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Implementation of E-Consults in an Integrated Health System for a Value Population

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Abstract

The adoption of e-consults, a form of formal, asynchronous provider-to-provider communication in which specialty medical advice is sought, has been proven to reduce unnecessary specialty consultations, build provider relationships, and reduce fragmentation of care. While the utilization of e-consults is generally a well-accepted alternative method of incorporating specialist expertise into a patient's plan of care and adoption has become common, the implementation of this disruptive care delivery modality can be challenging. This article seeks to describe the process and operational outcomes of e-consult adoption in an integrated health system with a focus on the benefits in the context of value-based care. Implications of e-consult adoption on referral volumes, wait times, and cancellation rates at the service line level are investigated. E-consult adoption and completion metrics, including utilization, completed versus rejected, turn-around times, and projected cost savings, are also discussed.

Keywords: E-consults, electronic consults, value-based care, specialty access, virtual care delivery, asynchronous care

Introduction

Historically, requests for outpatient consultations regardless of specialty have nearly doubled in the 1st decade of this century.[1] However, with the aging population and prevalence of chronic disease, there has not been a significant improvement in specialty care access despite the high demand for care. An e-consult is an asynchronous communication between health care providers that occurs within a shared electronic health record or secure Web-based platform. E-consults have been cast as a solution to pervasive access problems.[2,3]

These communications aim at improving efficient and timely access to specialist medical advice. In 2014, the Association of American Medical Colleges created a model that addresses the referral process between primary care and specialty care providers. This program, known as Coordinating Optimal Referral Experiences, includes the promotion of e-consults that sought to improve access to specialty service lines.

Partnered organizations experienced improved efficiency and effectiveness of the interface between primary care and specialty care, and the subsequent adoption and utilization of e-consults since has been widespread as they have been proven feasible by many specialties across health care systems in the United States.[4–6] While now more commonplace, the e-consult began as a form of disruptive innovation that provides an alternative avenue for organizations that are seeking to provide value and cannot find success in the status quo processes such as the traditional patient referral method and in-person consultation.[7,8]

Why E-Consults? Benefits to Patients, Providers, and Health Systems

Multiple benefits of the utilization of e-consults have been reported since their inception.[9] Tuot et al reported their evaluation of 4 early adopter health care delivery systems: 2 systems had 85%–90% of primary care providers (PCPs)

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self-report high levels of educational value inherent to e-consult communication.[7] This reduction of knowledge gaps empowers PCPs to more confidently manage low acuity conditions, which enables comprehensiveness in primary care.[10]

In addition, multiple investigators have noted the process of bridging the gap as ''building provider relationships'' and noted subthemes where there was an appreciation for collegial reply, a benefit for recent graduates to learn from the specialists, and sharing the knowledge gained with other members of their teams.[11]

Specialty providers also benefit from the use of e-consults, in that they assign credit and offer a safer alternative to the ''curbside consult,'' or informal physician-to-physician communication in which professional advice is sought, but for which no clinical or operational record exists.[3]

E-consults also have the potential to improve access for specialty clinics by reducing low-value in-person consults, freeing up appointment times for higher acuity patients. This reduced wait time can result in fewer no-show patients, whereas the higher acuity caseload lends itself to a higher surgical or procedure yield rate.

These benefits to the individual providers and practices flow upstream to the larger integrated health system, particularly for organizations engaged in risk-contracts and seeking to bring care to patients in a more efficient and cost-effective manner.

The ability to provide specialty expertise to a patient without the costs associated with in-person consults, including the compensation of higher salaried providers, the billing of additional consult appointment types, and the opportunity cost of reducing in-person access for fee for service (FFS) patients, has direct financial benefit to the system, as those resources can be reallocated for higher value services.

Shorter wait times are favorable to patients who have the option to stay within the system or go elsewhere and may result in less patient ''leakage'' out of the system. In some contexts, even when an in-person consultation is required, an e-consult can serve as an important bridge between the PCP and specialty appointments, as it allows the specialist the opportunity to advise the PCP to order recommended imaging or initial trial therapies before the in-person consultation: this significantly improves the efficiency with which care is provided, as it reduces the time to treat and low-value appointments.

In addition, the ability of the PCP to provide more comprehensive care reduces the likelihood of redundancies or poor outcomes due to lacking care coordination. Effective value-based care is reliant on improved coordination of care efforts, which e-consults inherently produce.[6]

While the benefits afforded to providers and health systems are substantial, the benefits to patients are equally so. Patients benefit from lower wait times, avoidance of specialty visits with higher co-pays, and reduction of indirect costs associated with travel and time off work.[9] E-consults also have been noted to be effective at decreasing fragmentation of care for patients, who enjoy the ability to have their care remain centralized with their PCP.[12]

This enhanced continuity of care improves both patient experience and outcomes, as the e-consult allows for fewer patient ''handoffs'' and facilitates a greater degree of understanding of the patient by the PCP. This ability to keep care local, both for the patient geographically speaking, and in terms of the PCP's management over the plan of care, can facilitate relationship-building and greater patient medical adherence.[12] Ultimately, e-consults facilitate the triangulation of the right level of care with the right provider at the right time by providing low acuity patients collaborative care between a specialist and their PCP in a timely manner.

Implementation of E-Consults at Corewell Health West

Corewell Health is an integrated health system located in southeast and west Michigan. In the west region, where the e-consult program described in this article was implemented, there are a total of 11 hospitals, 3 rehabilitation and nursing centers, and 120 outpatient sites serving over 800,000 patients annually located in 13 west Michigan counties.

Corewell Health West (CHW) employs over 4000 physicians and advanced practice providers, including the organizations embedded medical group, 1 of the largest and most comprehensive multispecialty physician groups in West Michigan. The system benefits from the integrated electronic medical record (EMR), Epic, for all ambulatory and inpatient locations. CHW shares a close and collaborative relationship with Priority Health, the integrated payor. This ''payvider'' relationship aligns the 2 entities in terms of their goals for prevention, chronic disease management, and cost containment.

Over the past several years, CHW has experienced many of the same difficulties as other health systems in terms of meeting increased demand for services while managing a labor shortage. These struggles have translated to frustration by patients and providers at the lacking ability to have specialty input to manage conditions that fall outside of a PCP's comfort zone.

For patients referred to endocrinology, the first service line to initiate e-consults, the average wait time from referral made to appointment date in 2021 was 126 days, and 50 days for patients referred to cardiology. While clinical triage attempts to ensure that the most urgent patients are seen in a timely manner, this significant backlog represents risk to both patient experience and health outcomes.

At CHW, e-consults were developed in partnership between the virtual health team, primary care, specialty service lines, and digital services. Specialty service lines were identified for participation via PCP feedback, with consideration given to specialties with known access barriers. Endocrinology, cardiology, lifestyle medicine, and behavioral health were among those first selected.

E-consults were made available to all CHW physicians for all patients: however, they were specifically promoted to risk-contracted patients through the use of a best practice advisory (BPA) in Epic that would prompt physicians to consider an e-consult when placing a referral order. While initially debated, the decision not to bill for e-consults was made due to concern that requiring consent to charge patients may limit their impact and reach.

In addition, since e-consults were geared for those in risk contracts, there was no inherent financial benefit to implementing a billable fee for their completion. However, this decision did impact how provider time to complete and productivity was accounted for, as physician compensation was still largely based on an FFS model.

This misalignment created an incentive barrier and high opportunity cost to completing e-consults for physicians in participating service lines. Solutions to this issue were local to the individual departments and included the tying of completion of e-consults to quality metrics incentives.

Operational Outcomes of E-Consults

Given the operational nature of all collected and reported metrics with no patient level clinical data extracted, an IRB waiver of consent was sought and granted prior to data analysis. The first e-consult orders went live at CHW in late November 2021 for endocrinology, with 683 total ordered as of March 1st, 2023. Cardiology and Behavioral Health followed in late 2022, resulting in a total of 1053 e-consults ordered (Table 1). Monthly averages by specialty are noted in Table 1. Because there are no specific criteria related to diagnoses for e-consults, a wide range of diagnoses have been observed.

Over 315 unique diagnoses have been entered for consult diagnoses for endocrinology, with the most common diagnoses thyroid-related (6.6% hyperthyroidism, 4.3% hyperparathyroidism, 2.0% thyroid nodule, and 1.5% hypothyroidism).

Diagnoses for cardiology e-consults were equally diverse, with 184 unique diagnoses noted in the 338 ordered e-consults: the most frequent of these were abnormal electrocardiogram (8.0%), palpitations (7.1%), and those related to cholesterol management (4.5%). While there have been far fewer e-consults for behavioral health, the majority of these have been related to the management of anxiety and depression (47.8%) and bipolar disorder (21.7%).

In total, 85% of e-consults ordered have been completed, 6% have been rejected due to requiring referral, and 8.3% rejected for other reasons (eg, established patient). The majority of e-consults have taken specialists 20 minutes or less to complete: 45.5% have taken 10 minutes or less, 33.9% have taken 11–20 minutes, and 20.6% have taken greater than 20 minutes. Average ''turnaround'' time was well within 1 business day, at 12.8 hours. Just over 90% of e-consults requested have been for patients attributed to a risk contract.

Trends, Barriers, and Implications

The implementation of e-consults required a significant amount of change management resource allocation, the evolution of which is reflected in the month over month trends. The adoption of e-consults by PCPs has been a gradual process, as demonstrated in Figure 1. The initial go-live of the endocrinology e-consult resulted in a relatively low number of e-consults ordered; however, after $\sim$10 months of socializing the tool to PCPs and the creation of the BPA, utilization significantly improved.

This increasing familiarity and comfort with the tool translated into a markedly higher utilization when cardiology e-consults became available when compared with the go-live for endocrinology e-consults. Behavioral health, however, did not see similar volumes during the same timeframe.

This may have been due to education provided to physicians, the existing availability of case review for behavioral health services, as well as general PCP comfort in managing these conditions. Lifestyle medicine e-consults have experienced minimal utilization thus far, likely due to the required formal referral required for patients to engage in the department programming.

Identified barriers that contributed to slow adoption included difficulty with change management in the context of multiple new initiatives occurring in primary care during the time of go-live and the general unfamiliarity and lack of comfort with both a new clinical process and technological workflow. Facilitating factors included repeated education and the incorporation of the BPA that would alert physicians to the option of completing an e-consult when placing a referral to the designated specialty.

Interestingly, the top 20 ordering providers represented 36% of all consults ordered and were associated with 13 different clinics, with approximately half of them considered rural or regional practices and only a handful of them designated as dedicated value-based care clinics (ie, clinics with a higher ratio of risk-contracted patients).

This suggests that geographical access, or lack thereof, to specialty services and individual provider acceptance and experience may be the most significant contributing factors to the adoption of e-consults. This provides valuable insights when considering how to approach education and spreading adoption efforts.

Key metrics of the e-consult initiative at CHW were largely concerned with improving specialty access as well as the volume of risk referrals to specialty service lines for which e-consults are available, appointment scheduling wait times, and new consult no-shows. To date, the average number of monthly referrals to both cardiology and endocrinology has modestly declined, with both departments experiencing a reduction that has exceeded the average number of e-consults ordered (Table 2).

This decline may be in response to natural fluctuations in volumes or other initiatives aimed at keeping care under the PCP, in addition to the availability of e-consults. Both specialties have also experienced a favorable decline in appointment wait times since the implementation of e-consults.

Despite this, no operationally significant changes have been noted in referral completion, no-show or cancellation rates, nor the ratio of CHW providers referring to internal versus external departments. This is likely due to the relatively small number of e-consults being completed, which represent just 2.2% and 7.9% of all requests for consults to cardiology and endocrinology, respectively.

Table 1. E-Consult Metrics

Metric	*Percentage of e-consults*
Average no. of e-consults ordered per month	—
Endocrinology	47.9
Cardiology	57
Behavioral health	3.9
Completed, %	85
Rejected, needs referral (%)	6.0
Rejected, other reason (%)	8.3
Completion time 0–10 minutes, %	45.5
Completion time, 11–20 minutes, %	33.9
Completion time, 21+ minutes, %	20.6
''Turnaround'' time, hours, average	12.8

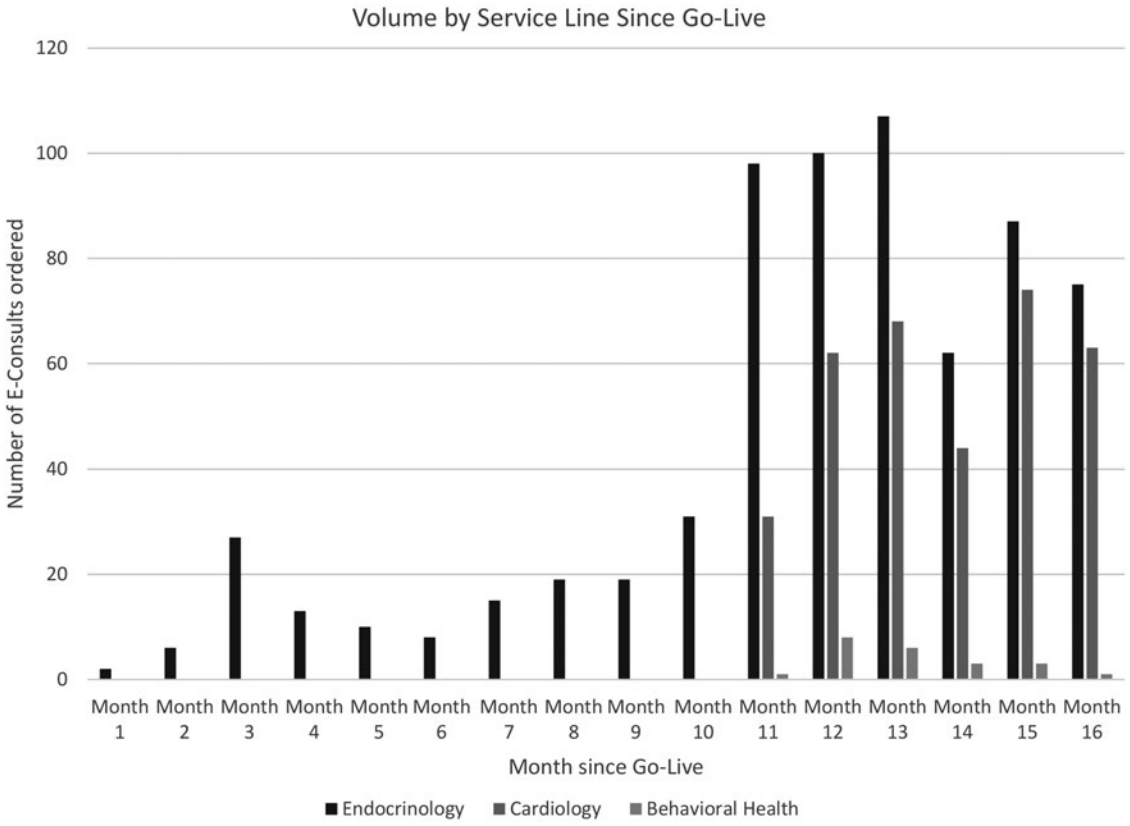

FIG. 1. E-consult volume over time by service line.

Future Directions and Projections

Despite a slow start, the utilization of e-consults is continuing to grow and has shown potential at helping the organization provide affordable and equitable care, while meeting key operational and clinical goals. Currently available e-consults will continue to be promoted to PCPs, whereas additional service lines will be added based on specialty interest and operational need.

Based on findings thus far, it is projected that CHW will achieve a cost savings of ~$206 k per year at the current rate of e-consult utilization, a figure that is expected to grow considerably as e-consult adoption spreads by both service line and provider use. This cost savings is largely due to the reduction in office visits required for specialty input that are replaced with digital communication, which is estimated at over 200 office visits per month for patients seen for cardiology or endocrinology needs alone (Table 3). This includes reduced consultation and follow-up visits not only to specialists, but to PCPs as well, as receiving specialist input can help to reduce the need for trialing multiple interventions before determining a final treatment plan.

In addition, as virtual health continues to mature in their partnership with primary care and specialty services lines, the potential for demand-shaping, or the strategic promotion and advancement of novel care delivery models also continues to grow. The level of visibility and ability to provide input into patient care destination by specialists offered by e-consults facilitates a more informed referral process.

By designing the technical and operational workflows of e-consults with intentionality, the system is able to funnel

Table 2. Departmental Impact of E-Consults on In-Person Consultations

	Cardiology		*Endocrinology*	
Department metric	*Pre-implementation*	*Post-implementation*	*Pre-implementation*	*Post-implementation*
Referrals to department (monthly average)	2594.60	2450.00	621.4	554.7
Days from referral to appointment date (average)	50.1	40.1	125.9	99.2
No show rate (average)[a]	2.8%	2.4%	5.6%	6%
Cancellation rate (average)[a]	22.2%	20.1%	29.9%	34.1%
Completed rate (average)[a]	74.8%	76.9%	61.7%	61.8%
Referral ''leakage''	3.1%	2.7%	1.6%	4.5%

[a]Indicates calculated for internal referrals only.

Table 3. Projected Cost Savings from E-Consult Utilization

	Cardiology	*Endocrinology*	*Total*
Monthly office visit reduction (average)	144.6	66.7	211.3
Weighted office visit (average)	$81.40	$81.40	NA
Potential monthly savings (average)	$11,771.06	$5,429.67	$17,200.73
Potential savings annualized (average)	$141,252.78	$65,156.02	$206,408.80

NA, not applicable.

higher acuity patients that require in-person consultation to specialists, while allowing lower-acuity patients to remain under the management of their PCP without sacrificing the inclusion of specialty expertise in their care plan.

This encouragement of top of license care and opportunity for professional growth of providers can also promote provider satisfaction and mitigate burnout.[13] The concept of demand-shaping in this context is supported by the noted benefits of prompt response to PCP inquiries, early initiation of treatment, and reduced need for traditional visits to the clinics noted by countries who have established successful specialty specific e-consult systems.[14,15]

Given that many risk-contract attributed patients at CHW are empaneled to PCP offices that engage in team-based care delivery, the patients who remain under the care of their PCP for disease management also have a greater opportunity for cost-effective interdisciplinary management: PCPs are able to engage other on-site disciplines such as pharmacy, nursing, and care management to contribute to the care of a patient following specialist guidance without needing to rely on additional referrals.

This ability to steer the patients to the most appropriate level of care, be it a specialist or ancillary staff, based on informed need allows the system to shape care delivery in a proactive manner to align with system resources and strategic plan.

The continued development of e-consults at CHW will rely on our internal learnings based on local needs and reactivity, as well as the incorporation of findings from health organizations that are further ahead in their implementation of e-consults. Previous studies have demonstrated that the utilization of e-consults can vary considerably based on type of service line (ie, procedural vs. non-procedural), and this should be taken into consideration when planning for anticipated impact.[16]

Additional next steps beyond service line expansion to improve utilization include the monitoring of patient and provider satisfaction, further refining productivity allotment methods for completing providers, documentation design optimization, and additional targeting of populations who experience increased access barriers due to geography (eg, patients in rural communities, those with transportation limitations), socio-economic vulnerability, or insurance coverage.

Expanding e-consult utilization will continue to provide additional venues for addressing patient specialty care needs while providing flexibility and variety to the daily schedule of the specialist, helping to mitigate burnout.[17] It is the hope that this work will continue to improve the health care experience for our patients, while also improving the experience of those who provide it.

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Authors' Contributions

A.A.K.: Investigation, data curation, formal analysis, validation, and writing–original draft. K.M.B.-S.: Visualization, project administration, and writing–original draft. M.R.: Resources, writing–review and editing. K.V.: Data curation, formal analysis, and writing–review and editing. A.A.: Conceptualization, supervision, and writing–review and editing.

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