Unique Educational Opportunities for PCPs and Specialists Arising From Electronic Consultation Services

Erin J. Keely, MD, Douglas Archibald, PhD, Delphine S. Tuot, MD, Heather Lochnan, MD, and Clare Liddy, MSc, MD

Abstract

Health care reform should be driven by the goals of better patient experience, improved population health, lower per capita costs, and improved provider satisfaction. Electronic consultation (eConsult) services have been adopted by several jurisdictions in the United States, Canada, and Europe to improve access to specialists by primary care providers (PCPs) and are being heralded as a key component for delivery of coordinated care. The primary intent of an eConsult service is to provide PCPs with efficient, timely, direct access to specialist expertise to help guide the management of their patients, reduce the need for unnecessary face-to-face specialty consultations, and improve the quality of the initial face-to-face consultation when needed, through the preconsultative communication.

In addition to improving access to care, eConsult services have been praised by PCPs and specialists for their educational value, in particular their ability to enrich practice-based learning. Less recognized, but equally important from the educational perspective, include the abilities of eConsult programs to promote reflection by PCPs and specialists, improve collegiality and professionalism between primary and specialist care, inform continuing professional development activities and maintenance of certification, and enhance training programs' teaching of effective communication and care coordination.

As eConsult services become increasingly available, the medical community must leverage the educational opportunities inherent in eConsult programs to further improve the delivery of coordinated specialty care. The educational role of eConsults should be considered as a priority outcome in their evaluation and must be highlighted and optimized in next iterations of eConsult systems design.

Health care reform should be driven by the goals of better patient experience, improved population health, lower per capita costs, and improved provider satisfaction.[1] In the United States, where referral rates have doubled between 1999 and 2009, suboptimal delivery of specialty care has become one of the most pressing health care issues for patients.[2] The current referral system relies on an inefficient primary care–specialty care interface resulting in lengthy wait times for avoidable specialist visits, duplicate testing, delayed diagnoses, and unnecessary costs. To address these issues, new models of health care delivery that focus on continuity of care, provision of care closer to a patient's home, and timely access have emerged, including electronic consultation (eConsult) systems. Although developed to enhance access for primary care physicians (PCPs) on behalf of their patients, eConsults provide a unique interface where communication is facilitated and the transcript of the exchange is stored in a secure fashion. eConsult programs allow aggregation of data and capture of key clinical and performance metrics. The focus of this article is to highlight the potential of eConsult services in educating individual providers and communities of providers and the system requirements needed to make this happen. The content is founded both from our wide personal experience in leading large eConsult services and a review of the literature.[3]

Please see the end of this article for information about the authors.

Correspondence should be addressed to Erin J. Keely, 1967 Riverside Dr., Room 401, Ottawa, Ontario, Canada K1H7W9; telephone: (613) 738-8400, ext. 81941; e-mail: ekeely@toh.ca.

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Background

eConsult services have been adopted by several jurisdictions in the United States, Canada, and Europe to improve access to specialists by primary care providers[4–6] and are being heralded as a key component for delivery of coordinated care.[5,7] An eConsult service is a technology-enhanced system where a PCP (or in some cases a specialist) can ask a patient-specific question directly to a consultant.[8] There is a transfer of information from one provider to another, with the expectation that the specialist will respond in a timely fashion directly to the PCP. eConsult systems allow iterative communication between providers until the question has been answered. The primary intent is to provide PCPs with efficient, timely access to specialist advice, reduce the need for unnecessary face-to-face specialty consultations, and improve the quality of the initial face-to-face consultation through previsit communication. The exponential growth of providers using eConsult services is partially explained by Rogers' diffusion of innovation theory,[9] which postulates that ideas are spread among groups of individuals as a result of characteristics inherent to the innovation itself, communication channels by which the idea is transmitted, elapsed time since introduction, and social context. The "relative advantage" of the eConsult over traditional referral methods is obvious: improved rapid access to specialist expertise enabling better care for the patient, in addition to avoiding expensive and sometimes unnecessary face-to-face specialty referrals. This is aligned with the needs of policy makers, PCPs, specialists, and patients. eConsults render the workflow of health care service more efficient and effective and reduce the complexity of the referral process by simplifying the means of communication

between PCPs and specialists to the extent that most cases are responded to by specialists in less than a day, and take less than 10 minutes to complete.[10]

PCPs and specialists participating in eConsult services recognize and appreciate their educational value, which is often cited as a motivator for continuing to participate.[11,12] In a thematic analysis of open-text comments provided by PCPs in a survey about their satisfaction with eConsult services, the educational value of the specialist response was a dominant theme.[12] PCPs felt they gained valuable knowledge in new medical disciplines or about diagnoses they were previously unfamiliar with, and refreshed their knowledge of areas they had not worked in for some time. PCPs felt this new knowledge often translated to better care, as they could now provide care in a more confident and informed manner. Some PCPs noted that the knowledge they gained for specific cases could be applied more generally, by guiding their management of subsequent patients presenting with similar conditions. This new knowledge could also be shared with colleagues. One PCP stated:

> Thank you very much for your detailed and very helpful response. It is great learning for me and I have shared it with a couple of my colleagues as well! I am glad that I will now be able to recommend against testing and treating the children with more evidence behind me and I will feel much more confident standing up for my now-more-educated opinion.[12]

The direct communication between providers afforded by eConsult services, and often missing in traditional consultations, results in educational benefits that are not limited to knowledge exchange but also include improved dialogue between PCPs and specialists, renewed appreciation of each other's scope of practice, and the opportunity to expand the capacity of PCPs to manage complex patients.[5] As eConsult systems become more commonplace, it is important to understand and embrace their unique educational opportunities.

Educational Opportunities Found in eConsult Services

Adult learning is often gained through experience. In part, learning derived from the eConsult experience can be explained through theories and models of experiential learning. Kolb's[13] well-known theory of experiential learning posits four key abilities of the learner which are critical to the eConsult process. The first is a willingness of the PCP to partake in new experiences—for example, crafting a clinical question for a specialist (concrete experience). The second learner ability is reflection that allows new experiences to be viewed via other perspectives—in this case, digesting clinical advice from specialists (reflective observation). Third is the analytic ability—for example, a PCP coming to an understanding or agreement with the specialist (abstract conceptualization); and fourth is problem solving and decision making, in this case enabling PCPs to implement new advice from specialists (active experimentation).[14] The cycle continues with each eConsult question.

For learning to occur through experience, there must be continuity and interaction.[15] For eConsults to be effective, a clinical question arising from the PCP's experience must be vetted through discourse, reflection, and action. Over time a PCP develops a social eConsult network of different specialist services from which to draw upon. Also, data derived from many eConsults in the form of consolidated reports can be used to inform continuing professional development (CPD) planning, and even resident and student learning activities. Figure 1 illustrates these principles and connects the learning opportunities that follow in the next section.

Enriching practice-based learning

Physicians identify gaps in knowledge during a patient encounter multiple times per day and must then decide whether to pursue additional learning around the question and if so, how. They may refer to a specialist, seek an informal consultation with a colleague ("curbside consultation"), or use available knowledge resources.[16] In a study by Cook and colleagues,[16] focus groups of family physicians and internists (primary care and subspecialists) identified eight features that influenced their selection of resources: efficiency, integration with clinical workflow, credibility, user familiarity, capacity to identify a human expert, reflection of local care processes, optimization for the clinical question, and ability to support patient education.

"Curbside" consultations are informal consultations, usually not remunerated or documented, between providers where a consultant is asked for advice about a patient without formally assessing the patient. They are an important part of the relationships between PCPs and specialists and may occur in a hallway, over the phone, or by e-mail.[17,18] PCPs initiate curbside consults to get a tailored answer to a clinical question that can take into account the nuances of an individual case with someone familiar with local resources (rather than looking for knowledge only), when they need an answer more quickly than a formal consult, or to bolster patient confidence in the care plan.[19] The timely, direct exchange of information between specialists and PCPs inherent to curbside consults supports not only the exchange of knowledge but also the rationale for decisions. Reasons cited by consultants to provide informal consults include the opportunity to help a colleague, to expedite patient care, and to teach.[19]

Preconsultative exchange is defined as a "clinical interaction between PCP and specialist occurring prior to or in lieu of an in person specialty care evaluation,"[20] with the intention of determining need for consultation and/or completion of necessary workup prior to the patient visit with the consultant.[21] In a 2013 survey of 451 U.S. internists (69% self-identified as primary care, 31% specialists), 68% reported at least occasional use of preconsultations. These were most commonly done by phone (87% of respondents), electronic medical records/eConsult systems (46%), or e-mail (30%) (respondents could select more than one answer).[22] Nearly one-half of PCPs and two-thirds of specialist respondents identified the educational value of preconsultations as important or very important.

eConsults can be seen as a replacement for the curbside consult and preconsultation exchange. The advantages of being done asynchronously and avoiding the need for providers to be available at the same time must be weighed against the real-time back-and-forth conversation that occurs on the phone or in the hallway. In all instances of providing advice to a PCP, the specialist has entered a duty of care, however. Also, because specialist responses via eConsult are always documented and retrievable, they may lead to improved transfer of knowledge and less legal risk

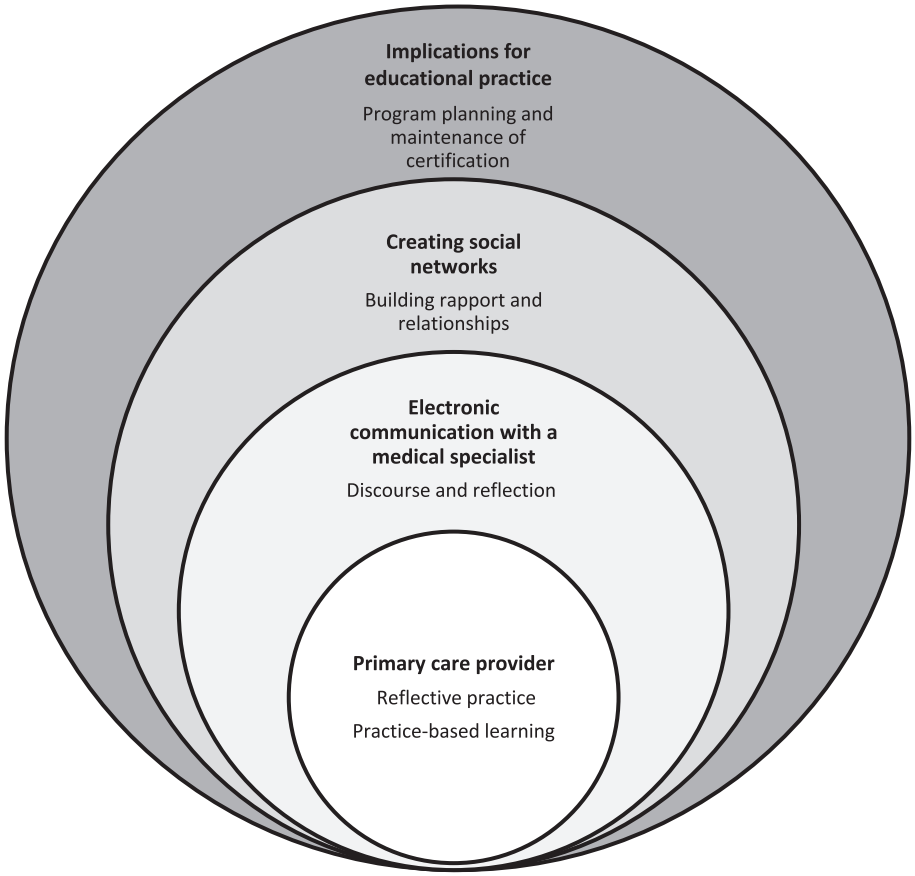

Figure 1 Four-level framework for experiential learning made possible through electronic consultations (eConsults).

compared with phone-based or in-person curbside consults.

Promoting reflection for PCPs and specialists

Reflection is an essential part of professional practice. Reflecting upon a particular experience permits physicians to then consider whether a different action or response to a similar situation should occur in the next instance.[23] Although reflection is usually an individual activity, new models of reflection aligned with the context of clinical practice lead to action with and for others within a practice group or wider organization (perhaps region).[23,24] Iterative interaction through eConsult programs may challenge assumptions and transform perspectives for both PCPs and specialists.[25] For example, a clinical question asked by a PCP may contain a nuance such as "but the patient is also taking 'x' medication," which leads the specialist to make further inquiry and continue further dialogue with the PCP, which in turn may lead to a transforming perspective for both clinicians. This is consistent with data from Murdoch-Eaton and Sandars[23] that suggest that it is more useful to have "productive" or "effective" reflections embedded into a complex workplace.

Similarly, Garrison et al[26] have proposed a four-phase practical inquiry model designed for learners to reflect on educational practice. The first phase of the model reflects the initiation phase of critical inquiry and is considered the triggering event.[27] Clinical questions from the PCP could serve as triggering events. The second phase is exploration. PCPs and specialists would "shift between the private, reflective world of the individual and the social exploration of ideas" by iteratively moving between the private and shared worlds—between critical reflection and discourse.[26] The third phase, integration, is about constructing meaning from the ideas/advice generated in the exploratory phase. The fourth phase is a resolution of the dilemma or problem. This requires the PCP to act on the advice from the specialist.

Reflection can be enhanced by eConsults through the direct virtual conversation but also through aggregated outcomes and feedback. For instance, PCPs could review their accumulated eConsults and determine if there is an opportunity for further learning. For specialists, questions that required further learning prior to answering (i.e., their own knowledge gap), responses that did not receive positive feedback from referring providers, or patient cases that resulted in unanticipated outcomes could be used for reflection. Also, through answering eConsults, specialists determine where there are challenges in accessing or applying clinical practice guidelines or other national directives such as Choosing Wisely (www.choosingwisely.org).[28]

Improving collegiality and professionalism through social networks

Health care providers need to be collaborative partners to provide quality care to patients.[29] New service models provide new opportunities to improve collegiality and professionalism between PCPs and specialists. The patient-centered medical home-neighborhood

(PCMH-N) framework is one model currently used in the United States to promote integrated, coordinated care.[30] Introduced in 2011 by the American College of Physicians, the key goals are to reduce fragmentation of care, improve communication among providers, and improve quality in primary care delivery.[20,22] Key processes inherent to an effective PCMH-N include preconsultation exchange and longitudinal communication among providers, both of which can be provided by eConsult systems.

Providers are more likely to engage in new models of care when there are opportunities to develop personal relationships, increase medical expertise, and gain mutual respect.[31] One qualitative study of 15 patients, 15 PCPs, and 4 specialists who used the Veteran Affairs eConsult service demonstrated that improved communication between providers was the primary reason for patient and specialist overall satisfaction.[32] Participation in eConsult services can be leveraged to educate PCPs and specialists on each other's competencies and effective communication. Specialists often complain of the poor quality of referral questions received in traditional face-to-face referral systems.[33] In our experience, the quality of questions asked in eConsult systems are generally thoughtful, much more specific than traditional referrals, and demonstrate the degree of time and effort that has gone into managing the patient up until the time of consultation. In a recent survey of 34 specialists representing 23 different specialties who use eConsult, 70% indicated that the program improved their communication with PCPs.[11]

Informing CPD program planning

CPD, which includes continuing medical education (CME), plays an important role in maintaining and improving the quality and efficiency of care that physicians provide to patients by translating evidence into clinical practice.[34] Clinicians expect high-quality, relevant, effective education that meets practice-based needs.[35] CPD providers, CME accreditation bodies, and professional organizations are increasingly recognizing the importance of practice-based CME to truly change physicians' behaviors and improve patient outcomes.[35] Traditional CME needs assessments are often conducted through surveys, focus groups, representative planning committees, or evaluation of previous activities. Consultation questions are a valuable and unique resource to identify the practice-based learning needs of clinicians.[36] These learning needs can be determined by identifying questions asked during or immediately after a PCP patient encounter, through categorizing library search requests, and through analysis of referral letters.[37–40] Referral questions such as those derived from eConsult are arguably a more accurate expression of physician learning needs than traditional needs assessments.

The wealth of clinical questions asked to different specialty groups from providers in different practice models and geographic locations, together with the ability to capture the discourse and aggregate data, enables eConsult services to uniquely inform and refine CPD content. The content and delivery of programs could be tailored for professional groups (e.g., nurse practitioners vs. PCPs) and geography (e.g., rural vs. urban) based on actual practice and needs. To harness this potential, eConsult questions need to be classified by content and question type (i.e., diagnosis vs. treatment), then summarized and conveyed to CPD planners in a structured format.

The Kirkpatrick evaluation framework assesses CPD effectiveness on four levels: participants' reactions or satisfaction with an educational intervention (level 1); changes in knowledge, skills, or attitudes (level 2); transfer of learning to practice (level 3); and finally, the results of the newly acquired behavior on organizational outcomes and/or improved patient care (level 4). CPD effectiveness should be assessed on all levels. However, most CPD providers only assess level 1 and 2 outcomes using pre- and postactivity questionnaires.[34] eConsult services can assess the impact on PCP behavior change through electronic questionnaires that identify if the PCP received new information that changed her or his course of action and if the need for a face-to-face referral was altered (level 3).[12] There are several recent studies that have classified questions received through eConsult services and related them to PCP behavior.[41,42] Although eConsult services should not be the sole source of CPD planning, they provide the opportunity to capture real clinical questions across multiple specialties and providers, and to highlight those that resulted in PCP behavior change in future CME events.

Enabling performance assessment and maintenance of certification

There are increasing expectations for PCPs and specialists to demonstrate that meaningful CPD has occurred to meet their maintenance of certification requirements. In addition, these certification requirements are expanding to include demonstration of improvement in care delivery and patient outcomes as well as enhancing office/practice efficiencies and effectiveness.[43]

Performance assessments are activities that provide data-supported feedback to individual physicians, groups, or health care teams related to their personal or collective performance in either simulated or actual practice environments. These can include patient satisfaction assessments, clinical outcomes (e.g., surgical site infections), and consistency with clinical practice guidelines. Practice audits with comparison against peers are becoming more common, with some organizations and health authorities requiring them. Although valuable for improving quality of care delivery, practice audits may have inherent barriers that include lack of resources to gather data, poor information flow between providers, lack of cohesive plans, and organizational impediments that increase provider frustration and reduce provider uptake.[44] Key facilitators include structured programs, effective training, supportive medical records systems, and shared dialogue between participants.[44] eConsult services that embed feedback from referring providers and capture performance metrics and referral outcomes provide an opportunity to inform individual specialists and specialty groups about their effectiveness and consultative quality. Thus, providers can leverage eConsult platforms to access information and reports that will satisfy maintenance of certification and accreditation regulatory bodies.

Enhancing training programs

Ensuring that primary care and specialty trainees are trained in effective, efficient referral–consultations is essential but

is often not done.[45,46] Incorporating participation in the eConsult process into training programs for both primary care and specialty trainees is a novel and feasible strategy to ensure acquisition of this competency. There have been some studies on faculty development needs of clinical teachers working in models that incorporate eConsults, but little attention paid to other training requirements.[45,47]

The eConsult paradigm situates itself well with the Association of American Medical Colleges' Aligning and Education for Quality initiative,[48] which seeks to connect data sources with educational and quality improvement programming. The following eConsult activities could be mapped to milestones and indicators that can contribute to meaningful behavior change and, ultimately, improved clinical outcomes:

- Increase knowledge of appropriate referrals to specialists for PCP trainees;
- Enhance knowledge of specialty trainees by reviewing questions and answers with supervisor;
- Train and evaluate care coordination and collaboration;
- Highlight collegiality and professionalism; and
- Provide feedback regarding quality communication between PCPs and specialty care clinicians.

Moreover, a catalogue of common and unusual eConsult cases could be developed among individual specialties to create an invaluable compendium of authentic cases for review by trainees.

eConsult Program Requirements to Maximize the Educational Benefits of eConsult Services

To reap the educational benefits of eConsult services, consideration must be placed on specialist engagement, program functionality, and workflow. The selection and reimbursement of specialist providers must be carefully considered when planning eConsult services. Most, but not all, published eConsult services use academic-based clinicians who are more likely than community-based physicians to be engaged in an education mandate. Leaders of eConsult services must carefully consider how they will select specialists to reinforce the importance of collaboration and education as part of the eConsult process. Provider payment is the main cost driver to any eConsult service. Service agreements which include an educational mandate in addition to quality-based parameters (timeliness, evidence-based quality responses) should be implemented. There are many different models of remuneration being used in eConsult services, including fee for service, use of salaried physicians, workload credit, and time-based compensation.[49] Some services reimburse PCPs and specialists, whereas others reimburse specialists only. Payment models and impact on other clinical activities may influence the ability to recruit and retain participating providers.

Information technology experts, health care planners, policy makers, clinicians, and educators must work together as systems are developed and implemented to ensure that the chosen platforms and workflows enable the educational potential inherent to eConsult programs. Table 1 outlines the data elements and system requirements to provide both individual and aggregate data that can then be used for reflection, feedback, and CME planning. Consideration must be given to how data are captured to facilitate quality and educational initiatives, including integration into clinical practice, and generation of summary reports.

Concluding Remarks

eConsult services are becoming increasingly available, and educators should proactively seek opportunities to leverage this important innovation. When contemplating implementation of an eConsult service, leaders should consider the potential educational benefits of eConsults as a priority outcome and influence the selection of specialty providers, as well as the platform and workflow design.

Table 1

Data and System Requirements Needed to Support Incorporating an Educational Mandate Into an eConsult Service

	Source		
Level of data	**Requesting provider**	**Specialist**	**System requirements**
Individual eConsults	• Course of action for this patient changed • New information identified that can be applied to future patients • Feedback received on quality of workup/question asked	• A knowledge gap identified—needed to access additional sources to answer question • Understanding of PCP expertise, challenges improved • Feedback received on helpfulness of information provided	• Reflective learning prompts • Ability to clone or flag question for future access • Link to MOC sites for personal learning projects • Iterative conversation • Feedback survey
Aggregate data	• Types of questions asked • Summary of actions taken in response to eConsult exchange • Feedback from specialists across multiple eConsults • Comparison with peers	• Types of questions answered • Summary of actions taken • Feedback from PCPs across multiple eConsults • Comparison with peers	• Identification of type of question (taxonomy available and collected) • Feedback surveys that are automated, that aggregate data, and that provide comparison with peers
CME event planning/ communications	• Important/timely/frequent questions with key learning issues	• Important/timely/frequent questions with key learning issues	• Identification of type of question • Ability to clone or flag question • Deidentification of questions to ensure privacy

Abbreviations: eConsult indicates electronic consultation; PCP, primary care provider; MOC, maintenance of certification; CME, continuing medical education.

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E.J. Keely is full professor, Department of Medicine, Faculty of Medicine, University of Ottawa, and chief, Division of Endocrinology and Metabolism, Ottawa Hospital, Ottawa, Ontario, Canada, and specialist lead, Champlain BASE eConsult Service.

D. Archibald is assistant professor, Department of Family Medicine, Faculty of Medicine, University of Ottawa, and education researcher, C.T. Lamont Primary Health Care Research Centre, Bruyère Research Institute, Ottawa, Ontario, Canada.

D.S. Tuot is assistant professor, Department of Medicine, University of California, San Francisco; Division of Nephrology, San Francisco General Hospital; and director, San Francisco General Hospital eReferral program and University of California, San Francisco, Center for Innovation in Access and Quality, San Francisco, California.

H. Lochnan is associate professor, Department of Medicine, and assistant dean, Continuing Professional Development and Education Programming, Faculty of Medicine, University of Ottawa, Ottawa, Ontario, Canada.

C. Liddy is associate professor, Department of Family Medicine, Faculty of Medicine, University of Ottawa, clinician investigator, C.T. Lamont Primary Health Care Research Centre, Bruyère Research Institute, Ottawa, Ontario, Canada, and primary care lead, Champlain BASE eConsult Service.

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