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Implications of Electronic Consultations for Clinician Communication and Relationships

A Qualitative Study

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Background: Strong relationships and effective communication between clinicians support care coordination and contribute to care quality. As a new mechanism of clinician communication, electronic consultations (e-consults) may have downstream effects on care provision and coordination.

Objective: The objective of this study was to understand primary care providers' and specialists' perspectives on how e-consults affect communication and relationships between clinicians.

Research Design: Qualitative study using thematic analysis of semistructured interviews.

Subjects: Six of 8 sites in the VISN 1 (Veterans Integrated Service Network) in New England were chosen, based on variation in or-

ganization and received e-consult volume. Seventy-three respondents, including 60 clinicians in primary care and 3 high-volume specialties (cardiology, pulmonology, and neurology) and 13 clinical leaders at the site and VISN level, were recruited.

Measures: Participants' perspectives on the role and impact of e-consults on communication and relationships between clinicians.

Results: Clinicians identified 3 types of e-consults' social affordances: (1) e-consults were praised for allowing specialist advice to be more grounded in patient data and well-documented, but concerns about potential legal liability and increased transparency of communication to patients and others were also noted; (2) e-consults were perceived as an imperfect modality for iterative communication, especially for complex conversations requiring shared deliberation; (3) e-consults were understood as a factor influencing clinician relationships, but clinicians disagreed on whether e-consults promote or undermine relationship building.

Conclusions: Clinicians have diverse concerns about the implications of e-consults for communication and relationships. Our findings may inform efforts to expand and improve the use of e-consults in diverse health care settings.

Key Words: communication, computerized order systems, coordinated care, qualitative research

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management.⁵⁻⁷ Unlike “curbside” or informal consultations,^{8,9} e-consults are designed to allow the consultant to access the patient’s EHR, document their advice in the record, and, increasingly, receive reimbursement or work credit for this work.^{5,10} Primary care providers (PCPs) and specialists generally appreciate e-consults.¹¹⁻¹³ E-consults facilitate timely access to specialty expertise, obviating some face-to-face appointments or guiding the referring clinician in a preappointment diagnostic workup.^{10,14-18} In addition, e-consults may offer educational benefits, empowering PCPs to manage a broader range of clinical problems within their own practice.¹⁸⁻²¹

Once described as a “disruptive innovation,”¹⁰ e-consults are now used across diverse health care systems in the United States and abroad.^{4,10,13,16,22,23} Amidst the unprecedented expansion of virtual care stimulated by the coronavirus disease 2019 (COVID-19) pandemic, e-consults are well-positioned to take an even more prominent place in health care delivery as a mechanism to obtain specialist input without a face-to-face appointment.^{24,25} While literature frequently cites improved clinician communication as a key reason for clinician satisfaction with e-consults,^{16,20,26} few if any studies explore in detail the implications of e-consults for communication and relationships between clinicians. It is important to address this gap, as changes in clinician communication patterns and working relationships may have downstream effects on care provision and coordination.

A useful framework for theorizing the role of e-consults in clinician communication and relationships is offered by the concept of social affordances,^{27,28} which postulates that environments, objects, or technologies enable or constrain social interactions in different ways. For example, compared with a face-to-face format, a virtual meeting may make it harder for participants to exchange nonverbal cues. At the same time, it may enable individuals who would otherwise be apprehensive about speaking up to express their reactions in the chat box. The concept of social affordances has been applied to the study of computer-mediated technologies, including in health care contexts.²⁹⁻³¹

The goal of this paper is to understand the perspectives of clinicians in the Veterans Health Administration, one of the largest integrated health care systems in the United States, on the role of e-consults in clinician communication and relationships. By examining these perspectives through the lens of social affordances, we present a novel view of e-consults as a technology that may constrain, enable, complicate, and/or facilitate various types of social interactions between clinicians.

METHODS

Setting, Participants, and Study Design

In this qualitative study, we conducted semistructured interviews with clinicians in the VISN 1 (Veterans Integrated Service Network). VISN 1 comprises 8 Veteran Affairs (VA) Medical Centers and >40 community-based outpatient clinics across New England. Six sites were selected, ensuring variation in organization and fiscal year 18 total volume of received e-consults. Two sites were excluded; one had a strong focus on long-term care and received relatively few

specialty care e-consults and the other was very similar to another site in characteristics of interest.

We identified prospective participants using publicly available and internal VA provider directories. Using purposive sampling to ensure representation of diverse perspectives and experiences, we recruited section chiefs and frontline clinicians (physicians, advanced practice providers, and registered nurses) at VA Medical Centers (where PCPs and specialists are usually co-located) and their affiliated community-based outpatient clinics (where PCPs tend to practice in relative isolation from specialists). We also recruited clinical leaders at each of the sites and at the VISN level. Specialists were selected to represent high-volume medical specialties (cardiology, pulmonology, neurology). To obtain a broader sample, we further used snowball sampling, that is, asked recruited participants to suggest prospective participants at their site. Invitations to participate were sent by e-mail. Informed consent was obtained verbally before phone interviews. Our approach was consistent with the COREQ (Consolidated Criteria for Reporting Qualitative Research) checklist³² guidelines, as described in detail in Supplementary Digital Content 1 (<http://links.lww.com/MLR/C266>). The study was approved by the Bedford VA Institutional Review Board.

Data Collection

Interviews, conducted by phone by the primary author, focused on diverse topics related to e-consults. Three domains (Table 1) explored in the interviews that were relevant to this paper included personal attitudes toward and experiences with e-consults, perceived role of e-consults in clinician communication and relationships, and social/organizational practices related to e-consults (see Supplementary Digital Content 2, <http://links.lww.com/MLR/C267>, for full interview guides). While the interview guide included direct questions about relationships and communication, participants also frequently referenced these topics spontaneously. Interviews were audio-recorded and transcribed.

TABLE 1. Interview Guide Domains Relevant to the Study (With Sample Questions)

Domain	Sample Questions
Personal attitudes and practices	If you had to generalize, what would you describe as a good type of question for e-consults? What are “ideal” clinical questions for e-consults? Tell me a little bit about your e-consult workload and how you fit it into the rest of your duties
Communication and relationships	How do you typically communicate with specialists/PCPs? Since you started using e-consults, how have they affected your relationships with specialists/PCPs, if at all?
Social/organizational practices	How common, would you say, is for PCPs in your facility to request e-consults? What are some things that we need to know about PCP use of e-consults at your facility? How much do people talk about e-consults? What are these discussions like?

PCP indicates primary care provider.

Data Analysis

Transcripts were imported into NVivo (QSR International) qualitative data analysis software. An initial codebook was developed by 3 researchers (E.A., V.G.V., S.T.R.) after reviewing existing literature on e-consults and refined via coding and discussing the same subset of transcripts. The remaining transcripts were coded by individual coders. Emerging themes related to interclinician communication and relationships were developed and iteratively refined through full-team discussion in line with thematic analysis procedures.³³ The study team included practicing physician-researchers with backgrounds in primary and specialty care and nonclinician experts in social science and qualitative research methods, which infused data analysis with diverse disciplinary perspectives.

At the final stage of analysis, we examined how the 3 themes mapped to the social affordances concept as an organizing framework. We determined that the concept of social affordances enriched our analysis and yielded a fruitful understanding of e-consults as a technology that may facilitate, enable, and/or constrain various types of social interactions between clinicians.

RESULTS

We conducted 73 semistructured phone interviews with staff clinicians (n = 60, including 25 PCPs and 35 specialists) and clinical leaders (n = 13) (Table 2). In general, we found that clinicians' perspectives on e-consults' role in communication and relationships point to 3 perceived types of social affordances:

- (1) Documentation of communication: Clinicians praised e-consults for facilitating more authoritative and reliably documented specialist advice, while *also* noting that e-consults may create legal liability and reduce the confidentiality of communication between clinicians.
- (2) Iterative communication: E-consults were perceived as an imperfect modality for iterative communication or dialogue, including complex conversations requiring shared deliberation and follow-ups on completed e-consults.

TABLE 2. Characteristics of Interviewees

Characteristics	No. Interviewees [n (%)]
Interviewee by role (N = 73)	
Staff clinician	60 (75.9)
Clinical leader*	13 (16.5)
Staff clinicians by location (N = 60)	
Veterans Affairs Medical Center	42 (70)
Community-based Outpatient Clinic	18 (30)
Staff clinician by specialty (N = 60)	
Primary care	25 (41.7)
Cardiology	14 (23.3)
Neurology	12 (20)
Staff clinicians by discipline (N = 60)	
Physicians	50 (83.3)
Nonphysicians†	10 (16.7)

*Clinical leaders included Veterans Integrated Service Network–level and site-level leaders in positions such as chief of medicine, chief of staff, etc.

†Nonphysicians included advanced practice providers (nurse practitioners and physician assistants), as well as registered nurses.

- (3) Relationship building: E-consults were widely understood as a factor influencing clinician relationships, but clinicians disagreed on whether e-consults promote or undermine relationship building.

These themes are fully described below. For illustrative quotations from interviewees, see Tables 3–5. Quotations are numbered sequentially across all 3 tables (as Q1, Q2, etc.) and referenced in the main text.

Documentation of Communication

In our participants' view, e-consults allow for obtaining specialist advice that is grounded in first-hand review of patient data and reliably documented in the chart. However, some pointed out that this very phenomenon may create legal liability and reduce the confidentiality of communication between clinicians.

Reliable, Documented Specialist Advice

Participants compared e-consults with curbside (informal) consultations and described e-consults as yielding more reliable and well-documented specialist advice. Specialists appreciated that e-consults, unlike curbside consultations, allow them to review the patient's chart and provide better advice due to direct access to patient data (Q1). PCPs commented on the ability of e-consults to make the specialist's opinion available for future reference (Q2) and allow multiple team members who may be providing care for the same patient to access the specialist's recommendation (Q3).

Liability

Clinicians had mixed opinions about the legal implications of e-consults. Many interviewees mentioned that e-consults may help protect specialists from the liability that curbside consultations could entail (Q4 and Q5). At the same time, a few specialists raised concerns about unintended legal consequences of a more robust paper trail. As one pulmonologist observed, the legal consequences of answering an e-consult remain ambiguous, and it is unclear whether completing an e-consult is equivalent to creating a doctor-patient relationship (Q6). This uncertainty was handled in different ways. For instance, one neurologist, who was firmly opposed to e-consults on legal and clinical grounds, said that he would only provide answers to the e-consults phrased in general terms (ie, "What would you do in a situation where ...") as opposed to questions about a specific patient that are fraught with liability), whereas a cardiologist described adding a "disclaimer" to each response as protection from liability (Q7).

Confidentiality of Clinician Communication

Several PCP interviewees observed that e-consults, unlike curbside consultations, do not allow for confidential communication between clinicians. These participants recounted, with a sense of discomfort, situations where they felt compelled to convey certain sensitive information to the consultant while also being wary of others (including the patient) accessing the chart and seeing the communication. For example, a PCP encountered a patient who had a very negative interaction with a specialist and made "vitriolic" statements about that individual during the primary care appointment. When the PCP subsequently needed to

TABLE 3. Subthemes and Illustrative Quotations for Theme 1 (Documentation of Communication)

Theme 1: E-consults are Praised for Facilitating Receipt of Reliable and Well-documented Specialist Advice, yet Their Potential to Create Legal Liability and Reduce the Confidentiality of Communication Between Clinicians Is Also Noted

Subtheme	Illustrative Quotes
Reliable, documented specialist advice	<p>Q1. "... we get called for a—quote, unquote—quick question, or a curbside, but that doesn't give us the opportunity to review the relevant information in the chart. ... <i>by having an e-consult placed, we can review what information we know to be relevant and then correctly answer that question with the appropriate background.</i>" (068, cardiologist)</p> <p>Q2. "... it's different than a more traditional phone call to a specialist, or a curbside ... <i>it gets documented in the record, so then it becomes part of the patient's medical record and I can often refer back to it. <...>. And sometimes I'll even ... keep track for myself. <...></i> You know, as per neurology, recommended dose of such and such a medication is this. <i>And then I have a record of that that I'm using to manage the patient's care.</i>" (009, PCP)</p> <p>Q3. "... it's important to have their interpretation in the chart, because <i>if I was off the next day and my partner or colleague was asked ... a question regarding that patient, then he would have that information also.</i>" (024, PCP)</p>
Liability	<p>Q4. "... <i>I try to steer away from 'curbside' consults, because ... should a legal action be activated for whatever reason, you're suddenly left exposed by a note from a primary care person that says, and in speaking with Dr. So-and-so, they recommended such-and-such.</i>" (001, cardiologist)</p> <p>Q5. "Before ... if <there> was a phone call or an email, I would have to write in the note, well, Dr. So-and-so on a phone conversation recommended this. <...> <i>And if I get that wrong, okay, and God forbid something bad happened over all this, I could be setting up my specialist consultants with a problem that really was just my misinterpretation of what they told me.</i>" (095, PCP)</p> <p>Q6. "Like, <i>does <doing an e-consult> mean I have a doctor-patient relationship? What is my liability?</i>" (093, pulmonologist)</p> <p>Q7. "<i>I always put in a disclaimer at the end of the consult and just say, please be advised that this e-consult is based solely on a review of the medical record electronically, and I have not seen the patient in person.</i>" (049, cardiologist)</p>
Confidentiality of clinician communication	<p>Q8. "... <I was> talking to a patient and <I said>, 'I don't think that you are an appropriate patient for head CT. <...> But if it will make you happy, I will ... put in an electronic consult that says what your symptoms are and then I'll get an opinion from them about whether or not this is appropriate.' And if you get to talk to somebody person to person and say ... 'Here is why they're asking for this. Here is why I don't think it's appropriate.' And they go, 'Yeah, I agree with you.' It would be great if that could be documented. But instead ... <i>you go through a formal [e]-consult and then they get concerned about litigiousness, and then say, 'Oh, well, if clinically indicated, get a head CT.' And then you have nothing. You wrote the [e]-consult in order to obviate that kind of work and then you end up getting an unhelpful response.</i>" (096, PCP)</p> <p>Q9. "Sometimes ... <i>you don't want a lot of stuff in the record, <...> like with pain management, somebody might be—you know, using more pain medication or you think that maybe they are misusing it, but you don't really want it in the record because you're not sure, [so] sometimes we'll send an encrypted email.</i>" (082, PCP)</p>

CT indicates computed tomography; e-consult, electronic consultation; PCP, primary care provider.

TABLE 4. Subthemes and Illustrative Quotations for Theme 2 (Iterative Communication)

Theme 2: E-consults are Perceived as an Imperfect Modality for Closed-loop Communication and/or Complex Conversations Requiring Shared Clinical Deliberation

Subtheme	Illustrative Quotes
Closed-loop communication	<p>Q10. "... <i>if there's going to be a couple back-and-forths, you just need to get on an email or make a phone call and then you might document the outcome of that very succinctly in the chart ...</i>" (019, PCP)</p> <p>Q11. "If I'm recommended to order something, I have to re-consult to further ask questions if something does come back positive or concerning. So <...> <i>I still have to close the loop, so there's a gap.</i>" (079, PCP)</p>
Shared clinical deliberation	<p>Q12. "E-consults require the person writing the consult to focus their question so that they can get a focused answer. <...> But sometimes, <i>these questions emerge in the fog of clinical care. Which means that there are a lot of subtleties and complexities that go into these decisions. <...> And if it's not straightforward it involves a judgement. And when it involves a judgement that is facilitated by interpersonal interactions <then> there can be as much clarity as possible. And that is hard to do in an e-consult ...</i>" (010, pulmonologist)</p> <p>Q13. "< Sometimes > <i>it's very clear the two people need to get on the phone or in person, right? And have a conversation. Because there's miscommunication, it's not clear, there's a tone of voice. There's all these other elements that you have to be very cautious about and very aware of.</i>" (019, PCP)</p> <p>Q14. "... <i>if I have a lot of uncertainty or I just need to talk through a complex case, and I feel like it involves sort of co-management with a sub-specialist that I know, then I'd much rather pick up the phone. <...> But, you know, there's also something to say for time being important ... <So I use> the e-consult for everything else that's not a critical decision-making, that doesn't involve like careful teamwork—you know, those can be and are probably best managed in e-consult form ...</i>" (028, PCP)</p>

e-consult indicates electronic consultation; PCP, primary care provider.

TABLE 5. Subthemes and Illustrative Quotations for Theme 3 (Relationship Building)**Theme 3: E-consults are Widely Understood as a Factor Influencing Clinician Relationships, but Clinicians Disagree on Whether E-consults Promote or Undermine Relationship Building**

Subtheme	Illustrative Quotes
Positive perception	<p>Q15. “<i>Going from inpatient to primary care, is <...> very lonely. ... in the hospital, <...> you could page your specialist and just go find them in the hospital. <...> And so in the absence of having those relationships ... the E-consult is very helpful.</i>” (119, PCP)</p> <p>Q16. “I feel like even though it’s through the computer, it feels <i>very collegial</i>, which we don’t always get, because we are sort of <i>siloe</i>d in our little world. So I think that is very nice.” (042, PCP)</p> <p>Q17. “<i>We love working with colleagues</i> and it’s one of the things that ... I personally love about the VA, how easy it is to collaborate with other people and really have an interdisciplinary approach. And <i>e-consults to me were just another way of doing that.</i> <...> ... what e-consults allow us to do is communicate with each other ... even if we are not both available simultaneously.” (098, neurologist)</p>
Negative perception	<p>Q18. “Obviously, the <i>personalization and interaction to get to know our colleagues gets compromised</i> if all of the communication is done electronically rather than through a phone call or in person ... If I were new in a place and never had the opportunity to interact with the other people who are sending e-consults, then that would certainly <i>take away from developing relationships and collegiality ...</i>” (068, cardiologist)</p> <p>Q19. “... just everything being electronic is ... <i>making the back and forth between providers less rewarding and less familiar to people.</i> There’s, I think, a tendency to hide a little more behind just putting it all ... on the computer, and <i>not having to have a phone conversation about what we think the real challenges are for somebody that we’re co-managing.</i>” (018, pulmonologist)</p> <p>Q20. “I’ve been practicing medicine for a while and it’s just ... <i>gotten much less collegial.</i> So I think that <i>< e-consults don’t > help in that regard.</i> ... compared to 20 y ago, for example, when everything was telephonic or face-to-face, things are much less personal, much more electronic communication.” (093, pulmonologist)</p> <p>Q21. “I just think <i>there’s a lot more conveyed on even just a five-minute phone call <than via an e-consult> . <...> ... it’s a different world in the private setting.</i> They don’t have a business without primary care. But in the academic world, whether it’s the VA or the Brigham or Mass General, it doesn’t really matter. They are plenty worked, they do plenty of research, and it’s not a priority for them to call people up and say, thank you for sending me this patient and I want to make sure you really understand my communication. So I think because of that, there’s some <i>institutional inertia that it’s hard to overcome</i> in terms of helping build relationships between primary care and the specialists. And if you add to that that now <i>a significant amount of our conversations are happening by way of the computer, it just makes it that much harder.</i>” (096, PCP)</p>

e-consult indicates electronic consultation; PCP, primary care provider; VA, Veteran Affairs.

obtain the specialist’s guidance on that patient’s care via an e-consult, they felt that there was “a side story that needs to be conveyed,” yet it was “not appropriate ... for the medical record.” Another PCP thought that e-consults make the process of obtaining a specialist’s opinion too cumbersome and formalized. According to this interviewee, in some instances when the PCP may be confident that a face-to-face appointment with a specialist is unnecessary, yet the patient insists on a second opinion, an e-consult may be used to obtain that second opinion. However, the referring provider may feel unable to openly convey their impression that the consult is unnecessary (Q8). A few other PCPs also mentioned that they struggled with including potentially sensitive medical information about a patient, such as suspected pain medication abuse, in the e-consult request, and resorted to encrypted e-mails, instead (Q9).

Iterative Communication

Closed-loop Communication

Interviewees expressed a variety of concerns related to e-consults’ social affordances for facilitating dialogue between clinicians. One prominent issue was a perceived gap in follow-up (closed-loop) communication after an e-consult is completed. Some interviewees opined that other channels (phone, encrypted e-mail, instant messaging) should be used for any additional communication (Q10). Others observed that specialists vary widely in their on-site availability or receptivity, which may make synchronous communication or even e-mail challenging. As a result, several interviewees wondered how to “close the loop” on the original communication in the chart (Q11). A somewhat cumbersome

workaround strategy was described. Clinicians within the same parent medical center can flag others as additional signers on notes, which sends an alert to the signer to review. Some clinicians described adding the specialist as an additional signer on an EHR note to obtain an answer to a follow-up question related to an e-consult.

Shared Clinical Deliberation

While e-consults were widely viewed as a superior mechanism for unidirectional transfer of information between providers (*consultation*), clinicians felt that e-consults have limited usefulness for shared clinical *deliberation*. Using a memorable metaphor, a pulmonologist suggested that “the fog of clinical care” may make it difficult for the referring provider to formulate the e-consult question clearly, something that could have been facilitated by interpersonal communication (Q12). E-consults were also sometimes portrayed as inherently prone to ambiguity and misunderstanding, more so than synchronous communication modalities (Q13). In this context, several interviewees described approaching e-consults as one form of communication among many. For example, 1 PCP described “triaging” clinical questions, that is, reserving e-consults only for straightforward queries and resorting to direct communication for situations requiring complex deliberation with another clinician (Q14).

Relationship building

Positive Perception

Our interviewees expressed complex and at times contradictory opinions about e-consults’ implications for

building and maintaining relationships between clinicians. The differences in perspectives appeared to be related to the organizational characteristics of the site where each participant practiced. Some interviewees felt that e-consults were either a neutral or a positive force. For 1 PCP, who transitioned from working in a hospital to outpatient practice, e-consults helped build relationships with specialists in the absence of face-to-face interactions (Q15). Similarly, a PCP at a smaller site with limited access to specialists thought that e-consults contribute to a more collegial atmosphere in the face of isolation (Q16). A specialist at a large site where e-consults are well integrated into clinical routines felt that e-consults, when used alongside other communication channels, are a powerful medium for maintaining interdisciplinary relationships (Q17).

Negative Perception

Other interviewees were concerned that e-consults may hamper interpersonal relationships. A cardiologist reflected that a growing reliance on e-consults and electronic communication more generally could undermine relationship building with colleagues in primary care by reducing opportunities for direct, personal interactions (Q18). A similar opinion was expressed by a pulmonologist who lamented a tendency to “hide” behind electronic communication (Q19).

Some participants tried to situate the negative effects of e-consults in the larger social context. A pulmonologist opined that communication in medicine has become less collegial and personal, mentioning e-consults as a manifestation of this phenomenon (Q20). This participant also shared a strategy to counteract the impersonal nature of e-consults by supplementing each e-consult response with a personal note to the sender, via an instant message. Similarly, a PCP commented on the predominance of electronic communication, including e-consults, to the detriment of direct communication channels. The interviewee related this to the institutional context of VA where, according to the participant, salaried specialists do not have a financial incentive to solicit referrals from PCPs and, therefore, have less motivation to engage in direct relationship building with them (Q21).

DISCUSSION

In this study, we used a novel conceptual lens of social affordances to present clinicians’ perspectives on the implications of e-consults for clinician communication and relationships. We found that e-consults were viewed by users (PCPs and specialists) as a technology that lends itself well to certain types of social interaction and less so to others (eg, shared clinical deliberation, confidential/sensitive interactions, or, for some, collegial relationship building). Our study offers a novel approach to studying e-consults and other forms of clinician communication, and our findings have important implications for optimizing the use of e-consults in health care organizations. With an explosion of interest in telemedicine ignited by the COVID-19 pandemic,^{24,25} health care organizations must also leverage existing forms of clinician electronic communication to effectively support care coordination and delivery.

E-consults afford an opportunity for enhanced documentation of clinician communication, a characteristic viewed by our interviewees as strength but also a potential weakness. Prior studies found that clinicians view e-consults as well-suited for formal, reliable documentation of specialist advice,^{10,34,35} but only mention liability concerns in passing.^{10,36,37} In contrast, we noted repeated references to the paradox that e-consults may simultaneously protect consultants from legal liability *and* create legal issues of their own. If such uncertainties persist, they may hamper a wider uptake of e-consults. These concerns could be even *more* pronounced in health care systems where clinicians are not as insulated from legal action as their VA counterparts and/or where consultants lack full EHR access. Changes in policies pertaining to legal consequences of e-consults and clear guidance from health systems as part of clinician training in e-consult use could mitigate these concerns.

A related phenomenon is the perception that e-consults allow for greater visibility of clinician communication to others, including patients, which may not be desirable when sensitive issues need to be discussed. This discomfort about transparency is, of course, not unique to e-consults. Instead, it relates to the larger phenomenon of clinical records becoming increasingly accessible to patients, administrators, and regulatory bodies. While greater transparency may empower patients and assist systems in tracking care processes and outcomes,^{38,39} a perceived decline in professional autonomy may impact clinician satisfaction and morale,⁴⁰ with further implications for patient care quality. Simple solutions can hardly be suggested here: Whereas some may advocate preserving confidential modes of interclinician communication, others may counter that the imperative of ensuring full transparency overrides other concerns. In any case, researchers should trace how confidentiality concerns are expressed and addressed across organizational settings where e-consults and other new clinician communication modalities are adopted.

E-consults were not viewed as a technology affording effective opportunities for iterative communication. Our interviewees consistently described using direct or synchronous communication for time-sensitive matters or questions requiring complex deliberation. While some also reported using alternative channels for follow-up questions on completed e-consults (closed-loop communication), many interviewees described frustration with the inability to follow up on a completed e-consult *within* the e-consult interface, an issue briefly mentioned but not explored in other studies.^{22,41} Interestingly, VA’s e-consult system does allow senders to follow up on the e-consult by sending a “comment,”⁴² yet this functionality appears to be relatively unfamiliar to the clinicians we interviewed, making “comments” a hidden affordance (a possibility for action that is in principle possible but not perceived as such by the actor).

To put it differently, our interviewees perceived e-consults to be a relatively lean communication channel (conducive to straightforward communication of clear messages) in contrast to richer channels (allowing real-time clarification and rapid information flow).^{43,44} Interviewees reported attempting contact via these richer channels when necessary. However, consultants’ responsiveness to rich communication channels varies due to time pressures, personal preference or local organizational culture. Our

participants describe using workarounds when attempts to reach the consultant directly fail (eg, communicating through additional text on clinic notes and requesting signature from e-consultants to initiate dialogue), yet such workarounds are cumbersome and carry the risk of dropped communication. Other systems have struggled with the same issue and attempted to address it with varying degrees of success.^{45–47} The opportunity for further improvement here is two-pronged. Health care systems might consider addressing barriers to the wider use of rich/direct communication channels among clinicians and introducing a smoother interface that would allow clinicians in need of two-way dialogue to seamlessly transition between e-consults, phone calls, instant messaging, video chat, etc.

Finally, this paper contributes to the literature by pointing out that clinicians have an ambivalent attitude to the social affordances of e-consults for establishing and maintaining professional relationships. While invoking strong relationships between clinicians as a crucial *condition* for successful implementation and sustainability of e-consults,^{36,48} previous studies have devoted little attention to how e-consults may *influence* relationships between clinicians, beyond cursory references. While it may be too early to tell how e-consults will transform working relationships between clinicians in the long term, one preliminary conclusion appears warranted: Organizational context matters. PCPs in settings with limited availability of specialists may welcome e-consults as a useful tool for establishing familiarity with their specialist colleagues at other sites. Conversely, providers at sites where direct interactions are common may fear that a growing reliance on e-consults will undermine the personal, collegial relationships between clinicians. Erosion of meaningful relationships cannot be laid entirely at the feet of e-consults; these changes speak to broader trends, such as the rise of electronic communication more generally and productivity pressures that limit opportunities for direct interactions. Yet health care delivery is made possible by a network of complex working relationships. Health systems must acknowledge the importance of positive interpersonal relationships for high-quality care^{2,49} and provide opportunities for meaningful interactions between clinicians by encouraging relationship building activities between services and creating “communities of practice.”⁵⁰

Our study findings have potentially limited transferability to non-VA settings. In addition, while we strove to recruit participants from a variety of professional backgrounds and interview multiple participants in the same setting, the perspectives that we identified may not be broadly shared by other VA clinicians. For example, it is possible that we primarily recruited individuals with an interest in or positive experience with research. We also focused our study on a select few high-volume medical specialties. The experiences of specialists in other specialties who answer e-consults and PCPs who send questions to these specialists may differ with regards to communication and relationships. For example, concerns about eroding relationships may be less prominent in specialties that tend to require less coordination with primary care (eg, surgical subspecialties). Finally, we did not explore patients’ perspectives in this study, which would have been especially relevant for shedding light on the dilemmas of confidentiality and transparency. Future research is needed not only to provide a deeper understanding of PCP, specialist, and patient perspectives on social affordances of e-consults in different or-

ganizational contexts, but also to generate insights into how organizational policies and practices may address the legal, relational, and other challenges associated with e-consults.

In summary, the diverse, sometimes contradictory perspectives of VA clinicians on the social affordances of e-consults speak to the enduring importance of the human, relational element of health care, especially considering the expansion of electronic platforms. As new modalities of communication emerge and established ones evolve, researchers and health care system leaders must continue to trace how clinicians’ perspectives on and experiences with these modalities change over time and how these changes affect clinician satisfaction and patient care quality.

REFERENCES

- Gittel JH, Seidner R, Wimbush J. A relational model of how high-performance work systems work. *Organ Sci*. 2010;21:490–506.
- Anderson E, Wiener RS, Resnick K, et al. Care coordination for veterans with COPD: a positive deviance study. *Am J Manag Care*. 2020;26:63–68.
- Vimalananda VG, Dvorin K, Fincke BG, et al. Patient, primary care provider, and specialist perspectives on specialty care coordination in an integrated health care system. *J Ambul Care Manage*. 2018;41:15–24.
- Vimalananda VG, Gupte G, Seraj SM, et al. Electronic consultations (e-consults) to improve access to specialty care: a systematic review and narrative synthesis. *J Telemed Telecare*. 2015;21:323–330.
- Ahmed S, Kelly YP, Behera TR, et al. Utility, appropriateness, and content of electronic consultations across medical subspecialties: a cohort study. *Ann Intern Med*. 2020;172:641–647.
- Strymish J, Gupte G, Afable MK, et al. Electronic consultations (e-consults): advancing infectious disease care in a large Veterans Affairs Healthcare System. *Clin Infect Dis*. 2017;64:1123–1125.
- Wrenn K, Catschegn S, Cruz M, et al. Analysis of an electronic consultation program at an academic medical centre: primary care provider questions, specialist responses, and primary care provider actions. 2017;23:217–224.
- Kuo D, Gifford DR, Stein MD. Curbside consultation practices and attitudes among primary care physicians and medical subspecialists. *JAMA*. 1998;280:905–909.
- Burden M, Sarcone E, Keniston A, et al. Prospective comparison of curbside versus formal consultations. *J Hosp Med*. 2013;8:31–35.
- Gupte G, Vimalananda V, Simon SR, et al. Disruptive innovation: implementation of electronic consultations in a Veterans Affairs Health Care System. *JMIR Med Inform*. 2016;4:e6.
- Rodriguez KL, Burkitt KH, Bayliss NK, et al. Veteran, primary care provider, and specialist satisfaction with electronic consultation. *JMIR Med Inform*. 2015;3:e5.
- Lee MS, Ray KN, Mehrotra A, et al. Primary care practitioners’ perceptions of electronic consult systems: a qualitative analysis. *JAMA Intern Med*. 2018;178:782–789.
- Liddy C, Afkham A, Drosinis P, et al. Impact of and satisfaction with a New eConsult Service: a mixed methods study of primary care providers. *J Am Board Fam Med*. 2015;28:394–403.
- Vimalananda VG, Orlander JD, Afable MK, et al. Electronic consultations (E-consults) and their outcomes: a systematic review. *J Am Med Inform Assoc*. 2019;27:471–479.
- Kirsh S, Carey E, Aron DC, et al. Impact of a national specialty e-consultation implementation project on access. *Am J Manag Care*. 2015;21:e648–e654.
- Barnett ML, Yee HF Jr, Mehrotra A, et al. Los Angeles Safety-Net Program eConsult System was rapidly adopted and decreased wait times to see specialists. *Health Aff (Millwood)*. 2017;36:492–499.
- Keely E, Liddy C, Afkham A. Utilization, benefits, and impact of an e-consultation service across diverse specialties and primary care providers. *Telemed J E Health*. 2013;19:733–738.
- Tran CS, Liddy CE, Liu DM, et al. eConsults to endocrinologists improve access and change primary care provider behavior. *Endocr Pract*. 2016;22:1145–1150.

19. Kwok J, Olayiwola JN, Knox M, et al. Electronic consultation system demonstrates educational benefit for primary care providers. *J Telemed Telecare*. 2018;24:465–472.
20. Liddy C, Abu-Hijleh T, Joschko J, et al. eConsults and learning between primary care providers and specialists. *Fam Med*. 2019;51:567–573.
21. Keely EJ, Archibald D, Tuot DS, et al. Unique educational opportunities for PCPs and specialists arising from electronic consultation services. *Acad Med*. 2017;92:45–51.
22. Fort MP, Namba LM, Dutcher S, et al. Implementation and evaluation of the Safety Net Specialty Care Program in the Denver Metropolitan Area. *Perm J*. 2017;21:16–22.
23. Liddy C, Maranger J, Afkham A, et al. Ten steps to establishing an e-consultation service to improve access to specialist care. *Telemed J E Health*. 2013;19:982–990.
24. Heyworth L, Kirsh S, Zulman D, et al. Expanding access through virtual care: the VA's early experience with Covid-19. *NEJM Catal Innov Care Deliv*. 2020. doi: 10.1056/CAT.20.0327
25. Wosik J, Fudim M, Cameron B, et al. Telehealth transformation: COVID-19 and the rise of virtual care. *J Am Med Inform Assoc*. 2020;27:957–962.
26. Havens DS, Gittel JH, Vasey J. Impact of relational coordination on nurse job satisfaction, work engagement and burnout: achieving the quadruple aim. *J Nurs Adm*. 2018;48:132–140.
27. Valenti SS, Gold JM. Social affordances and interaction I: introduction. *Ecol Psychol*. 1991;3:77–98.
28. Sutcliffe AG, Gonzalez V, Binder J, et al. Social mediating technologies: social affordances and functionalities. *Int J Hum-Comput Int*. 2011;27:1037–1065.
29. Goh JM, Gao G, Agarwal R. Evolving work routines: adaptive routinization of information technology in healthcare. *Inform Syst Res*. 2011;22:565–585.
30. Strong DM, Volkoff O, Johnson SA, et al. A theory of organization-EHR affordance actualization. *J Assoc Inform Syst*. 2014;15:53–85.
31. Merolli M, Gray K, Martin-Sanchez F. Health outcomes and related effects of using social media in chronic disease management: a literature review and analysis of affordances. *J Biomed Inform*. 2013;46:957–969.
32. 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;19:349–357.
33. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3:77–101.
34. Battaglia C, Lambert-Kerzner A, Aron DC, et al. Evaluation of e-consults in the VHA: provider perspectives. *Fed Pract*. 2015;32:42–48.
35. Deeds SA, Dowdell KJ, Chew LD, et al. Implementing an opt-in econsult program at seven academic medical centers: a qualitative analysis of primary care provider experiences. *J Gen Intern Med*. 2019;34:1427–1433.
36. Tuot DS, Leeds K, Murphy EJ, et al. Facilitators and barriers to implementing electronic referral and/or consultation systems: a qualitative study of 16 health organizations. *BMC Health Serv Res*. 2015;15:568.
37. Angstman KB, Adamson SC, Furst JW, et al. Provider satisfaction with virtual specialist consultations in a family medicine department. *Health Care Manag (Frederick)*. 2009;28:14–18.
38. van der Vaart R, Drossaert CH, Taal E, et al. Impact of patient-accessible electronic medical records in rheumatology: use, satisfaction and effects on empowerment among patients. *BMC Musculoskelet Disord*. 2014;15:102.
39. Borycki EM, Househ MS, Kushniruk AW, et al. Empowering patients: making health information and systems safer for patients and the public. Contribution of the IMIA Health Informatics for Patient Safety Working Group. *Yearb Med Inform*. 2012;7:56–64.
40. Friedberg MW, Chen PG, Van Busum KR, et al. Factors affecting physician professional satisfaction and their implications for patient care, health systems, and health policy. *Rand Health Q*. 2014;3:1.
41. Osman MA, Schick-Makaroff K, Thompson S, et al. Barriers and facilitators for implementation of electronic consultations (eConsult) to enhance access to specialist care: a scoping review. *BMJ Glob Health*. 2019;4:e001629.
42. McAdams M, Cannavo L, Orlander JD. A medical specialty e-consult program in a VA Health Care System. *Fed Pract*. 2014;31:26–31.
43. Lanham HJ, Palmer RF, Leykum LK, et al. Trust and reflection in primary care practice redesign. *Health Serv Res*. 2016;51:1489–1514.
44. Lanham HJ, McDaniel RR Jr, Crabtree BF, et al. How improving practice relationships among clinicians and nonclinicians can improve quality in primary care. *Jt Comm J Qual Patient Saf*. 2009;35:457–466.
45. Liddy C, Moroz I, Keely E, et al. Understanding the impact of a multispecialty electronic consultation service on family physician referral rates to specialists: a randomized controlled trial using health administrative data. *Trials*. 2019;20:348.
46. Rikin S, Zhang C, Lipsey D, et al. Impact of an opt-In eConsult Program on primary care demand for specialty visits: stepped-wedge cluster randomized implementation study. *J Gen Intern Med*. 2020;35(suppl 2):832–838.
47. Chen AH, Murphy EJ, Yee HF Jr. eReferral—a new model for integrated care. *N Engl J Med*. 2013;368:2450–2453.
48. Haverhals LM, Sayre G, Helfrich CD, et al. E-consult implementation: lessons learned using consolidated framework for implementation research. *Am J Manag Care*. 2015;21:e640–e647.
49. Sayre GG, Haverhals LM, Ball S, et al. Adopting SCAN-ECHO: the providers' experiences. *Healthc (Amst)*. 2017;5:29–33.
50. Sherbino J, Snell L, Dath D, et al. A national clinician-educator program: a model of an effective community of practice. *Med Educ Online*. 2010;15. doi: 10.3402/meo.v15i0.5356