

# Electronic Consultations (eConsults)

A TRIPLE WIN FOR PATIENTS, CLINICIANS, AND PAYERS

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## Abstract

To increase access to care, asynchronous electronic consultation (eConsult) has been developed to facilitate direct communication and coordination between clinicians over a secure electronic platform. During these consults, the requesting clinician and the specialist share and discuss patient-specific information.

This report reviews the evidence on the effectiveness and safety of the use of eConsults by primary care clinicians and clinicians from multiple specialties and draws on interviews with leaders of six eConsult programs, including those operated by the Los Angeles County Department of Health and a Connecticut nonprofit, Community Health Center, Inc. The findings from four systematic reviews and 36 individual studies indicate that eConsults, compared with the traditional referral process, appear to be safe and are associated with:

- Improved access to specialty care,
- More efficient use of health care resources,
- High patient and clinician satisfaction, and
- Lower total cost of care.

The findings also indicate that implementation within clinician practices and health care delivery systems can be long and complex and includes challenges such as integrating eConsults into electronic health records.

This report is intended to be used to support decision makers considering coverage and implementation of eConsults. State Medicaid agencies are initially implementing coverage of eConsults through fee-for-service. Moving forward, states could explore how eConsult services can be incorporated into managed care contracts or other value-based payment models that add incentives, while placing guardrails, for use.

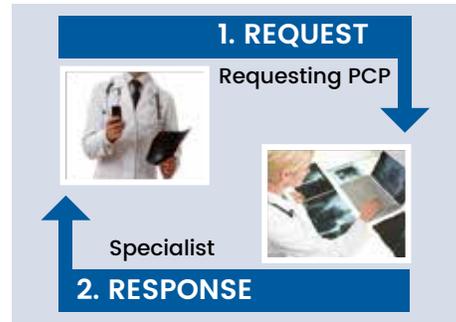
This report was developed on the basis of a more detailed report developed for the Medicaid Evidence-based Decisions (MED) Project, a research collaboration of 22 state Medicaid programs administered by the Center for Evidence-based Policy at Oregon Health & Science University.

## Background

Ensuring enrollees have timely access to specialty care is a persistent challenge within state Medicaid programs.<sup>1</sup> Barriers can include transportation challenges, long wait times, and some specialists' unwillingness to accept Medicaid.<sup>2</sup> In addition, the average referral process between safety-net clinics and hospital systems has 20 steps and involves up to eight people. Each step is a potential point for a breakdown within the referral process.<sup>1</sup>

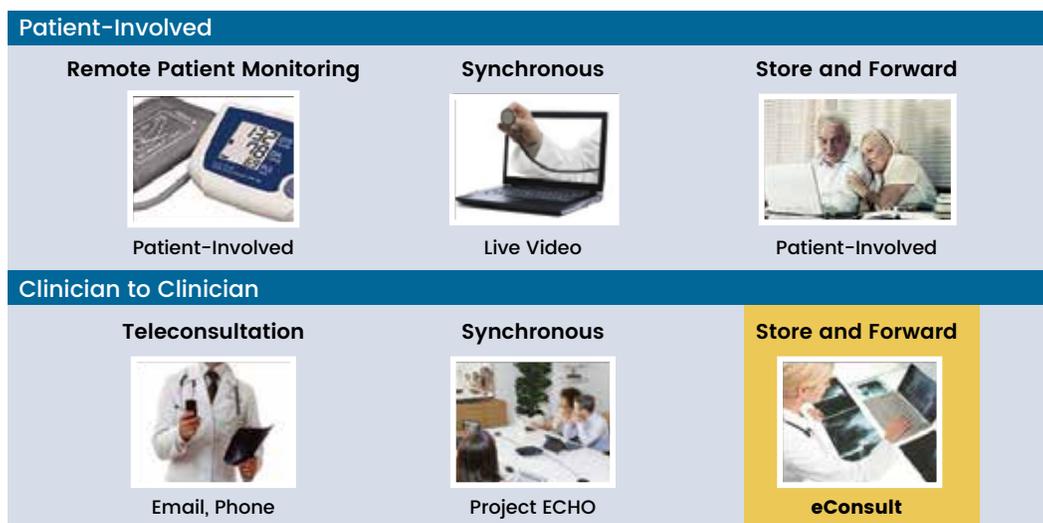
eConsults, defined as "directed communication between providers over a secure electronic medium that involves sharing of patient-specific information and discussing clarification or guidance regarding clinical care,"<sup>3</sup> is one approach designed to address these barriers and increase access to specialty care (Figure 1).<sup>4</sup> eConsults have also been proposed to reduce the need for patients' face-to-face specialist visits that occur either in person or through telemedicine (e.g., video conferencing).<sup>3,4</sup>

Figure 1. eConsult Process



Several specialty consultation mechanisms are available for primary care clinicians who may have traditionally relied on informal "curbside" consults when seeking specialist guidance for patient care. Teleconsultation mechanisms differ based on whether the service (1) provides real-time/live consultation (video, phone) or is asynchronous (eConsults); (2) provides general recommendations (email consultation) or review of patient-specific data (eConsults); or (3) provides specific recommendations from a team of specialists (Project ECHO) versus a single specialist (eConsults) (Figure 2).<sup>4</sup>

Figure 2. eConsults in Relation to Other Examples of Telehealth Services



Adapted from BluePath Health, Inc.<sup>7</sup>

These types of telehealth services differ from those that involve the patient, such as remote patient monitoring (i.e., patients use technology-enabled devices, such as a blood pressure monitor, that automatically send clinical data to a clinician), clinic visits via live video, and store-and-forward mechanisms (e.g., a patient sends a clinician self-reported clinical data) (Figure 2). eConsults have been used predominantly in the specialties of cardiology, dermatology, endocrinology, gastroenterology, hematology, infectious diseases, nephrology, and neurology, and is rapidly expanding into other specialties.<sup>3-6</sup>

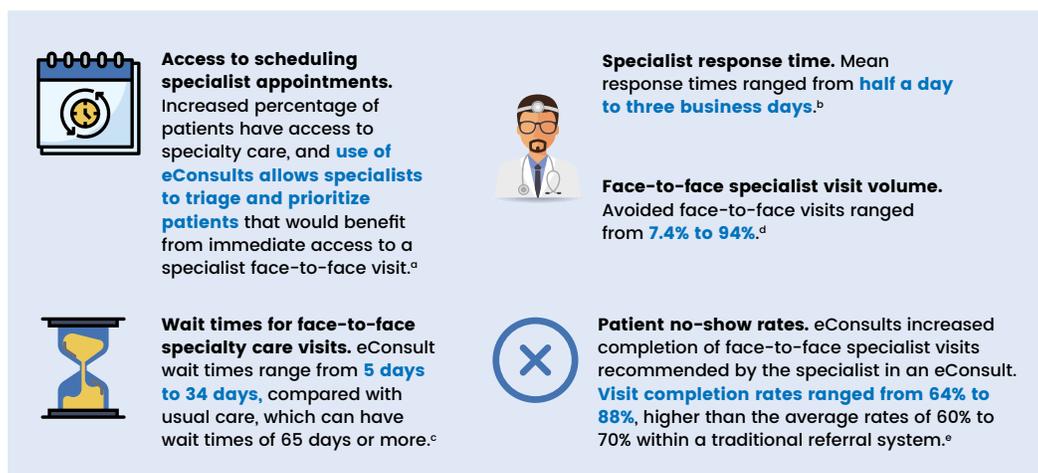
Most studies of eConsult services have been conducted in a select number of integrated health care systems internationally, including the Veterans Health Administration/Veterans Affairs, the Ontario Champlain BASE (Building Access to Specialists through eConsultation) program, the United Kingdom's National Health Service, the San Francisco Health Network, and the Mayo Clinic. In some health care systems, eConsults are now available in more than 80 specialties.<sup>8</sup> The growing use of eConsults exists within the broader context of rapid growth of all telehealth services. These rapid changes bring questions about the effectiveness and safety of this communication style between primary and specialty care clinicians, eConsult system implementation considerations, and reimbursement models for eConsult services.

## Key Findings

### eConsults increase access to care while creating more efficient use of health care resources

eConsults have been primarily studied in settings where there is limited access to specialists and long wait times to establish face-to-face specialist appointments. eConsult systems are effective at sidestepping these barriers by creating a structure for primary care and specialty clinicians to discuss patient cases in a timely manner. (Many eConsult systems require that a specialist respond to an eConsult request within 48 to 72 hours.) Such systems default to face-to-face specialist visits only for issues that cannot be addressed with a written consultation with the primary care clinician. For example, an eConsult may not suffice for patients with medically complex conditions or symptoms that would require a procedure such as a biopsy for diagnosis. Through the eConsult process, specialists can guide primary care clinicians to manage conditions within their own practice that may fall outside the typical scope of primary care. This could also include ensuring the patient undergoes needed testing prior to a face-to-face specialist visit, eliminating the need for at least one specialist visit. In our review of the evidence, we found substantial support to suggest that eConsult use results in increased access to specialist care and more efficient use of health care resources across a variety of measures (Figure 3).

**Figure 3. Effect of eConsult Use on Access to Care and Efficiency of Health Care System Use**



Notes: a=3, 9, 24, 33, 47. b=3, 4, 9, 11, 17-19, 24, 27, 31-34, 36-38, 42, 43. c=4, 9, 14, 16, 36-38. d=3, 4, 6, 9, 17, 18, 20, 23, 25-28, 30-36, 38, 40-44. E= 1, 24, 27, 33, 38, 41, 43, 45.

## eConsults are a safe, cost-effective approach to care delivery that leaves both clinicians and patients satisfied

Studies demonstrated eConsults reduced total cost of care by between 36% and 83%.<sup>3,9,11-13,24,25,28</sup> For example, the Community Health Center Inc. in Connecticut, using Medicaid claim data, found that the use of eConsults reduced the total cost of care after implementation across dermatology, endocrinology, gastroenterology, and orthopedics specialties. The greatest savings was in orthopedics, where patients for whom an eConsult was made had an average specialty-related episode of care cost of \$32 per patient per month compared to the traditional referral process, which averaged \$117 per patient per month for specialty-related episodes.<sup>13</sup> Across the four specialties, the Community Health Center Inc. found that the use of eConsults reduced the average specialty-related episode of care costs by \$82 per patient per month.<sup>13</sup> eConsults may also achieve savings for payers and patients by helping to avoid the need for specialist visits and patient travel.<sup>3,9,11,28,30</sup>

Although there is far less robust evidence on the effect of eConsult use on important clinical outcomes than there is for access to care or cost, research from the field of dermatology suggests eConsult use results in the same clinical outcomes, without any unintended harms, as traditional referral methods.<sup>9</sup> Despite the variation of eConsult program design and delivery across specialties and delivery systems, patient and clinician satisfaction with the use of eConsults is consistently high (Figure 4).

Figure 4. Patient and Clinician Satisfaction with eConsult Use



**High average patient satisfaction. 78%–96% of patients** are satisfied on dimensions such as care quality, timeliness, improved access, and safety.<sup>a</sup>

**High primary care clinician satisfaction. 70%–100% of primary care clinicians** are satisfied on dimensions such as timely specialist advice, improved patient care, and educational value provided.<sup>b</sup>

**High specialist satisfaction. 50%–95% of specialists** were satisfied with eConsults and reported, for example, that the use of eConsults encouraged more comprehensive evaluations before specialty referral, fewer inappropriate clinical visits, and improved clinician-to-clinician communication.<sup>c</sup>

Notes: a=3, 4, 9, 15, 20, 27, 29, 33. b=3, 4, 6, 8, 9, 20, 27, 33, 37, 38, 40, 42. c=4, 9, 16, 22, 37, 42.

### There is still a great deal of variation in reported outcomes

The overall trends suggest eConsults improve access to care and the efficiency of health care utilization. However, the estimates of impact vary significantly and across specialties. For example, across studies, between 7% and 94% of face-to-face specialist visits were avoided with the use of eConsults. Based on our evaluation of the research, we were not able to determine if eConsults are more effective within specific specialties (e.g., dermatology vs. cardiology). The variation in the implementation of different eConsult systems may also lead to the varying estimates of effectiveness reported across studies. More robust research is needed to refine the estimates of how effective eConsults may be in increasing access to care, creating more efficient use of health care resources, and reducing total costs of care. While eConsults show promise at improving access to care and efficient use of health care resources, additional research could also highlight specific specialties that would benefit most from targeted promotion of eConsult use.

### There are a variety of approaches to eConsult implementation

There is significant variability in how eConsult programs are implemented and managed across health care systems. (See Case Studies A, B, and C.) Current programs either require primary care clinicians to use an eConsult prior to submitting a specialist referral or make eConsult use optional (Figure 5). Specialists responding to an eConsult may be employees, consultants, or part of a national web-based network of specialists (Figure 5). Further, clinicians may use eConsults through an existing electronic health record (EHR) system; a secure, web-based platform; or a hybrid model that integrates a web-based platform with an EHR (Figure 5). Integrated health care systems such as the Mayo Clinic, the Veterans Health Administration, and many academic medical centers have integrated an eConsult program

directly into their EHR systems.<sup>3,9</sup> Use of national web-based specialist eConsult networks may present regulatory and reimbursement challenges for Medicaid agencies depending on a state's out-of-state provider regulations.

**Figure 5. eConsult Implementation Design Options**

Requesting Clinician	Consulting Clinician	Technology Platforms
Mandatory visit prior to referral	Within health system or network	Electronic health record function
		Secure web-based platform
Optional initial visit	National network, third-party contract	Hybrid approach

### Implementation can be complex, costly, and time-consuming

Implementing eConsult programs at the clinic and health system level can be a complex and lengthy undertaking. Many eConsult programs start as pilots and slowly roll out across specialties.<sup>48</sup> Interviewees described the importance of offering clinician education and technical assistance in the rollout. For example, the Los Angeles County Department of Health Services spent two years implementing its eConsult system across more than 60 specialties (P. Giboney, personal communication). For the initial 180 of 400 clinic sites, Department of Health Services staff conducted three on-site visits at each site to describe the program, facilitate discussions on how to integrate eConsult into workflow, and train clinicians on the eConsult technology and process (P. Giboney, personal communication). Every primary care clinician and specialist receives general education about what constitutes an appropriate eConsult request and response (P. Giboney, personal communication). In addition, many of the eConsult programs contain specialty-specific educational materials, eConsult request and response templates, and detailed processes for uploading necessary information (e.g., pictures, test results).<sup>49,50</sup>

Along with ensuring providers receive the right training and technical support, state officials should consider other implementation challenges such as:

- Achieving buy-in from salaried specialists who do not have an incentive to provide timely eConsult responses (D. Kendrick, personal communication).
- Establishing quality metrics for specialists responding to eConsult requests. For example, some national web-based eConsult platforms use specialist response time as a quality metric and remove individuals from the network because of poor performance (D. Anderson, personal communication).

- Establishing reimbursement policies for out-of-state specialists. For example, some Medicaid programs require clinicians to have in-state licenses or be enrolled as a Medicaid provider (D. Anderson, personal communication).

Strategies to overcome these challenges include engaging clinical champions, building on current infrastructure, developing an eConsult system to respond to a specific need (such as limited access to specialty providers), embedding eConsults into provider workflow, actively addressing clinician concerns and frustrations, and reducing the administrative burden for out-of-state specialists to participate in Medicaid.<sup>48</sup>

### eConsult reimbursement models depend on health care delivery system design

Initially, eConsults were used in integrated health care systems that did not provide direct reimbursement for the time clinicians spent using the eConsult system. In the past few years, the adoption of eConsults has rapidly expanded across health care system types and specialties. Our review identified three dominant reimbursement mechanisms for eConsults: reimbursement per eConsult case, reimbursement for clinician time, and integration of eConsults as a mode of care delivery. As part of the

#### **Case Study A: Los Angeles County Department of Health Services**

The Los Angeles County Department of Health Services implemented an eConsult system in 2012 across its department facilities and non-county-owned community health centers.<sup>1</sup> All requesting clinicians, regardless of practice setting, submit eConsult requests through a secure, web-based eConsult platform. All nonurgent, outpatient referral requests are reviewed and triaged by a specialist. Requesting clinicians cannot submit such referral requests to specialists outside of the eConsult platform.

For patients who have a medical record number with the Los Angeles County Department of Health Services, the completed eConsult conversation appears in the patient's EHR. As part of the eConsult process, individual requesting clinicians are assigned to a specific specialist to foster the development of long-term collaboration between clinicians. Specialists are assigned to referring primary care clinicians based on their geographic proximity to the patient's residence. When a specialist determines that an eConsult request should lead to a face-to-face visit, specialist visits are generally scheduled within the specialist's clinic, if not directly with the reviewing specialist.

Within the Los Angeles County Department of Health Services, the use of eConsults is integrated into primary care and specialty clinicians' workloads without additional reimbursement. However, the balance of time expected to be spent on eConsults versus other clinical care can be adjusted based on eConsult demand.

<sup>1</sup> P. Giboney (personal communication, 2019) provided information regarding the Los Angeles County Department of Health Services' eConsult program.

2019 revisions to Medicare's Physician Fee Schedule, the Centers for Medicare and Medicaid Services (CMS) adopted two new interprofessional internet consultation codes, or CPT codes specific to eConsults, that became effective January 1, 2019:

- **99451:** "Interprofessional telephone/internet/electronic health record assessment and management service provided by a consultative physician including a written report to the patient's treating/requesting physician or other qualified health care professional, 5 or more minutes of medical consultative time"<sup>51</sup>
- **99452:** "Interprofessional telephone/internet/electronic health record referral service(s) provided by a treating/requesting physician or qualified health care professional, 30 minutes"<sup>51</sup>

CMS outlined specific criteria for the use of CPT 99451 (consulting provider) and 99452 (requesting provider) that establish parameters for the use of eConsults. For example, code 99451 cannot be billed more than once in a seven-day period for the same patient and cannot be billed if an eConsult results in a recommendation for a face-to-face specialist visit within 14 days of the eConsult.<sup>52</sup> The new eConsult-related codes also require a patient's verbal consent before the requesting provider can submit an eConsult, largely because of Medicare's required cost-sharing component for these codes.<sup>51,52</sup>

### **Case Study B: Community Health Center, Inc**

Community Health Center, Inc. is a not-for-profit organization and the largest federally qualified health center (FQHC) in Connecticut.<sup>1</sup> It maintains more than 200 locations statewide, with some service sites that are mobile or embedded within schools and shelters. The organization's eConsult program was initially piloted from 2012 to 2013 through a cluster randomized controlled trial that evaluated the use of eConsults within cardiology. The initial eConsult system routed all primary care clinician eConsult requests through a referral coordinator who uploaded the requests to the eConsult platform.<sup>46</sup> Based on the positive findings from the trial, Community Health Center, Inc. expanded the use of eConsults within its network and developed the Community eConsult Network in 2015, which today is a national group of 160 specialists that serves various health systems and primary care practices. The Community eConsult Network uses an eConsult coordinator who assigns all incoming requests to an appropriate specialist, as well as a secure, web-based platform. (Community eConsult Network has rebranded as ConferMED since the writing of the MED report.)

In 2016, Connecticut Medicaid used a state plan amendment to reimburse FQHCs' use of eConsults through a tiered structure based on eConsult volume.<sup>47</sup> With the release of the 2019 eConsult CPT codes, Connecticut Medicaid shifted eConsult reimbursement to a fee-for-service model.

<sup>1</sup> D. Anderson provided information regarding the Community Health Center, Inc.'s eConsult program.

### **Case Study C:**

#### **University of Oklahoma–Tulsa’s SoonerCare (Oklahoma Medicaid) Health Access Network**

Through the University of Oklahoma–Tulsa’s SoonerCare (Oklahoma Medicaid) Health Access Network,<sup>1,2</sup> a referring clinician can submit an eConsult to a specific specialist or a general specialty field. In the response, the consulting specialist can provide recommendations, submit electronic prescriptions, and order tests for the patient. The specialist network of the eConsult program consists of salaried faculty clinicians at the University of Oklahoma. The eConsult system is paired with an enhanced electronic referral system that also supports the scheduling and tracking of in-person referral visits. The Oklahoma Health Care Authority provides the health access networks with capitated per member, per month payments, which fund the administrative costs of the University of Oklahoma–Tulsa’s eConsult program.

<sup>1</sup> The Oklahoma Health Care Authority established the SoonerCare (Medicaid) Health Access Networks in 2008 as part of the state’s 1115 waiver. Health Access Networks are nonprofit, administrative entities tasked with working with providers to coordinate and improve the quality of care for SoonerCare members.

<sup>2</sup> D. Anderson provided information regarding the Community Health Center, Inc.’s eConsult program.

The establishment of eConsult-specific CPT codes by CMS is an important step in creating a pathway for payers to reimburse providers for using eConsult services. However, one concern is that without guidance on the expectations for and use of eConsult services, there is potential for abuse of a fee-for-service reimbursement system for eConsult interactions (personal communication: D. Anderson, S. Shipman). For example, Project CORE and the CMS Medicaid guidance on CPT 99451 and 99452 place parameters around not reimbursing for eConsults that led to a face-to-face specialist visit (S. Shipman, personal communication).<sup>52</sup> Interviewees also stressed the importance of acknowledging that eConsults require significant amounts of time from the referring clinician and specialist, and thus both provider types should be reimbursed for their time (personal communication: D. Anderson, S. Shipman).

In addition, establishing CPT codes for eConsults could be perceived as encouraging clinicians to promulgate the use of eConsults solely through a fee-for-service system. State officials may want to consider how eConsult use could be promoted and reimbursed within the context of value-based payment models.

To protect against potential misuse of the new eConsult codes in a fee-for-service system, health care payers could consider establishing parameters around the use of CPT 99451 and 99452 such as the following:

- Appropriate patients for an eConsult (e.g., new patients or patients without an established relationship with a specialist)
- Whether reimbursement for eConsults occurs if a patient requires a face-to-face specialist visit within a certain time period—for example, 14 days—from the eConsult

- The intended purpose of an eConsult (e.g., clinical vs. logistical questions)
- The requirements for a high-quality eConsult request and response and use of any tools to help improve quality and consistency (e.g., provider eConsult templates)
- The parts of the care continuum that are incorporated into eConsult reimbursement (e.g., submitting an eConsult request, follow-up with a patient)
- Circumstances that require patients' verbal or written consent prior to a primary care provider submitting an eConsult request (e.g., existence of an eConsult copay)(S. Shipman, personal communication)

## Conclusion

There is a strong indication that the use of eConsults can increase access to, and make more efficient use of, specialty care without sacrificing patient or clinician satisfaction or increasing total costs of care. Moreover, initial reports suggest that the use of eConsults can actually lower total cost of care and can support better communication and relationships between primary care and specialty care clinicians. There are concerns about the system effects of implementing an eConsult program, such as increased workload or potential for abuse through a fee-for-service reimbursement strategy. However, the benefit that the use of eConsult can add to the care delivery system greatly outweighs these concerns.

The use of eConsults holds promise for delivering health care services that are more patient-centered, reducing the need for face-to-face specialist visits and unnecessary testing and procedures, and reducing patients' costs by minimizing travel time and costs, child care needs, and time off work. This potential is even greater in rural communities, where access to specialty care is often limited or not available. From a coverage perspective, the use of eConsults provides one solution to address access of care issues and reduce health care system inefficiencies and cost. State officials could explore eConsult coverage criteria and policy parameters that encourage the use of eConsults within primary care while either placing safeguards to protect from potential misuse of eConsults within a fee-for-service system or promoting eConsult use within larger value-based payment frameworks. Implementation of eConsults within a state does not have a one-size-fits-all solution; state Medicaid programs will need to design eConsult coverage criteria and reimbursement specific to state regulations and access needs.

The evidence base for eConsults is rapidly growing. Although the vast majority of the studies we identified relied on methodologically limited retrospective data analysis, there were consistent positive reported results from the use of eConsults. Nevertheless, it is impossible to know whether other health systems had negative experiences with piloting or implementing the use of eConsults and chose not to publish their experiences. Additional comparative studies are needed to fully understand the effects of eConsults on important

patient outcomes and care. In addition, effectiveness could vary across specialties and by health care system implementation. For example, we did not identify any studies that evaluated the comparative effectiveness of using eConsults within an integrated EHR versus a web-based eConsult platform. There could also be positive outcomes that have not been fully studied. For example, eConsults might reduce overall referral volume over time because of increased primary care provider education and experience in working with specialists.<sup>24</sup> Further research will help policymakers determine if certain specialties may benefit more from enhanced promotion of eConsult use.

## Methods/Data Sources

Researchers from the Center for Evidence-based Policy searched core MED evidence sources (e.g., Cochrane Library) for systematic reviews, technology assessments, randomized controlled trials, and observational studies that reported on the effectiveness and harms of an eConsult between primary and secondary care for any specialty. Included citations were limited to those published in English and after 2008. We limited inclusion of individual studies to eConsult systems based in the United States. To ensure that the most recent data were included, we conducted a Google search and searched Ovid MEDLINE through April 2, 2019, for the study designs listed previously. For individual studies, we excluded any non-US-based interventions, including studies of US military where referring clinicians were located outside of the United States. We also excluded any study in which the referring clinician was located outside of primary care (e.g., inpatient, emergency department). For methodological quality assessment, a single center researcher assessed all included studies for risk of bias, which was confirmed by a second Center researcher. We rated all noncomparative retrospective data study designs as having a high risk of bias.

We identified four good-methodological-quality systematic reviews<sup>3,4,9,10</sup> and 36 individual studies<sup>6,8,11-44</sup> that evaluated the effectiveness, safety, and economic outcomes of eConsults across a range of specialties and patient populations. The majority of included studies used retrospective data analysis and reported averages or percentage ranges for outcomes (e.g., patient satisfaction). Within the published literature, we found substantial differences in the reported specialties, outcomes, patient populations, primary care clinician types, and eConsult technology platforms. In addition, we searched core MED policy sources (e.g., *Health Affairs*), state laws, and Medicaid provider manuals and fee schedules, and we conducted interviews with program directors from six state, regional, or health system eConsult programs.

## Notes

- <sup>1</sup> Reines C, Miller L, Olayiwola JN, Li C, Schwartz E. Can eConsults save Medicaid? *NEJM Catal*. 2018. <https://catalyst.nejm.org/econsults-save-medicaid-referrals/>. Accessed April 3, 2019.
- <sup>2</sup> Felland LE, Lechner AE, Sommers A. *Improving Access to Speciality Care for Medicaid Patients: Policy Issues and Options*. Washington, DC: The Commonwealth Fund; 2013. [https://www.commonwealthfund.org/sites/default/files/documents/\\_\\_\\_media\\_files\\_publications\\_fund\\_report\\_2013\\_jun\\_1691\\_felland\\_improving\\_access\\_specialty\\_care\\_medicaid\\_v2.pdf](https://www.commonwealthfund.org/sites/default/files/documents/___media_files_publications_fund_report_2013_jun_1691_felland_improving_access_specialty_care_medicaid_v2.pdf). Accessed April 30, 2019.
- <sup>3</sup> 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(6):323-330. doi:10.1177/1357633X15582108.
- <sup>4</sup> Liddy C, Moroz I, Mihan A, Nawar N, Keely E. A systematic review of asynchronous, provider-to-provider, electronic consultation services to improve access to specialty care available worldwide. *Telemed J E Health*. 2019;25(3):184-198. doi:10.1089/tmj.2018.0005.
- <sup>5</sup> Najafi N, Harrison JD, Duong J, Greenberg A, Cheng HQ. It all just clicks: development of an inpatient e-consult program. *J Hosp Med*. 2017;12(5):332-334. doi:10.12788/jhm.2740.
- <sup>6</sup> Olayiwola JN, Potapov A, Gordon A, et al. Electronic consultation impact from the primary care clinician perspective: outcomes from a national sample. *J Telemed Telecare*. 2018;1357633X18784416. doi:10.1177/1357633X18784416.
- <sup>7</sup> BluePath Health Inc. *Electronic Consult Reimbursement Roadmap*. Kentfield, CA: BluePath Health; 2016. [https://blueshieldcafoundation.org/sites/default/files/u19/eConsult%20GPS\\_032916.pdf](https://blueshieldcafoundation.org/sites/default/files/u19/eConsult%20GPS_032916.pdf). Accessed April 3, 2019.
- <sup>8</sup> 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(7):465-472. doi:10.1177/1357633X17711822.
- <sup>9</sup> Liddy C, Drosinis P, Keely E. Electronic consultation systems: worldwide prevalence and their impact on patient care—a systematic review. *Fam Pract*. 2016;33(3):274-285. doi:10.1093/fampra/cmw024.
- <sup>10</sup> Trotten AM, Hansen RN, Wagner J, et al. *Telehealth for Acute and Chronic Care Consultations*. Rockville, MD: Agency for Healthcare Research and Quality; 2019. <https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/cer-216-telehealth-final-report.pdf>. Accessed April 30, 2019.
- <sup>11</sup> Abbott DE, Macke RA, Kurtz J, et al. Financial and temporal advantages of virtual consultation in veterans requiring specialty care. *Mil Med*. 2018;183(1-2):e71-e76. doi:10.1093/milmed/usx006.
- <sup>12</sup> Anderson D, Villagra V, Coman EN, et al. A cost-effectiveness analysis of cardiology eConsults for Medicaid patients. *Am J Manag Care*. 2018;24(1):e9-e16.
- <sup>13</sup> Anderson D, Villagra VG, Coman E, et al. Reduced cost of specialty care using electronic consultations for Medicaid patients. *Health Aff (Millwood)*. 2018;37(12):2031-2036. doi:10.1377/hlthaff.2018.05124.
- <sup>14</sup> Baig MM, Antonescu-Turcu A, Ratarasarn K. Impact of sleep telemedicine protocol in management of sleep apnea: a 5-year VA experience. *Telemed J E Health*. 2016;22(5):458-462. doi:10.1089/tmj.2015.0047.

- <sup>15</sup> Baranowski MLH, Balakrishnan V, Chen SC. Patient satisfaction with the Veteran's Administration teledermatology service. *J Am Acad Dermatol*. 2019;S0190-9622(19)30143-4. doi:10.1016/j.jaad.2019.01.036.
- <sup>16</sup> Bauer BS, Nguyen-Phan AL, Ong MK, Ziaeeian B, Nguyen KL. Cardiology electronic consultations: efficient and safe but consultant satisfaction is equivocal. *J Telemed Telecare*. 2019;1357633X19828130. doi:10.1177/1357633X19828130.
- <sup>17</sup> Bertrand SE, Weinstock MA, Landow SM. Teledermatology outcomes in the Providence Veterans Health Administration. *Telemed J E Health*. 2019;25(12):1183-1188. doi:10.1089/tmj.2018.0242.
- <sup>18</sup> Burwick N, Stein J, Garcia DA, Broudy VC, Richard RE. Monoclonal gammopathies: electronic subspecialty consultation. *Eur J Haematol*. 2018;100(4):351-355. doi:10.1111/ejh.13019.
- <sup>19</sup> Carter ZA, Goldman S, Anderson K, et al. Creation of an internal teledermatology store-and-forward system in an existing electronic health record: a pilot study in a safety-net public health and hospital system. *JAMA Dermatol*. 2017;153(7):644-650. doi:10.1001/jamadermatol.2017.0204.
- <sup>20</sup> Chittle MD, Rao SK, Jaff MR, et al. Asynchronous vascular consultation via electronic methods: a feasibility pilot. *Vasc Med*. 2015;20(6):551-556. doi:10.1177/1358863X15601734.
- <sup>21</sup> Eastman KL, Lutton MC, Raugi GJ, et al. A teledermatology care management protocol for tracking completion of teledermatology recommendations. *J Telemed Telecare*. 2012;18(7):374-378. doi:10.1258/jtt.2012.120417.
- <sup>22</sup> Eaton JL, Mohr DC, Mohammad A, et al. Implementation of a novel occupational and environmental medicine specialty teleconsultation service: the VHA experience. *J Occup Environ Med*. 2015;57(2):173-177. doi:10.1097/JOM.0000000000000330.
- <sup>23</sup> Fulford D, Tuot DS, Mangurian C. Electronic psychiatric consultation in primary care in the safety net. *Psychiatr Serv*. 2016;67(10):1160-1161.
- <sup>24</sup> Gleason N, Prasad PA, Ackerman S, et al. Adoption and impact of an eConsult system in a fee-for-service setting. *Healthcare (Basel)*. 2017;5(1-2):40-45. doi:10.1016/j.hjdsi.2016.05.005.
- <sup>25</sup> Herbert C, Winkler H, Moore TA. Outcomes of mental health pharmacist-managed electronic consults at a Veterans Affairs health care system. *Ment Health Clin*. 2017;7(3):131-136. doi:10.9740/mhc.2017.05.131.
- <sup>26</sup> Kim EJ, Orlander JD, Afable M, et al. Cardiology electronic consultation (e-consult) use by primary care providers at VA medical centers in New England. *J Telemed Telecare*. 2018;1357633X18774468. doi:10.1177/1357633X18774468.
- <sup>27</sup> Kim GE, Afanasiev OK, O'Dell C, Sharp C, Ko JM. Implementation and evaluation of Stanford Health Care store-and-forward teledermatology consultation workflow built within an existing electronic health record system. *J Telemed Telecare*. 2018;1357633X18799805. doi:10.1177/1357633X18799805.
- <sup>28</sup> Kokesh J, Ferguson AS, Patricoski C, LeMaster B. Traveling an audiologist to provide otolaryngology care using store-and-forward telemedicine. *Telemed J E Health*. 2009;15(8):758-763. doi:10.1089/tmj.2009.0046.
- <sup>29</sup> 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(6):782-789. doi:10.1001/jamainternmed.2018.0738.
- <sup>30</sup> Lee RH, Pearson M, Lyles KW, Jenkins PW, Colon-Emeric C. Geographic scope and accessibility of a centralized, electronic consult program for patients with recent fracture. *Rural Remote Health*. 2016;16(1):3440.

- <sup>31</sup> Leung LB, Benitez CT, Yee HF Jr. eConsult mental health: electronic referral and consultation to integrate primary care and mental health. *J Ambulatory Care Manage.* 2019;42(1):47-50. doi:10.1097/JAC.000000000000258.
- <sup>32</sup> Lowenstein M, Bamgbose O, Gleason N, Feldman MD. Psychiatric consultation at your fingertips: descriptive analysis of electronic consultation from primary care to psychiatry. *J Med Internet Res.* 2017;19(8):e279. doi:10.2196/jmir.7921.
- <sup>33</sup> Naka F, Lu J, Porto A, Villagra J, Wu ZH, Anderson D. Impact of dermatology eConsults on access to care and skin cancer screening in underserved populations: a model for teledermatology services in community health centers. *J Am Acad Dermatol.* 2018;78(2):293-302. doi:10.1016/j.jaad.2017.09.017.
- <sup>34</sup> Parikh PJ, Mowrey C, Gallimore J, Harrell S, Burke B. Evaluating e-consultation implementations based on use and time-line across various specialties. *Int J Med Inf.* 2017;108:42-48. doi: 10.1016/j.ijmedinf.2017.09.005.
- <sup>35</sup> Pecina JL, Wyatt KD, Comfere NI, Bernard ME, North F. Uses of mobile device digital photography of dermatologic conditions in primary care. *JMIR Mhealth Uhealth.* 2017;5(11):e165. doi:10.2196/mhealth.8257.
- <sup>36</sup> Raugi GJ, Nelson W, Miethke M, et al. Teledermatology implementation in a VHA secondary treatment facility improves access to face-to-face care. *Telemed J E Health.* 2016;22(1):12-17. doi:10.1089/tmj.2015.0036.
- <sup>37</sup> Rea CJ, Wenren LM, Tran KD, et al. Shared care: using an electronic consult form to facilitate primary care provider-specialty care coordination. *Acad Pediatr.* 2018;18(7):797-804. doi:10.1016/j.acap.2018.03.010.
- <sup>38</sup> Schettini P, Shah KP, O'Leary CP, et al. Keeping care connected: e-Consultation program improves access to nephrology care. *J Telemed Telecare.* 2017:1357633X17748350. doi:10.1177/1357633X17748350.
- <sup>39</sup> Starr MR, Barkmeier AJ, Engman SJ, Kitzmann A, Bakri SJ. Telemedicine in the management of exudative age-related macular degeneration within an integrated healthcare system. *Am J Ophthalmol.* 2019;208:206-210. doi:10.1016/j.ajo.2019.03.021.
- <sup>40</sup> Tuot DS, Murphy EJ, McCulloch CE, Leeds K, Chan E, Chen AH. Leveraging an electronic referral system to build a medical neighborhood. *Healthc (Amst).* 2015;3(4):202-208. doi:10.1016/j.hjdsi.2015.04.001.
- <sup>41</sup> Ulloa JG, Russell MD, Chen AH, Tuot DS. A cohort study of a general surgery electronic consultation system: safety implications and impact on surgical yield. *BMC Health Serv Res.* 2017;17(1):433. doi:10.1186/s12913-017-2375-0.
- <sup>42</sup> Venkatesh RD, Campbell EJ, Thiim M, et al. E-consults in gastroenterology: an opportunity for innovative care. *J Telemed Telecare.* 2018:1357633X18781189. doi:10.1177/1357633X18781189.
- <sup>43</sup> Wasfy JH, Rao SK, Essien UR, et al. Initial experience with endocrinology e-consults. *Endocrine.* 2017;55(2):640-642. doi:10.1007/s12020-016-1053-z.
- <sup>44</sup> Young NP, Elrashidi MY, Crane SJ, Ebbert JO. Pilot of integrated, colocated neurology in a primary care medical home. *J Eval Clin Pract.* 2017;23(3):548-553. doi:10.1111/jep.12667.
- <sup>45</sup> Brandenburg L, Gabow P, Steele G, Toussaint J, Tyson BJ. *Innovation and Best Practices in Health Care Scheduling.* Washington, DC: Institute of Medicine; 2015. <https://nam.edu/wp-content/uploads/2015/06/SchedulingBestPractices.pdf>. Accessed April 30, 2019.
- <sup>46</sup> Dhruva SS. Implementation of an econsult system with patient navigation. *J Health Care Poor*

*Underserved*. 2019;30(1):28-39. doi:10.1353/hpu.2019.0004.

- <sup>47</sup> Connecticut state plan amendment 15-026. Centers for Medicare and Medicaid Services website. <https://www.medicaid.gov/sites/default/files/State-resource-center/Medicaid-State-Plan-Amendments/Downloads/CT/CT-15-026.pdf>. Published 2016. Accessed April 30, 2019.
- <sup>48</sup> Joschko J, Keely E, Grant R, et al. Electronic consultation services worldwide: environmental scan. *J Med Internet Res*. 2018;20(12):e11112. doi:10.2196/11112.
- <sup>49</sup> Maine Quality Counts. *Telemedicine That Works: Lessons Learned From the New England Econsult Network*. Maine Quality Counts; 2015. [https://www.mainequalitycounts.org/image\\_upload/Presentation\\_11.03.15.pdf](https://www.mainequalitycounts.org/image_upload/Presentation_11.03.15.pdf). Accessed April 3, 2019.
- <sup>50</sup> 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. doi:10.1186/s12913-015-1233-1.
- <sup>51</sup> Medicare program; revisions to payment policies under the physician fee schedule and other revisions to Part B for CY 2019. *Fed Registr*. 2018;83(226):59452. <https://www.federalregister.gov/documents/2018/11/23/2018-24170/medicare-program-revisions-to-payment-policies-under-the-physician-fee-schedule-and-other-revisions>. Accessed April 30, 2019.
- <sup>52</sup> Murray DL. 2 new codes developed for interprofessional consultation. *AAP News*. January 4, 2019. <https://www.aappublications.org/news/2019/01/04/coding010419>. Accessed April 30, 2019.

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