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# Issue Brief

## Electronic Consultations Between Primary and Specialty Care Clinicians: Early Insights

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**ABSTRACT:** Electronic consultation (e-consultation) is an emerging tool that primary care clinicians can use to communicate with specialists about patients asynchronously—that is, at different times that are convenient for each physician. To conduct an e-consultation, clinicians use either a Web-based program or a shared electronic medical record. Early adopters of e-consultation describe positive experiences for patients, clinicians, and health systems, including improved continuity of care, access to specialists, convenience, and information transfer. E-consultation presents opportunities to improve health care quality and reduce specialty care costs, but dissemination will be limited unless incentives are created and clinicians are encouraged to use e-consultation through financial reimbursement.

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### OVERVIEW

Medical care has dramatically increased in complexity over the past few decades because of the aging of the population, as well as advances in diagnosis and treatment of conditions. These trends have increased the need for specialists to be involved in managing sick patients, especially those with one or more chronic illnesses.<sup>1</sup> The medical care of chronically ill patients now accounts for approximately one-half of all outpatient care visits.<sup>2</sup> Traditionally, referring clinicians obtained input from specialists by either sending patients for in-person referrals or through “curbside consultations”—that is, conversations that occurred between the two physicians about patients when they met in the hospital hallway or cafeteria, or by telephone.

Curbside consultations, however, generally develop from personal relationships and interactions among clinicians. Many primary care physicians (PCPs) no longer spend much time in the hospital, where these interactions occur. As a result, access to specialist input increasingly depends on referring patients for in-person consultative visits and communication between clinicians who are often unfamiliar with each other’s expectations or preferences.

The process begins with a clinician, generally the PCP, making the decision to refer. Surveys of PCPs and consulting specialists reveal considerable dissatisfaction with the referral process and the quality of information shared, which may include unstructured clinical information.<sup>3</sup> Specialists report how they are often asked to see patients they do not need to see or who present without adequate information or even a clear rationale for referral. Inappropriate referrals have been estimated to account for up to 65 percent of all referrals.<sup>4</sup> Referring clinicians describe how they often receive either no information or information that is unresponsive to their questions or concerns.<sup>5</sup> Expectations about who will manage the next steps in a patient's care are often unclear.

While there is considerable evidence of clinician dissatisfaction with the referral process, we know less about the impact these communication failures have on the patients' experience and health care outcomes. Patient surveys confirm they are often aware of failures in communication among the clinicians caring for them and of some of the adverse consequences, such as unnecessary duplicate testing or missing information.<sup>6</sup> In the 2010 Commonwealth Fund International Health Policy Survey of 11 countries, 37 percent of American adults reported experiencing care coordination problems in the past two years.<sup>7</sup> Coordination problems included test results or records not being available at the time of appointments, receiving conflicting information from different health professionals, and undergoing duplicative testing.<sup>8</sup> Epstein concluded in his paper written over a decade ago that communication breakdowns leading to disruptions in patients' continuity of care are associated with increased medical morbidity.<sup>9</sup> Similarly, a recent paper by O'Malley and colleagues found that when PCPs and specialists seldom or never receive useful information about their patients' referrals, it limits their ability to provide high-quality care.<sup>10</sup> Evidence is mounting that many patients are harmed by failures to coordinate care.

The deficiencies in the current referral process have stimulated efforts to standardize documentation to ensure referrals and consultations meet the needs

of clinicians and patients. However, relying on paper referral requests and consultation notes can limit opportunities for interaction among the clinicians caring for the patient. Another challenge is the cost of specialist consultant visits, which may contribute to the underuse of specialist involvement in the care of some patients, especially the underinsured. Even for patients with insurance coverage, avoidable in-person specialty care encounters contribute to higher health care costs and problems related to care transitions. It has been estimated that 30 percent of referrals could be avoided if other forms of communication between PCPs and specialists were available.<sup>11</sup>

One strategy to address these challenges and improve communication and coordination of care is electronic consultation, or e-consultation. E-consultation is electronic communication between clinicians about general or patient-specific questions that may preclude the need for an in-person referral. It can occur through e-mail or other computer applications including: shared electronic medical record (EMR) systems that include clinician-to-clinician messaging capabilities and Web-based platforms, including some electronic referral (e-referral) systems.

This issue brief focuses on the use of information technologies by clinicians to obtain advice about a medical question, especially advice about the care of a particular patient. While such advice can be provided directly through face-to-face or telephone conversations, computer-supported communication offers major advantages. First, computer communication can be asynchronous—i.e., it does not require finding a mutually convenient time in the calendars of two busy clinicians. Findings from a trial of real-time, joint consultation using video conferencing applications found that while it yielded advantages for patients, scheduling clinicians at the same time was difficult and overall, not cost effective for the health care system.<sup>12</sup> The advantages of asynchronous computer-supported communications include: allowing the referring and consulting clinicians to participate at different times, without coordinating their availability; facilitating the

transfer of patient information; and documenting interactions in the medical record.

Shared EMR systems allow PCPs and specialists to communicate and share patient information easily. Specialists have access to the patient's entire medical chart. Web-based electronic referral systems also allow referring and consulting clinicians to exchange necessary information in the absence of a shared EMR, while providing them with a mechanism for communicating questions and concerns. Shared EMRs and electronic consultation systems provide a vehicle for referring and consulting clinicians to interact efficiently by allowing referring clinicians to pose questions to consultants, and consultants to respond with or without seeing the patient.

These advantages led several health care systems and IT developers to experiment with electronic consultation. If they can safely and effectively improve coordination of care and reduce specialty visits, e-consultation programs could improve health outcomes and reduce health care costs.

## **EARLY INSIGHTS OF THE IMPACT OF ELECTRONIC CONSULTATION ON QUALITY AND EFFICIENCY**

### **What is e-consultation, and how does it improve communication between providers?**

E-consultations can replace or supplement mechanisms clinicians currently use to communicate about patients. These mechanisms include the use of pagers, telephone calls, and “hallway” or “curbside” consultations. These conventional communication mechanisms often disrupt clinical work, and many clinicians appreciate that e-consultations are asynchronous and can be initiated or responded to when they have time available. Several clinicians interviewed described the growing separation among clinicians over the years, in part because PCPs are providing less care in hospital settings where they used to interact frequently with consultants. An obstetrician/gynecologist explained:

We used to have a doctor's dining room . . . and we'd go up and do consults at lunchtime while the specialists were there and everybody did get to take lunch. We'd bring charts up during lunchtime and get the answers to our questions. Now the specialists and primary care [clinicians] never get to see each other.

This progressive decline in the provision of hospital care by PCPs limits opportunities for personal contact, communication, and relationships with specialist colleagues. In the absence of established relationships, some clinicians may feel more comfortable contacting a consulting clinician electronically. One pulmonologist described how e-consultations provide a valuable new way to communicate: “It makes me feel a little connected in a very disconnected world.”

The process for conducting an e-consultation depends on the technology used and how the system is implemented within the health care setting, but typically follows this pattern:

Step 1: Requesting clinician poses a clinical question to a consultant electronically.

Step 2: Consultant reviews the question. If the two clinicians share an EMR, the consultant also reviews the patient's chart. In systems without integrated EMRs, pertinent clinical information is provided by the requesting clinician with the e-consultation request. In some instances, claims data may be integrated by a health plan or online personal health records may be included via the patient's initiation.

Step 3: Consultant responds to the requesting clinician by:

- a. asking for additional information and communicating back-and-forth with the referring clinician;
- b. answering the specific clinical question; or
- c. replying that the patient should be seen in-person.

E-consultations may facilitate improved communication between PCPs and specialists; however, they will not completely replace phone calls and in-person “curbside” consultations. Many clinicians continue to value personal communication and back-and-forth discussion about clinical questions. In addition, phone calls will most likely remain the primary mode for handling emergency consultations.

The potential of e-consultation varies by specialty. It is likely to be most appropriate for specialists who provide cognitive advice rather than perform procedures. Specialties that rely heavily on laboratory tests and less on patient examination (e.g., endocrinology, nephrology) have the most potential to become heavy users of e-consultation. Because photographs of skin lesions can be attached to e-consultation requests, it may also offer strong potential for uses in dermatology. Specialties in short supply (e.g., geriatrics, rheumatology) may also find e-consultation advantageous. Gastroenterology, interventional cardiology, and other specialties that are based on performing procedures have the least potential for utilizing e-consultation.

In most situations, e-consultations are considered informal consults that provide advice to the requesting clinician about a medical case or question. While the advice given by specialists is informal, the communications are documented and searchable,

giving it an advantage over other consultation modalities such as hallway conversations or the telephone. The legalities of e-consultation are complex, however, and should be reviewed before implementation.

### What are the benefits of e-consultation?

E-consultation offers direct and indirect benefits to patients (Exhibit 1). Direct benefits include the continuity of care that results from keeping care more centered in the patient’s medical home, greater convenience, and reduced cost.<sup>13</sup> Indirect benefits relate to improvements in access to specialist advice. E-consultation significantly reduced the waiting time for a consultation in two studies. Patients who did not want to travel to the specialist either because they were elderly and frail or unable to leave work were most likely to opt for the e-consultation option.<sup>14</sup> The availability of e-consultation has also been effective in reducing waiting times for specialist visits because incoming requests for referrals/consultations may be triaged and unnecessary in-person visits avoided.<sup>15</sup> This improvement in access to specialists is especially important in areas with specialist shortages including safety-net settings that provide medical care to the poor and underinsured.

PCPs and specialists report having positive experiences with e-consultation and believe

### Exhibit 1. Patient Benefits of E-Consultation

Reported satisfaction by patients	In Finland, 80% of patients treated by intranet e-mail consultations wished that future specialist needs could also be managed electronically because of their experienced savings in time, reduced costs, or ease of visit. <sup>a</sup>
Benefits to patient care	Preventing face-to-face specialist visits reduces threats to continuity of care and patient distress associated with poorly coordinated care.
Access to specialist care	60% of PCPs using the e-referral system implemented by San Francisco General Hospital reported improved access for their patients’ nonurgent issues, and 54% reported improved wait times for their patients to have a new appointment with a specialist compared with prior referral methods. <sup>b</sup>
Timeliness of results	At the Mayo Clinic, time frame for virtual consults was shorter than traditional consultations—1 day, 6 hours vs. 7 days, 20 hours. <sup>c</sup> E-consultation improved timeliness from 89 days for a face-to-face dermatology visit to 12 days for an e-consultation. <sup>d</sup>

<sup>a</sup> K. Hamo, T. Paavola, C. Carlson et al., “Patient Referral by Telemedicine: Effectiveness and Cost Analysis of an Intranet System,” *Journal of Telemedicine and Telecare*, 2000 6(6):320–29.

<sup>b</sup> Y. Kim, A. H. Chen, E. Keith et al., “Not Perfect, But Better: Primary Care Providers’ Experiences with Electronic Referrals in a Safety Net Health System,” *Journal of General Internal Medicine*, May 2009 24(5):614–19.

<sup>c</sup> K. B. Angstman, S. C. Adamson, J. W. Furst et al., “Provider Satisfaction with Virtual Specialist Consultations in a Family Medicine Department,” *The Health Care Manager*, Jan.–March 2009 28(1):14–18.

<sup>d</sup> D. Moreno-Ramirez, L. Ferrandiz, A. Ruiz-de-Casas et al., “Economic Evaluation of a Store-and-Forward Teledermatology System for Skin Cancer Patients,” *Journal of Telemedicine and Telecare*, 2009 15(1):40–45.

that e-consultations are an efficient use of their time (Exhibit 2).<sup>16</sup> In a study published in 2010, PCPs reported that they appreciated receiving timely responses to their clinical questions and felt more capable of managing patients within their own practices.<sup>17</sup> This clinical support is especially important in rural areas with a shortage of specialists<sup>18</sup> and in developing countries.<sup>19</sup>

Clinicians at the Mayo Clinic report that virtual consults provide better or equal medical care than traditional specialist visits.<sup>20</sup> Of PCPs using San Francisco General Hospital's eReferral system, 72 percent report feeling that electronic referrals had improved clinical care.<sup>21</sup> A Group Health urologist explained:

I think e-consultations improved our patient care. It is certainly a lot more efficient and quicker. It also saves visits and lab tests and ordering.

Conventional referral processes result in substantial gaps in information exchange. In a survey of pediatric specialist referrals in central Massachusetts, only 50 percent of initial referrals were accompanied by information from the PCP and 84 percent of PCPs reported receiving consultative communication within one month following the specialist visit.<sup>22</sup> In another survey of primary care physicians, only 37 percent of PCPs report routinely receiving consultation reports after specialty referrals.<sup>23</sup> These failures in

### Exhibit 2. Clinician Benefits of E-Consultation

Reported satisfaction by clinicians	<ul style="list-style-type: none"> <li>At the Mayo Clinic, 39 of 56 PCPs agreed that, "overall, I feel that virtual consults provide good medical care."<sup>a</sup></li> <li>General practitioners (GPs) in the United Kingdom using e-consultation for chronic kidney disease reported that the service was convenient and provided timely and helpful advice.<sup>b</sup></li> </ul>
Education (transfer of skills) from specialists to PCPs	<ul style="list-style-type: none"> <li>GPs in the UK using e-consultation for chronic kidney disease reported feeling more confident managing the condition.<sup>c</sup></li> <li>"[E-consultation] also provides education. If you take the time to write out the thinking, then they don't have to ask you the question again because you just taught them. So it helps them be a better physician and it also will cut down on the questions." —<i>Oncologist</i></li> </ul>
Asynchronous communication and information exchange does not interrupt workflow	<ul style="list-style-type: none"> <li>At the Mayo Clinic, 67% of surveyed specialists agreed that virtual consultations were less disruptive than contacts by telephone or pager.<sup>d</sup></li> <li>"Asynchronous communication is very helpful to busy practitioners; it doesn't work by telephone." —<i>Obstetrician/gynecologist</i></li> </ul>
More appropriate specialty referrals	<ul style="list-style-type: none"> <li>San Francisco General Hospital surgical specialty clinicians reported inappropriate referrals for 9.8% of paper-based referrals vs. 2.1 percent for e-referral visits.<sup>e</sup></li> <li>"A lot of the [e-consult] questions are so-called minor questions and the patient probably does not need to be seen as a formal consult. However, the family doctor wants to know how to answer a minor question, or sometimes they just want general guidance about a workup. So, we can help the family care doctor accomplish that result, without a formal consultation." —<i>Urologist</i></li> </ul>
Improved information transfer between providers	<ul style="list-style-type: none"> <li>Medical specialty clinicians reported that the e-referral system implemented by San Francisco General Hospital enabled them to more easily identify a proposed clinical question or reason for consultation compared with paper-based referrals.<sup>f</sup></li> <li>89% of PCPs using the e-referral system implemented by San Francisco General Hospital reported improved ability to track referrals compared with prior referral methods.<sup>g</sup></li> </ul>

<sup>a</sup> K. B. Angstman, S. C. Adamson, J. W. Furst et al., "Provider Satisfaction with Virtual Specialist Consultations in a Family Medicine Department," *The Health Care Manager*, Jan.–March 2009 28(1):14–18.

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<sup>c</sup> Ibid.

<sup>d</sup> Angstman, Adamson, Furst et al., "Provider Satisfaction with Virtual Specialist," 2009.

<sup>e</sup> J. E. Kim-Hwang, A. H. Chen, D. S. Bell et al., "Evaluating Electronic Referrals for Specialty Care at a Public Hospital," *Journal of General Internal Medicine*, Oct. 2010 25(10):1123–28.

<sup>f</sup> Ibid.

<sup>g</sup> Y. Kim, A. H. Chen, E. Keith et al., "Not Perfect, But Better: Primary Care Providers' Experiences with Electronic Referrals in a Safety Net Health System," *Journal of General Internal Medicine*, May 2009 24(5):614–19.



communication intensify the difficulty of coordinating care among clinicians.

E-consultations that are structured to include a clear question, proposed task or intervention, and desired outcome are more likely to be responded to by a specialist effectively. If the e-consultation request is vague, even if it includes considerable clinical background about the patient, the consultant is more likely to recommend a face-to-face visit rather than provide an electronic response to the PCP.<sup>24</sup> E-consultation software can be structured to prompt the PCP to provide information needed by consultants. E-consultation systems may improve the quality and documentation of consultations because they:

- use standardized formats that help structure questions and expectations for care, reducing opportunities for miscommunication;
- enable clinical information, including images such as photographs of lesions or patient videos, to be transmitted with the question; and
- provide documentation of the consultation and the advice given for billing or medico-legal purposes.

When e-consultation requests lead to a referral visit, the communication conducted via the e-consultation can facilitate completion of the previsit work that patients need before the specialty visit.<sup>25</sup>

E-consultations are not a substitute for face-to-face specialist visits that patients need, but can reduce unnecessary referrals and allow specialists to

see more appropriate patients. Reported reductions in specialist visits through the use of e-consultation range from 8.9 percent to 51 percent, with the majority of estimated reductions around 30 percent.<sup>26</sup> Minimizing avoidable specialty care visits is particularly important in areas with specialist shortages or for populations that are uninsured or underinsured. These reductions in avoidable specialist visits are a primary reason for net financial savings reported by some e-consultation system evaluations. A cost analysis of e-consultation implemented by Finland's national health care system estimated net savings for one hospital at €448,000 (approximately US\$601,619), driven by a 36 percent decrease in first-time, in-person specialty visits and a 50 percent decrease in nonurgent cases.<sup>27</sup> This analysis included variables such as the patient's travel to and from a consultation appointment. At the Mayo Clinic, researchers extrapolated that if e-consultations were ordered two to three times monthly by each provider, the system could avoid 1,800 specialty consultations per year, reducing direct costs by \$450,000 annually.<sup>28</sup>

These cost analyses cannot be generalized to all settings, however, because they have only been conducted in closed or integrated health care systems, which have different business models, clinician reimbursement and compensation models, and specialty services utilization management controls than do many of the fee-for-service delivery systems in the United States. One interesting exception is Doc2Doc, a Web-based e-consultation system developed by Dr. David Kendrick and colleagues at the University of Oklahoma for use in fee-for-service settings (see box).

Dr. David Kendrick is a practicing physician and a Kaiser Chair of Community Medicine at the University of Oklahoma School of Community Medicine. Dr. Kendrick has launched several technology platforms to improve the quality and efficiency of patient care, including a Web-based e-consultation and e-referral system called Doc2Doc that was designed to simulate the doctor's lounge culture where providers gathered, developed relationships, and discussed patient cases together. Dr. Kendrick believed that a technological fix would reduce unnecessary referrals. Doc2Doc was successfully implemented in the Oklahoma Department of Corrections (DOC). The DOC uses the University of Oklahoma's Medical School faculty for specialty referrals. To defray the overall cost of medical care by eliminating unnecessary referrals, the DOC began to use Doc2Doc. The DOC agreed to pay specialists \$50 for every completed e-consultation. Since implementation, Doc2Doc has reduced specialty visits (and the transportation involved) by approximately 50 percent and reduced costs. Almost 100,000 e-consultations have taken place to date, and the system has now spread for use in Louisiana and Kentucky.

From the published literature, it appears that e-consultation programs can respond to about one of three requests for a consultation without a face-to-face visit.<sup>29</sup>

As programs mature and requesting clinicians become more familiar with specialist preferences, the number of overall consultation requests and the proportion that can be addressed electronically may evolve. For example, in some health care systems, the availability of e-consultation may increase the overall quantity of consultation requests since specialists are more accessible. The use of e-consultation represents a major cultural and professional shift for many specialists and its use could increase as consultants become more comfortable using the technology and giving advice without patient contact.

### **What needs to change for e-consultation to be used more widely?**

Despite experience in some closed health care systems and promising findings, e-consultation has had minimal penetration into American health care. The paucity of data from rigorous trials may be a deterrent to its spread and the general lack of specialist reimbursement for involvement in virtual consultation discourages experimentation and dissemination. The evidence strongly suggests that e-consultation provides a promising alternative mechanism for primary care and specialist clinicians to communicate and collaborate in caring for patients. But large-scale implementation will require major changes to specialist roles and culture as well as to reimbursement.

**Health care business model.** Health care systems that benefit from reducing unnecessary specialist in-person referrals are more likely to implement e-consultation. While some health care plans in fee-for-service settings are beginning to explore the use of e-consultation, the emergence of e-consultation systems to date has been limited to organizations with a business model that supports alternatives to specialty office visits. Thus, most implementations of e-consultation have occurred in organizations such as integrated group practices where clinicians are capitated or salaried and

do not rely on reimbursement for face-to-face encounters. Early adopters of e-consultation are also found within health care systems that serve poor and underserved communities because, as San Francisco General Hospital's e-referral system demonstrates, the technology may help these patients gain access to specialist care. As health care systems plan for increased numbers of Medicaid patients after the implementation of health care reform, e-consultation may be an efficient way to provide care.

**Implementation of new technology.** Health care systems that embrace technology or have a history of sharing data among clinical groups are more likely to implement e-consultation. Policy could promote the use of e-consultation by including e-referral and e-consultation technologies and processes in the meaningful use objectives for Stage II and III of the Health Information Technology for Economic and Clinical Health (HITECH) Act.

**Incentives for specialists.** A lesson learned from early adopters is that health care systems need to provide incentives for clinicians (especially specialists) to participate. These incentives can be monetary in fee-for-service systems or workload credit in capitated or salaried health care systems. Health care payers and plans in fee-for-service payment systems could have an impact on the dissemination and adoption of e-consultation models by reimbursing clinicians when they request or respond to e-consultations.

**Reserved time.** Creating and responding to e-consultations takes time for clinicians that must be built into schedules and workflows. Systems with salaried specialists vary in how they currently incorporate e-consultations into daily workflows. Some systems schedule short appointment slots for specialists to review patients' medical charts and provide e-consultations back to the primary care physicians. Other integrated systems capture all incoming e-consultations for a specialist group in a shared pool and the group either rotates responsibility for who will respond to the requests or holds one specialist solely accountable for all e-consultations. If health care systems decide to implement e-consultation, it is important that clinical

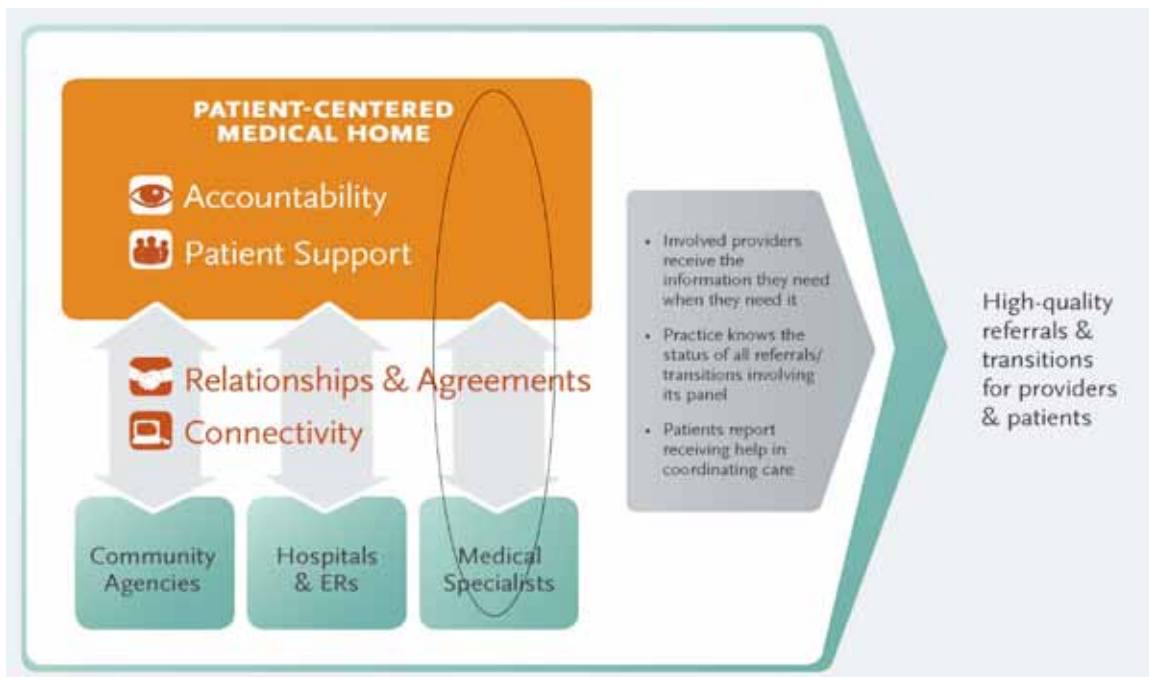
workflows and processes incorporate time for clinicians to use the technology.

I'm very enthusiastic about staff messages and e-consults, but I think we have to recognize what the time commitment is. Yesterday, I did 17 e-consults, which took two hours. So, each consult averages about seven minutes, although it was anywhere from two to 12 minutes. We have to recognize that this takes time—it took two hours out of my day.

—Endocrinologist

E-consultation is a potentially valuable way for clinicians to communicate about their patients' care. With appropriate incentives and more published studies and evaluations, e-consultation has the potential to substantially improve care coordination, clinician-to-clinician communication, clinical documentation, and patient experience while concurrently reducing health care costs associated with unnecessary specialist visits. Effective e-consultation programs can improve four key characteristics associated with better care coordination: accountability, patient support, relationships and agreements, and connectivity (Exhibit 3).<sup>30</sup>

Exhibit 3. Care Coordination Model



Source: The MacColl Institute for Healthcare Innovation, Group Health Cooperative, 2010.



**Accountability**—By allowing them to partner more efficiently and effectively, e-consultation can help primary care providers and their specialist colleagues be accountable for their patients' health.



**Patient Support**—E-consultation is an alternative mode for accessing specialist input that many patients find convenient.



**Relationships and Agreements**—E-consultation is a communication tool that may bridge relationship gaps among clinicians and be used to standardize the transfer of information.



**Connectivity**—E-consultation provides a convenient and asynchronous way for clinicians to communicate back-and-forth about a patient's care.



While the early experience of adopters suggests that e-consultation has the potential to improve care coordination and reduce costs, much more needs to be known about its implementation, effectiveness, and costs, especially outside of integrated health care delivery systems or salaried multispecialty medical group practices. Furthering our knowledge about the effects of various payment models and reimbursement

strategies will be critical to promoting the widespread adoption of effective and safe e-consultation. As early adopters continue to gain experience with using and improving the technology and the processes it enables, it will be important to elicit and disseminate their lessons learned to the broader medical, health services research, and health informatics communities.

## NOTES

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## METHODS

This issue brief aims to describe potential best practices in e-consultation and to summarize available data on the effects of e-consultations on patients, clinicians, and health care costs. We collected information about e-consultation using three approaches. First, we conducted an Internet search between July 13 and August 16, 2010, using five search terms (“e-consultation primary care,” “e-consultation specialty,” “doc to doc,” “primary electronic consult specialist,” and “virtual medicine”) and reviewed the first 10 pages of results generated by each. Searches identified 42 Web sites that described potential e-consultation programs. In July 2010, the study team searched PubMed and grey literature sites, including the New York Academy of Medicine online catalog, California HealthCare Foundation, The Commonwealth Fund, and the Henry J. Kaiser Family Foundation Web sites using the following search terms: “e-consultation specialty,” “primary care consult specialist,” and “virtual consultation primary care.” These searches produced 107 published articles that met study criteria.

Second, from the review of Web sites and literature, we identified 10 expert individuals who had either conducted research or implemented e-consultation programs. We interviewed nine experts and made one site visit. Because most of these implementation efforts were in early stages of development, outcomes data were scarce. However, these interviews provided the study team with insights about how e-consultation is being implemented in practice settings.

Third, we reviewed transcripts of semistructured research interviews with primary care and specialty clinicians and staff who use e-consultation (n=27) from Group Health Cooperative in Seattle. These interviews were conducted by Dr. Jim Tufano in 2008 and 2009 as components of two unpublished studies internally funded by the Group Health Research Institute with the support of coinvestigator Dr. James Ralston. The interviews describe the experience and attitudes of clinician and staff users of Group Health’s e-consultation system. All the quotes included in this issue brief are from these interviews.

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