

Electronic Consultations (eConsults) for Safe and Equitable Coordination of Virtual Outpatient Specialty Care

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Poor access to timely, high-quality specialty care remains a significant challenge, especially for patients with barriers to health care access, and can result in high rates of preventable morbidity and mortality.^{1–3} The health disparities of the COVID-19 pandemic have further underscored the need for improved access to remote specialty care and reduction of in-person visits, especially for vulnerable patients with barriers to care such as uninsured, minority, and rural patients.^{4,5} Indeed, the patients most susceptible to adverse outcomes during the pandemic due to higher rates of comorbidities and structural difficulties with social distancing are also those who may face the most barriers in accessing specialty services.⁵

The COVID-19 pandemic has presented a unique set of challenges for the specialty care delivery system, including increased volumes of consultations and referrals to infectious disease and pulmonary specialists for potential COVID-19 cases, as well as an increased need for virtual specialty care access for management of other conditions in particularly at-risk patients.^{4,6} Coordination and transition of care between primary and specialty care are of utmost importance at a time when in-person communication may be more fragmented and more patients need timely input from specialists without putting themselves at unnecessary risk of exposure to COVID-19 through in-person visits.

While much recent attention has been given to the benefit of live synchronous telehealth video visits especially in the inpatient and emergency department settings,⁷ less attention has been given to the burgeoning role of asynchronous methods such as electronic consultations (eConsults) in outpatient specialty care. eConsults present an additional tool in the growing telehealth armamentarium of technology-facilitated communication modalities for the innovative delivery of patient care.^{8–10} We believe eConsults are a sustainable solution to improve overall coordination of care between outpatient

primary care providers (PCPs) and specialists and ensure safe, timely, and equitable outpatient specialty care.

eConsults are a method of asynchronous consultation that facilitates direct communication, typically between PCPs and specialists, over a secure shared electronic platform or electronic health record. Through rapid communication between primary care and specialists, eConsults allow for quick access to specialist input while averting the need for face-to-face in-person or virtual specialty visits, allowing for more cost-effective and convenient care for patients.^{11,12} Studies have shown that eConsults can decrease wait times for specialty input by 17.4% and reduce unnecessary specialty in-person visits especially in safety-net health systems, with patient satisfaction rates of 78 to 93% across various sites.^{13,14} eConsults also can serve a particular benefit for underserved patients with barriers to specialty care; a study of electronic dermatology consultations showed that eConsults served more nonwhite patients, more Medicaid enrollees, and also decreased the rate of patient no-shows.¹⁵ In the context of the pandemic, eConsults can serve an even more essential role in helping patients receive safe specialty care and avoid coming to the office for unnecessary visits. eConsults provide a different role from telehealth visits in that they eliminate the time, costs, and resources needed in a direct specialist-to-patient encounter. Over the past several years, the adoption of eConsults has expanded to major public and private health systems across the United States and the rates of adoption and use have increased during the pandemic.¹⁶

eConsults facilitate transitions between PCPs and specialists through several mechanisms, including improved relationships and communication, education of PCPs on how to manage specialized conditions, increased timeliness and access of care, and standardization of the referral process. First, they improve communication and relationships between PCPs and

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specialists through ongoing dialogue and education. One study found that over 80% of specialists also felt that eConsults result in improved communication between providers and that specialists appreciated the feedback received from PCPs.¹⁷ Standardized methods of communication between providers are increasingly important during the pandemic, when there may be additional barriers to in-person interactions due to social distancing measures and a more fragmented workforce as clinicians face shifting duties and redeployment. Second, because PCPs are often asked to perform additional work-up for patients, eConsults transition some specialty care management to PCPs, who can gain increased comfort managing conditions and optimizing preliminary work-up. In addition, the dialogue with specialists can have educational value to PCPs, particularly for trainees and clinicians with 10 or fewer years of experience, allowing for a more informed discussion during transitions of care.¹⁸ Up to 90% of PCPs have reported improved knowledge and confidence in managing specialized conditions after performing eConsults.^{18,19} In addition to improving the quality of communication and relationships between providers, the quicker responses from specialists and decreased time to in-person visits facilitate timelier handoffs of care. For example, two studies found that time to specialty input decreased from 127 to 41 days for dermatology and from 24 to 5 days for cardiology.^{20,21} Providers have reported that eConsults are especially helpful in reducing wait times for their patients who might otherwise have barriers to specialty care access, such as patients in safety-net settings.²² Lastly, some eConsult systems provide a standardized method of referral, which increases referral quality through increased accountability of providers, thereby ensuring that more relevant information is conveyed to ensure the safe and thorough coordination of care.²³

It is also important to note the limitations of eConsults in the coordination of care. First, while eConsults provide a way to communicate with specialists, a separate system of scheduling is often required if the specialist determines that an in-person visit or intervention is needed. However, studies have shown that even if eConsults require an additional mechanism or in-person referral, the wait time for in-person visit is decreased due to the reduction in unnecessary visits.¹⁴ Second, eConsults are best utilized to address specific clinical queries but is not a replacement for the comprehensive specialized care that occurs when a patient is seen in-person, which might uncover an important problem unrelated to the targeted eConsult query.

Specific examples of how eConsults can serve increasingly important roles in the context of the COVID-19 pandemic have emerged, as specialists have faced increased numbers of COVID-19-related consultations and continuing management of many at-risk patients in need of virtual specialty care access. First, eConsults can allow for dialogue between PCPs and infectious disease specialists to facilitate COVID-19 management that does not require additional work-up or an in-person visit. For example, a PCP may have an asymptomatic patient with a persistent positive COVID polymerase chain reaction testing who is required to have a negative test to return back to work. Although the PCP may benefit from infectious disease input, an in-person visit may not be warranted and thus an eConsult would be sufficient.

Another example use-case for COVID-related eConsults is a patient who presents with concern of pernio, or COVID-related skin changes in the toes. In this case, submission of photos to dermatology and communication about initial work-up and subsequent management can be managed through eConsults. Thus, eConsults can allow for efficient coordination of care while minimizing unnecessary visits and exposure for patients. eConsults can also aid in the management of vulnerable patients who need help managing chronic medical conditions. For example, an uninsured patient with multiple comorbidities may need additional specialist input on managing a chronic disease such as heart failure and not want to expose themselves to another doctor's visit. Thus, eConsults can allow the PCP to query the cardiology specialist for input on the management and whether an in-person visit is warranted during a public health emergency.

Although eConsults represent a promising innovation, there are certain important considerations for their implementation. It is important to provide standardized training, including integration into graduate medical education, on when using eConsults is most appropriate, what type of information to include, and how to formulate responses.²³ In addition, it will be increasingly important to ensure the reduction of provider burnout from the administrative burden of eConsults.²⁴ Of note, clinicians who believe in the mission of eConsults and their ability to improve specialty care access have higher rates of satisfaction and lower rates of burnout.²² It is also important to identify the particular populations that benefit most from eConsults and focus efforts on implementation of eConsults in such settings. Additional considerations regarding PCP interface design, process design, pre- and post-eConsult process decisions, eConsult implementation, and change management decisions have been previously outlined.²²

eConsults have the potential to both facilitate and moderate transitions of care between primary care and specialists, especially as the COVID-19 pandemic continues to create both increased need for—as well as additional barriers to providing—high-quality, timely specialty care. By embracing such technologies that enhance timely and complete interprofessional communication, specialists and PCPs can share in the successes of making the health of both individuals and populations more efficient, safe, and equitable.

Clinical Relevance Statement

eConsults are a promising innovation to improve access to virtual specialty care and facilitate transitions between primary and specialty care providers. Awareness and implementation of this technology are increasingly important in the context of the COVID-19 pandemic.

Multiple Choice Questions

1. What clinical scenario highlights the potential for specialty input via eConsult to help avert the need for an in-person visit?

- a. Patient with hypertension and coronary artery disease who presents to urgent care with fever and respiratory distress
- b. Patient who presents to their primary care office with possible COVID-related skin changes of the toes
- c. Patient who needs a mammogram for breast cancer screening
- d. Patient with diabetes who is stable on their current medication regimen

Correct Answer: The correct answer is option b because specialty input from dermatology would be beneficial for diagnosis but photo-submission of images and advice about work-up may be communicated through eConsults without the need for in-person visit. eConsult is not appropriate for presentations requiring emergent in-person evaluation (a) or patients who do not require specialist input in their management (c and d).

2. In which provider population do eConsults provide the most educational benefit?
 - a. Primary care providers with 10 or fewer years of experience
 - b. Providers in highly specialized fields including dermatology and cardiology
 - c. Providers conducting clinical trials
 - d. Providers with many years of experience in the field

Correct Answer: Option a is the correct answer because eConsult dialogue with specialists helps primary care providers gain increased comfort in managing more specialized conditions and performing the appropriate work-up. In addition, trainees and clinicians with 10 or fewer years of experience have reported the greatest educational benefit.

3. Which of the following describes an impact of eConsults on the delivery of specialty care?
 - a. Improved delivery of, and access to, synchronous live video specialist visits
 - b. Increased in-person management of specialized conditions by specialist providers
 - c. Greater volume of overall in-person clinician visits
 - d. Improved relationships between primary care and specialist providers

Correct Answer: Option d is the correct answer. eConsults provide a platform for ongoing dialogue and education that can improve communication and relationships between primary care providers and specialists. eConsults do not affect delivery of synchronous live video visits. In addition, education of primary care providers through eConsult allows for increased management of specialized conditions by primary care, thereby decreasing overall volume of in-person specialist visits.

Protection of Human and Animal Subjects

Human and/or animal subjects were not included in the project.

Conflict of Interest

None declared.

References

- 1 McConnell KJ, Charlesworth CJ, Zhu JM, et al. Access to primary, mental health, and specialty care: a comparison of Medicaid and commercially insured populations in Oregon. *J Gen Intern Med* 2020;35(01):247–254
- 2 Timbie JW, Kranz AM, Mahmud A, Damberg CL. Specialty care access for Medicaid enrollees in expansion states. *Am J Manag Care* 2019;25(03):e83–e87
- 3 Cook NL, Hicks LS, O'Malley AJ, Keegan T, Guadagnoli E, Landon BE. Access to specialty care and medical services in community health centers. *Health Aff (Millwood)* 2007;26(05):1459–1468
- 4 Azar KMJ, Shen Z, Romanelli RJ, et al. Disparities in outcomes among COVID-19 patients in a large health care system in California. *Health Aff (Millwood)* 2020;39(07):1253–1262
- 5 Webb Hooper M, Nápoles AM, Pérez-Stable EJ. COVID-19 and racial/ethnic disparities. *JAMA* 2020;323(24):2466–2467
- 6 Schwamm LH, Erskine A, Licurse A. A digital embrace to blunt the curve of COVID19 pandemic. *NPJ Digit Med* 2020;3:64
- 7 Hollander JE, Carr BG. Virtually perfect? Telemedicine for COVID-19. *N Engl J Med* 2020;382(18):1679–1681
- 8 Kummer BR, Willey JZ, Zelenetz MJ, et al. Neurological dashboards and consultation turnaround time at an academic medical center. *Appl Clin Inform* 2019;10(05):849–858
- 9 Lee DJ, Cronin R, Robinson J, et al. Common consumer health-related needs in the pediatric hospital setting: lessons from an engagement consultation service. *Appl Clin Inform* 2018;9(03):595–603
- 10 Gulacti U, Lok U. Comparison of secure messaging application (WhatsApp) and standard telephone usage for consultations on Length of Stay in the ED. A prospective randomized controlled study. *Appl Clin Inform* 2017;8(03):742–753
- 11 Snoswell C, Finnane A, Janda M, Soyer HP, Whitty JA. Cost-effectiveness of store-and-forward teledermatology: a systematic review. *JAMA Dermatol* 2016;152(06):702–708
- 12 Rajda J, Seraly MP, Fernandes J, et al. Impact of direct to consumer store-and-forward teledermatology on access to care, satisfaction, utilization, and costs in a commercial health plan population. *Telemed J E Health* 2018;24(02):166–169
- 13 Liddy C, Drosinis P, Keely E. Electronic consultation systems: worldwide prevalence and their impact on patient care—a systematic review. *Fam Pract* 2016;33(03):274–285
- 14 Barnett ML, Yee HF Jr, Mehrotra A, Giboney P. Los Angeles safety-net program eConsult system was rapidly adopted and decreased wait times to see specialists. *Health Aff (Millwood)* 2017;36(03):492–499
- 15 Wang RF, Trinidad J, Lawrence J, et al. Improved patient access and outcomes with the integration of an eConsult program (teledermatology) within a large academic medical center. *J Am Acad Dermatol* 2019. Doi: 10.1016/j.jaad.2019.10.053
- 16 Phadke NA, Del Carmen MG, Goldstein SA, et al. Trends in ambulatory electronic consultations during the COVID-19 pandemic. *J Gen Intern Med* 2020:1–3
- 17 Keely E, Williams R, Epstein G, Afkham A, Liddy C. Specialist perspectives on Ontario provincial electronic consultation services. *Telemed J E Health* 2019;25(01):3–10
- 18 Kwok J, Olayiwola JN, Knox M, Murphy EJ, Tuot DS. Electronic consultation system demonstrates educational benefit for primary care providers. *J Telemed Telecare* 2018;24(07):465–472
- 19 Liddy C, Afkham A, Drosinis P, Joschko J, Keely E. Impact of and satisfaction with a new eConsult service: a mixed methods study of primary care providers. *J Am Board Fam Med* 2015;28(03):394–403
- 20 Olayiwola JN, Anderson D, Jepeal N, et al. Electronic consultations to improve the primary care–specialty care interface for cardiology in

- the medically underserved: a cluster-randomized controlled trial. *Ann Fam Med* 2016;14(02):133–140
- 21 Whited JD, Hall RP, Foy ME, et al. Patient and clinician satisfaction with a store-and-forward teledermatology consult system. *Telemed J E Health* 2004;10(04):422–431
- 22 Lee MS, Ray KN, Mehrotra A, Giboney P, Yee HF Jr, Barnett ML. Primary care practitioners' perceptions of electronic consult systems: a qualitative analysis. *JAMA Intern Med* 2018;178(06):782–789
- 23 Lee MS, Nambudiri V. Integrating telemedicine into training: adding value to graduate medical education through electronic consultations. *J Grad Med Educ* 2019;11(03):251–254
- 24 Hartzband P, Groopman J. Physician burnout, interrupted. *N Engl J Med* 2020;382(26):2485–2487