting patients the treatments they needed during the pandemic? What was that like for you?	Can you give me some examples?
Have you talked to patients or family about how their care might be different during the pandemic? What has that been like?	Can you give me some examples? What was that like for you?
Have you helped to develop new institutional policies during the pandemic? What has this been like?	Can you give me some examples? What has been difficult? What has worked well?
Is there anything else that we have not covered that you would like to bring up?	

*The interview guide was adapted throughout the study in response to emerging concepts and in order to promote thematic saturation.

Supplementary Table 2. Consolidated Criteria for Reporting Qualitative Research Guidelines (COREQ) checklist

Item	Guide questions/description	Location in manuscript
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Methods, Paragraph 2
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Author list
3. Occupation	What was their occupation at the time of the study?	Methods, Paragraph 2
4. Gender	Was the researcher male or female?	Methods, Paragraph 2
5. Experience and training	What experience or training did the researcher have?	Methods, Paragraph 2
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	Methods, paragraph 1
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	The intention of the research (to better understand clinician experience during the pandemic) was included in written information materials.
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Methods, paragraph 2
Domain 2: Study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Methods, paragraph 3.
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Methods, paragraph 1
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Methods, paragraph 1
12. Sample size	How many participants were in the study?	Results, paragraph 1
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Results, paragraph 1
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Methods, paragraph 2
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No.

16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Results, paragraph 1
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Appendix, Table 1
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	Methods, paragraph 2
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Methods, paragraph 1
20. Field notes	Were field notes made during and/or after the interview or focus group?	Yes.
21. Duration	What was the duration of the interviews or focus group?	Methods, paragraph 1
22. Data saturation	Was data saturation discussed?	Methods, paragraph 3
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Methods, paragraph 2
Domain 3: Analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Methods, paragraph 3
25. Description of the coding tree	Did authors provide a description of the coding tree?	Method not used
26. Derivation of themes	Were themes identified in advance or derived from the data?	Methods, paragraph 3
27. Software	What software, if applicable, was used to manage the data?	Methods, paragraph 3
28. Participant checking	Did participants provide feedback on the findings?	Method not used
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Table 2-4
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Results, Tables 2-4
31. Clarity of major themes	Were major themes clearly presented in the findings?	Results, Paragraph 1
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Results, throughout

Based on Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care.* 2007;19(6):349-357