

E-consults: An Approach to Improve Access to Specialty Care



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This is to acknowledge that Christian Mayorga, M.D. has disclosed that he does not have any financial interests or other relationships with commercial concerns related directly or indirectly to this program. Dr. Mayorga will not be discussing off-label uses in his presentation.

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Christian Mayorga, MD is an Assistant Professor of Internal Medicine in the Division of Digestive and Liver Diseases. Dr. Mayorga received his medical school training at Tulane University School of Medicine and graduated in 2007. He then completed his residency training in Internal Medicine at the University of Chicago Medical Center in 2010. He came to Dallas and completed his gastroenterology fellowship training at UT Southwestern in 2013. Upon completing fellowship training, Dr. Mayorga joined the UT Southwestern faculty. He currently serves as the Clinical Chief of Digestive and Liver Diseases as well as Senior Medical Director for Medicine Specialties at Parkland Health and Hospital System. Dr. Mayorga is committed to general gastroenterology and hepatology, as well as housestaff education. In addition, he has an interest in using medical informatics to improve patient care.

Interests: Medical Informatics, Quality Improvement, and Telemedicine

Objectives:

- Discuss barriers to access to specialty care and how e-consults programs have been established to address this problem
- Illustrate the versatility of e-consult programs as it applies to healthcare systems
- Highlight e-consult programs established at Parkland Health and Hospital System

At the conclusion of this presentation, the listener should be able to:

- Understand what telemedicine and electronic consultation are
- Understand the potential for e-consults in enhancing access to specialty care within different healthcare systems
- Recognize the challenges to implementation of an e-consult program

Introduction

Barriers to Access to Specialty Care

Access to specialty care is a chronic problem in our healthcare system and those most vulnerable are the uninsured or underinsured¹. In 2000, the Institute of Medicine reported on a fragile safety-net system of providers tasked to care for these patients which at the time was estimated at 44 million². Although the healthcare landscape has changed with the passing of the Patient Protection and Affordable Care Act (ACA) in 2010, in 2015 the number of uninsured individuals was estimated at 29 million³.

The clinic referral model that is frequently used to refer patients to specialty care is often fraught with challenges not only from factors external to it such as supply-demand issues, but also internal ones such as it being a model that does not encourage provider communication (Fig. 1).

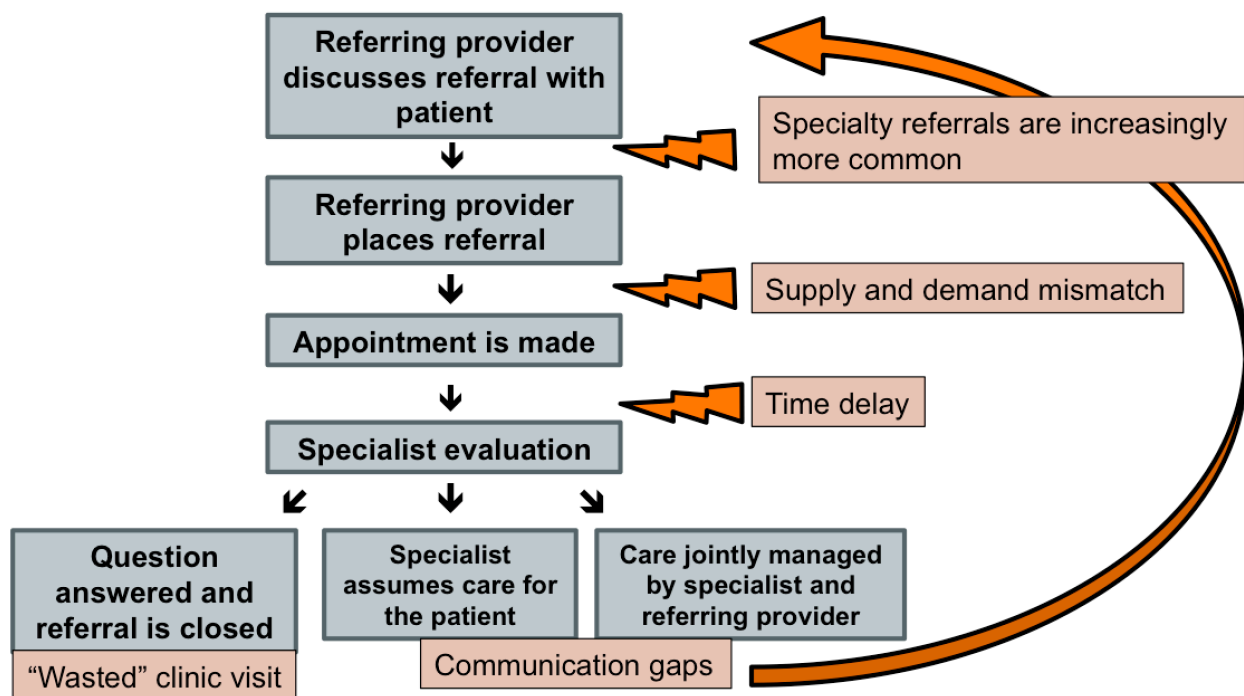


Figure 1

Supply vs. Demand

Community health centers (CHC) play a key role in providing primary care for underserved populations. A national survey of CHC medical directors revealed that nearly 1/3 experienced difficulty accessing specialty care or services for their uninsured patients⁴. Similarly, a survey of 5 safety-net hospitals around the country revealed waiting times of up to 6-12 months to see a specialist⁵.

The specialty access problem is amplified by the observed trend toward increase in the number of ambulatory visits and the percentage of those visits that result in a referral to a specialist. For instance, from 1999-2009, referral rates for Medicare patients more than doubled to nearly 10% which, when combined with a concomitant overall increase in the number of ambulatory visits, resulted in over a 3.5-fold increase in number of referral-generating visits⁶.

Despite the fact that physicians value communication between referring provider and specialists, lack of effective communication is cited as one of the greatest problems with the referral process. Referrals are often missing relevant information necessary for the specialist to optimally address the question being asked, and referring providers are often dissatisfied with the timeliness and quality of specialist feedback⁷.

In October 2010, the American College of Physicians (ACP) introduced the concept of the patient-centered medical home-neighborhood (PCMH-N) to promote integrated, coordinated care between primary care (“home”) and specialty care (“neighbor”)⁸. This framework encourages active interaction and communication between primary and specialty providers in order to deliver patient-centered care, enhanced access and high level of quality and safety.

Among the several forms of interaction between primary and specialty care that the PCMH-N model promotes is pre-consultation exchange which is intended to expedite/prioritize care or clarify need for a referral. In addition, the PCMH-N model encourages a variety of co-management arrangements that outline and expand the specialist role in educating primary care providers⁹. Telemedicine, in addition to other non-traditional care delivery systems, has been used to bring about this concept of enhanced provider communication and integrated patient care.

Telehealth vs. Telemedicine

The terms “telehealth” and “telemedicine” are often used interchangeably. The American Telemedicine Association (ATA) refers to *telehealth* as a broad term to describe remote healthcare without necessarily delivering clinical care, such as live broadcasting of continuing medical education events. Within the telehealth umbrella, *telemedicine* refers to the use of medical information exchanged from one site to another via electronic communication to improve the health status of patients¹⁰. There are four broad modalities by which telemedicine can be delivered¹¹:

1. *Synchronous encounter*: live, two-way interaction between a health care provider and a patient, caregiver or another provider using audiovisual telecommunications technology.
2. *Remote patient monitoring*: personal health or medical data that is collected from a person at one location and transmitted to a provider at a different location. Examples of this include remote cardiac telemetry or blood glucose monitoring.
3. *Mobile health*: use of mobile communication devices to foster health and well-being. Examples of this include smartphone applications (iPhone® Health application) and Fitbit®.
4. *Store-and-forward telehealth (SFT) or asynchronous encounter*: transmission of collected digital health information (videos, images, laboratories, provider notes) via a secure

electronic communications system (i.e. electronic health record). The gathering and interpretation of the information occurs at different times. Examples of this include electronic consultation

Electronic Consults (E-consults)

In the literature, the term “e-consult”, or electronic consult, is synonymous with other terms including teleconsultation, eReferrals, electronic referrals, virtual consults, and remote consults. All of these terms refer to an asynchronous communication (store-and-forward encounter) between healthcare providers that occurs within a shared electronic health record (EHR) or secure Web-based platform. Although e-consult formats may vary from one system to another, the basic steps tend to be similar (Fig. 2)¹².

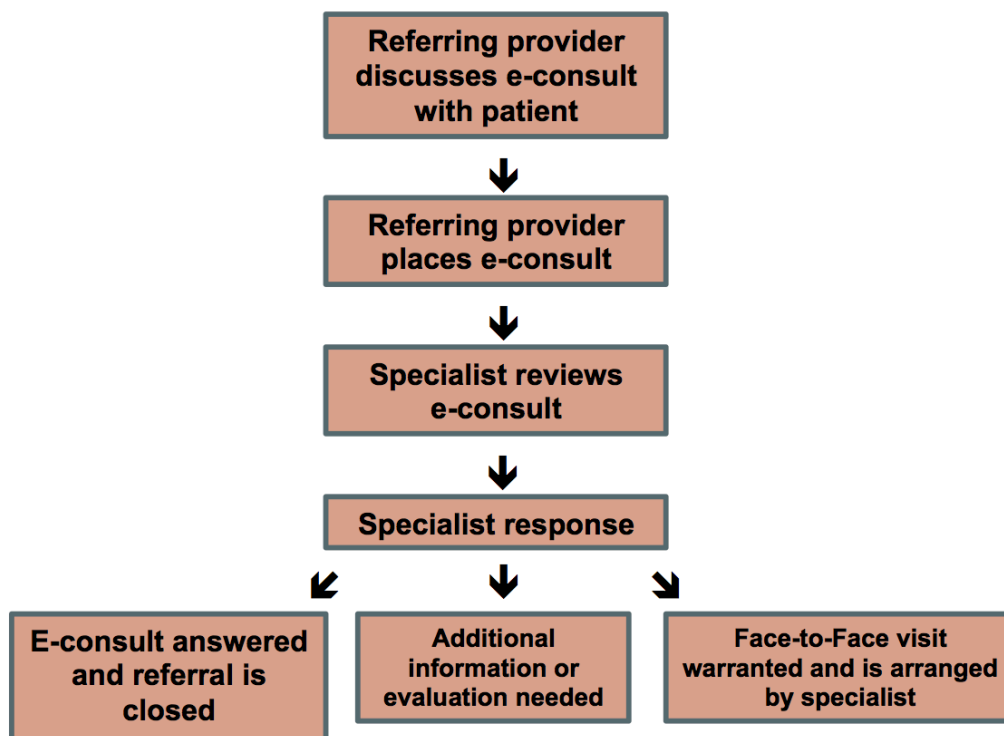


Figure 2

There are several ways in which e-consults could improve access to specialty care. First, the referring provider receives expert specialist advice within a few days, rather than weeks or months for a face-to-face (F2F) visit¹³. Second, shunting clinic referrals toward e-consults, many of which can be answered without a F2F visit, may reduce waiting times for in-person visits¹⁴. Third, those e-consults that do need to be converted to a F2F visit have already been triaged by the specialist to ensure completeness and appropriate urgency^{15,16}. Finally, because of their versatility, e-consults have been used in a wide array of settings, including the Veterans Health Administration, academic centers, accountable care organizations, and safety-net healthcare systems.

E-consults and Diversity of Healthcare Systems

Veterans Health Administration

The Veterans Health Administration (VHA) is the nation's largest integrated healthcare delivery system. Of the 8 million veterans that receive their care in the VHA, about 50% receive specialty care. Although efforts have been made to bring specialty care to the nearly 41% of veterans who live in rural communities by way of community-based outpatient clinics (CBOCs), most specialty care is found in urban medical centers¹⁷.

In response to this gap in specialty care, the VHA's Office of Specialty Care Transformation launched an e-consult program for certain specialties at 12 VHA medical centers in May 2011. This service was very well-received and utilized, particularly among patients receiving their care at CBOCs and more rural areas. Patients receiving e-consults were more likely to follow-up with their primary care provider and less likely to need a F2F visit with the specialist. Moreover, when considering that e-consults significantly reduced travel among veterans and the fact that the VHA reimburses veterans for travel, it is estimated that within the first 2.5 years, the VHA may have saved nearly \$3 million¹⁷.

In addition to improving access to specialty care within the VHA, e-consults appear to be an overall satisfying experience for patients, primary care providers and specialists. As mentioned previously, inadequate communication is a frequently cited problem with conventional F2F specialty referrals. However, a survey of patients and providers conducted at the VA in Pittsburgh regarding their experience with e-consults showed that improved provider communication, as well as timely response to the e-consult were the two factors that led to most satisfaction¹⁸.

Academic Centers

E-consults have also been implemented in academic centers throughout the United States. Often suppliers of the most specialized of care, academic centers can benefit from e-consult programs as a means of deliver on its mission of improving the health of communities, as well as building on their reputation as leaders in highly specialized care. The Mayo Clinic is a large, integrated and academically-oriented tertiary care center based in Rochester, Minnesota with numerous satellite centers as well as an international network of member practices known as the Mayo Clinic Care Network. In 2016, over 1.3 million individual patients were cared for by the Mayo Clinic¹⁹.

E-consultation was first introduced by Mayo Rochester's Department of Medicine in 2005, but its use significantly increased in 2009 with intense promotion. By 2013, over 9,000 e-consults had been performed²⁰. Although the majority of e-consults were internal, i.e. between providers (including inter-specialty providers) within Mayo Rochester, there were 1,600 external e-consults performed between Rochester providers and those within the Mayo Clinic Care Network. As of 2016, Mayo Clinic had over 50 specialty services offering e-consults²¹.

In January 2017, the University of Texas at Southwestern Medical Center launched a cardiology e-consult pilot program. It is currently available to the multispecialty and general internal

medicine clinics. Several other specialty services have started or are planning to start e-consult programs as well including hematology and neurology.

Accountable Care Organizations

In 2011, the Department of Health and Human Services issued new rules under the ACA outlining the establishment of Accountable Care Organizations (ACO) as a vehicle to participate in its Medicare Shared Savings Program (MSSP). ACO are formed by groups of healthcare providers or healthcare systems that enter into an agreement either with a public or private payer to provide high quality, low cost care to a certain population of patients. In return, the ACO receives a share of the saved cost. Therefore, ACO are incentivized to reduce fragmentation and enhance communication among its providers²². The goals of ACO are in line with the so-called “triple aim” of healthcare: 1) Improving the individual experience of care; 2) Improving the health of populations; 3) Reducing the per capita costs of care for populations²³.

Massachusetts General Hospital (MGH), the teaching hospital of Harvard Medical School, is part of the Partners Health System, which is an integrated healthcare network that participates in several ACO. In January 2014, MGH introduced a cardiology e-consult program. During its first year, e-consults accounted for nearly one-tenth of total outpatient consultation volume and resulted in a decrease in F2F clinic visits. In addition, up to 75% of e-consult patients were not seen as F2F visits up to 6 months out from the time of e-consult. Based on this F2F visit avoidance, it is estimated that the savings in provider charges to the ACO is \$124 when the e-consult replaces a F2F visit given the 2014 Medicare reimbursement rate of a level 4 office visit²⁴.

Safety-Net Health Systems

Perhaps the most well-established of e-consult programs in a safety-net system is that started by the University of California San Francisco (UCSF). The San Francisco Health Network (SFHN), including its San Francisco General Hospital, serves the city’s uninsured and underinsured patient population (over 123,000 patients)²¹. In 2005, SFHN was experiencing a significant supply-demand mismatch for specialty care services. Patients were waiting up to 11 months for a routine clinic appointment for gastroenterology²⁵. In response to this access crisis, UCSF developed an internal, Web-based, integrated specialty referral and consultation system called eReferral. In this system, each participating service has a designated specialist who reviews and triages every referral. The referral review results in one of several outcomes: 1. The patient is immediately scheduled into a routine or urgent clinic appointment without need of interaction with the referring provider (49%), 2. The patient is scheduled after an exchange of communication with the referring provider (21%), 3. The referral is addressed purely via e-consult (30%)²⁶.

The benefit of eReferrals was seen in several areas. Within the first year of the program, in the first 9 medical clinics to adopt eReferrals, the average waiting time for an initial F2F visit dropped from 112 to 49 days²⁵. Furthermore, the majority of PCPs who engaged in communication with eReferrals considered this interaction to be high quality due to its helpfulness and educational value²⁶. From a specialist’s perspective, the percentage of referrals

without a clear consultative question decreased significantly in both medical and surgical specialty clinics²⁷.

A similar eReferral program was established in the Los Angeles County Department of Health Services (DHS) in 2012. DHS is the second-largest public health system in the United States, servicing over 650,000 patients. In 2011, DHS faced a specialty access crisis with patients waiting up to 9 months to be seen in a gastroenterology or urology clinic. Some primary care providers were referring their patients to the emergency department in an attempt to obtain a specialist consultation¹⁵. Between 2012 and 2015, the eReferral program was rolled out and, by the end of 2015, it had grown to include 3,000 primary care providers and nearly 500 specialist reviewers from over 80 specialty services. In their study, Barnett, ML, et al¹⁵ reported that although there was wide variability among specialty services, e-consult reviewers and site of practice (hospital vs. community-based), approximately 20% of e-consults were able to be addressed without converting them to a F2F visit.

E-consults: The Parkland Experience

Dermatology

Parkland Health and Hospital System (PHHS) is the safety-net public health system serving the citizens of Dallas County in Texas. Similar to other large county systems, Parkland has experienced difficulty with access to specialty care. One of the first services to offer e-consults at PHHS was Dermatology. In 2014, the e-consult platform named “teledermatology” was launched at PHHS. During an eight-month pilot period in 2014, teledermatology addressed 79 e-consults from one outpatient clinic. The program reduced the median time to evaluation from 70 days to 0.5 days and median time to treatment from 73.5 to 3 days compared to F2F dermatology clinic visits²⁸

GI/Liver

Clinic Capacity Gap

The GI/Liver clinic, like numerous other specialty clinics at PHHS, has been challenged by a demand for access that exceeds its capacity. This supply-demand mismatch is here termed *clinic capacity gap* and refers to the gap between referrals received and new clinic appointment slot availability.

In 2015, for instance, the demand for access to the GI/Liver clinic far exceeded its capacity. It was noted that most common indication for referral was treatment of chronic hepatitis C virus (HCV) infection, accounting for nearly 30% of the total referrals. In response to this, a new clinic was created specifically to address the need for HCV treatment. The HCV treatment clinic was launched in February 2016. Despite this, however, a significant clinic capacity gap still existed in the GI/Liver clinic (Fig. 3).

Clinic Capacity Gap

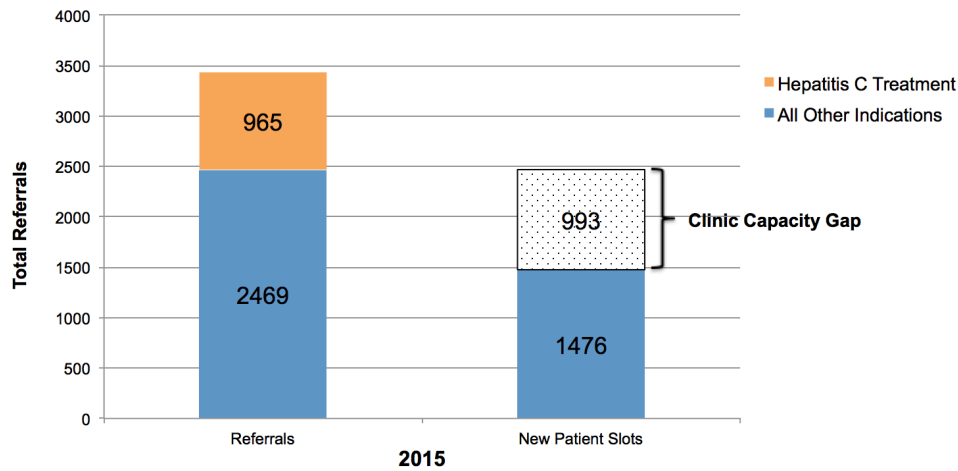


Figure 3

GI/Liver E-consult Program

In order to decrease the demand for F2F visits, in April 2016, the GI/Liver service at PHHS launched an e-consult pilot program. Initially, the pilot was offered to one PHHS community-oriented primary care (COPC) site. The site chosen was the Southeast Dallas Health Center given its prior experience with tele dermatology. In August 2016, the e-consult program was expanded system-wide, making it available to all primary and specialty care providers at PHHS.

A request for a GI/Liver e-consult is made within Epic (Epic Systems Corporation), the electronic health record software at PHHS. The referring provider uses the same GI/Liver clinic referral order for either e-consults or F2F requests (Fig. 4). Unlike UCSF's eReferral system, upon opening the referral order, the provider is asked whether the reason for the referral can be addressed without a F2F visit. If the provider chooses an e-consult, the expectation is that the specialist will respond within 3 business days. Once the provider has chosen the e-consult pathway, a series of pertinent clinical questions is asked. These answers to these questions will help provide the necessary information for the specialist to adequately answer the e-consult.

The specialist receives the e-consult request as an Epic in-basket message. The message displays all of the pertinent information provided by the referring provider. The specialist then opens a "new encounter" within Epic in order to answer the e-consult. This will allow the e-consult to be documented in the electronic health record as a unique care encounter. Once an encounter is opened, the specialist has a view of several tabs that can be used to navigate through the encounter, including a "response" tab under which the documentation takes place (Fig. 5).

☒ Referral - GI/Liver - Digestive & Liver Disease Clinic

P

☒ Accept ☐ Cancel

Can your question be answered without a face-to-face visit?

☒ Yes (E-Consult will be completed within 3 business days) ☐ No (Patient will be scheduled in clinic)

Please select system

☐ GI ☒ Liver ☐ Pancreas or Biliary

Reason for referral

☐ Abnormal imaging ☒ Abnormal lab test ☐ Abnormal pathology ☐ Medication question ☐ Other

What would you like help with?

Associated symptoms (select all that apply)

☐ Abdominal pain ☐ Ascites ☐ Encephalopathy ☐ Hematemesis ☐ Hematochezia ☐ Jaundice ☐ Melena

☐ Nausea, vomiting ☐ Weight loss ☐ Other

Any pertinent history or findings?

Figure 4

E-Consult
E-CONSULT Results Console Meds & Orders Visit Diagnoses **Response** Send Chart LOS Sign Visit

Specialist Response

Convert to in-clinic, face-to-face visit? ☐ Yes ☐ No

Patient Contacted? ☐ Yes ☐ No

Recommendation

Reason for recommendation

Additional recommendations once labs and imaging return

Specialist Survey

How long did this e-consult take?

☐ <10 min ☐ 10-15 min ☐ 15-20 min ☐ > 20 min

Was this an appropriate e-consult? ☐ Yes ☐ No

Any inappropriate or unnecessary workup identified?

☐ Labs ☐ Imaging ☐ Procedures ☐ Medications

Clinic visit avoided?

☐ Yes ☐ No ☐ Pending labs/imaging

Figure 5

Since the system-wide launch of the GI/Liver e-consult program, there has been a steady increase in utilization by referring providers. More importantly, the proportion of total referrals to the GI/Liver clinic that comes in the form of e-consults has also increased. This has resulted in a concomitant reduction in the proportion of monthly F2F referrals. Currently, 44% of total GI/Liver clinic referrals are ordered in the form of an e-consult (Fig. 6).

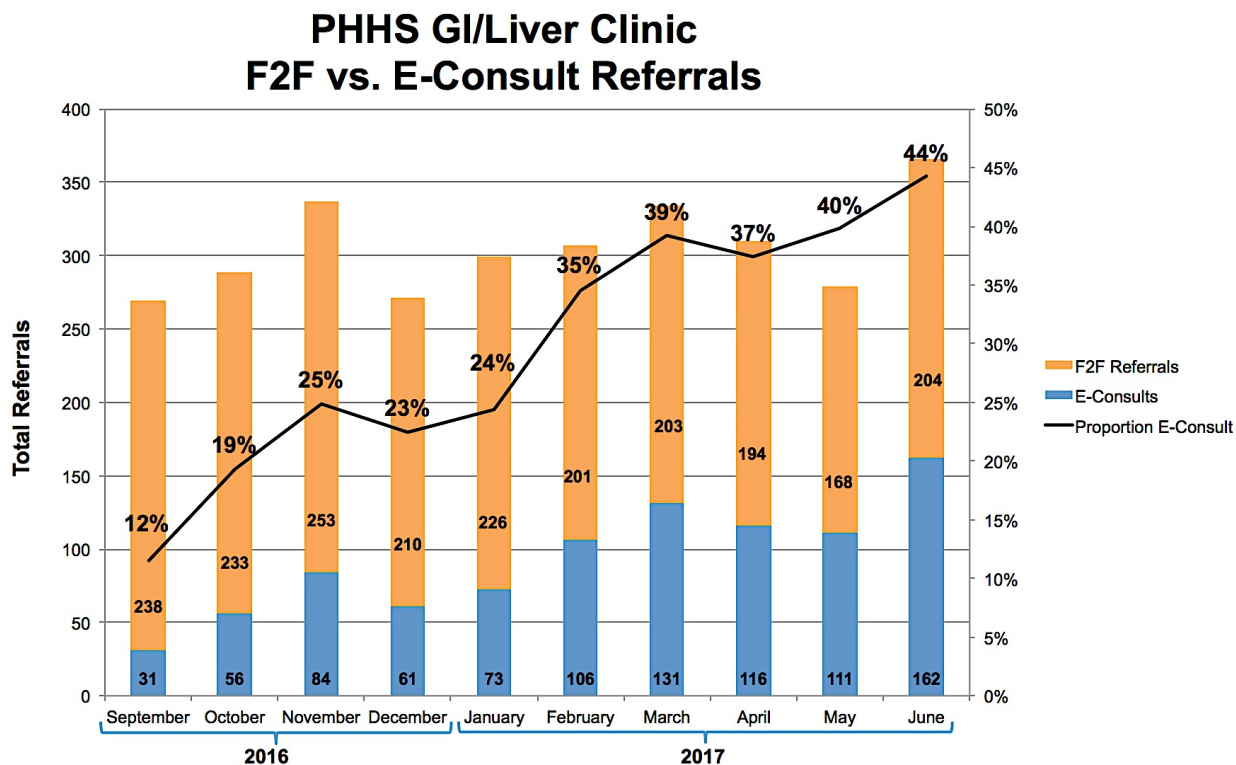


Figure 6

Clinic Avoidance Rate

It is important to note that although referrals may be entered in the form of e-consults, the specialist that reviews the e-consult may determine that the question being asked is too complex to be addressed without a F2F visit. Because access to clinic appointments is limited, avoiding unnecessary F2F visits is an important metric in our e-consult program. The proportion of e-consults that can be addressed without converting the referral into a F2F visit is termed *clinic avoidance rate*. Although there is variation among organ systems, the overall observed clinic avoidance rate has been 69% (Fig. 7)

Clinic Avoidance Rate for E-Consults

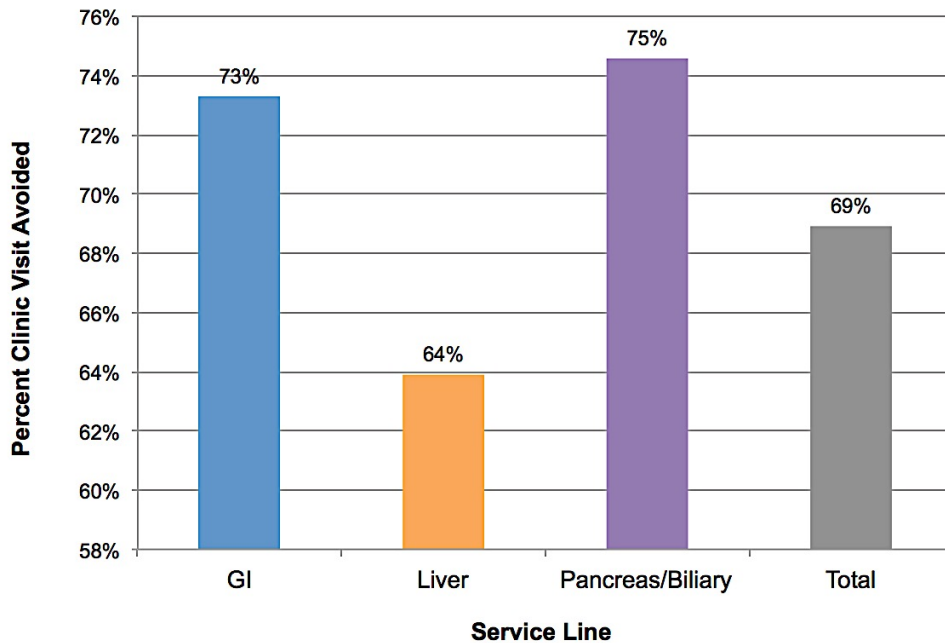


Figure 7

Clinic Capacity Ratio

Ideally, a clinic would have enough capacity (New Patient clinic appointment slots) to accommodate the demand for access (F2F referrals). This ratio of F2F visits to available New Patient clinic appointment slots is here termed *clinic capacity ratio*. A ratio of 1 would indicate that the capacity of the clinic meets the demand for access. Because it is observed that approximately 30% of e-consult referrals end up needing a F2F visit, our true demand is the number of F2F referrals plus 30% of e-consults received. At the start of the e-consult program, the demand for F2F visits exceeded the supply of New Patient clinic appointment slots by nearly three-fold. However, we have observed a downtrend in the clinic capacity ratio as more referrals are shunted to the e-consult pathway (Fig 8).

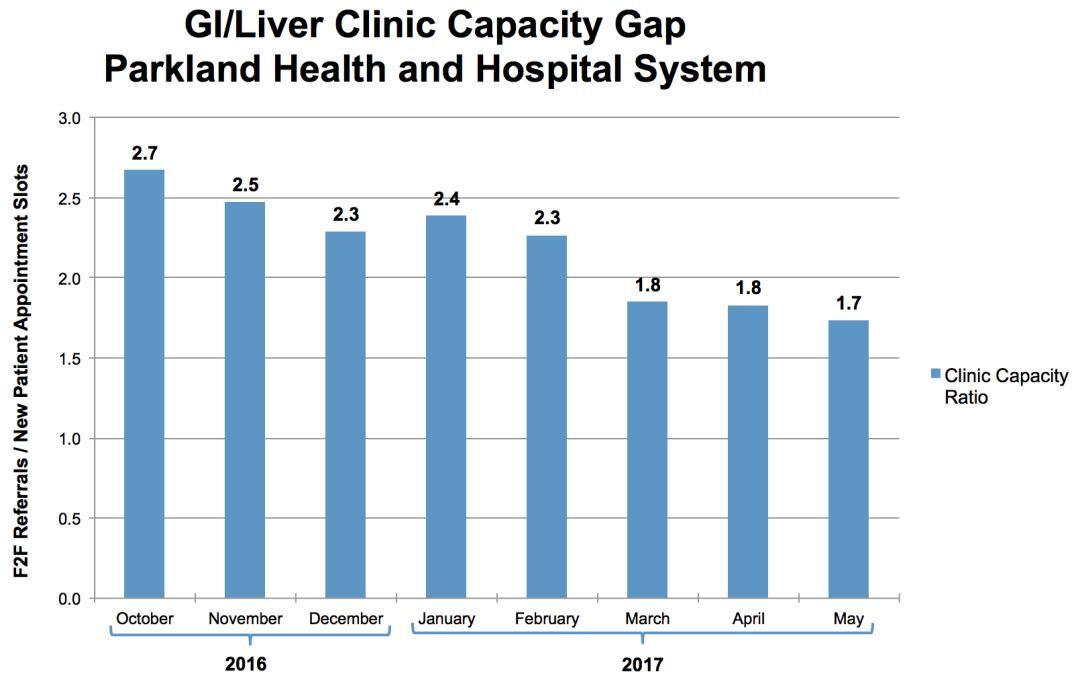


Figure 8

E-consults: Provider Perspectives

The PHHS GI/Liver e-consult program has been well received by referring providers. Three-fourths of e-consults are entered by primary care providers and one-fourth by specialty providers within the Parkland system (Fig. 9). Over 90% of e-consults received by GI were determined to be appropriate in terms of scope and complexity of the question being asked. This illustrates the point that referring providers are capable of determining what can and cannot be addressed via e-consults. GI specialists were able to address most e-consults within 20 minutes, with the majority taking between 10-15 minutes.

Referring provider feedback has identified four categories that e-consults have improved. First, providers feel that e-consults have improved the timeliness of specialist input. Second, there is a sense of improved communication between the referring provider and the specialist. Third, e-consults have served as an educational opportunity for referring providers regarding specialty care. Lastly, referring providers feel that e-consults likely avoid unnecessary clinic visits.

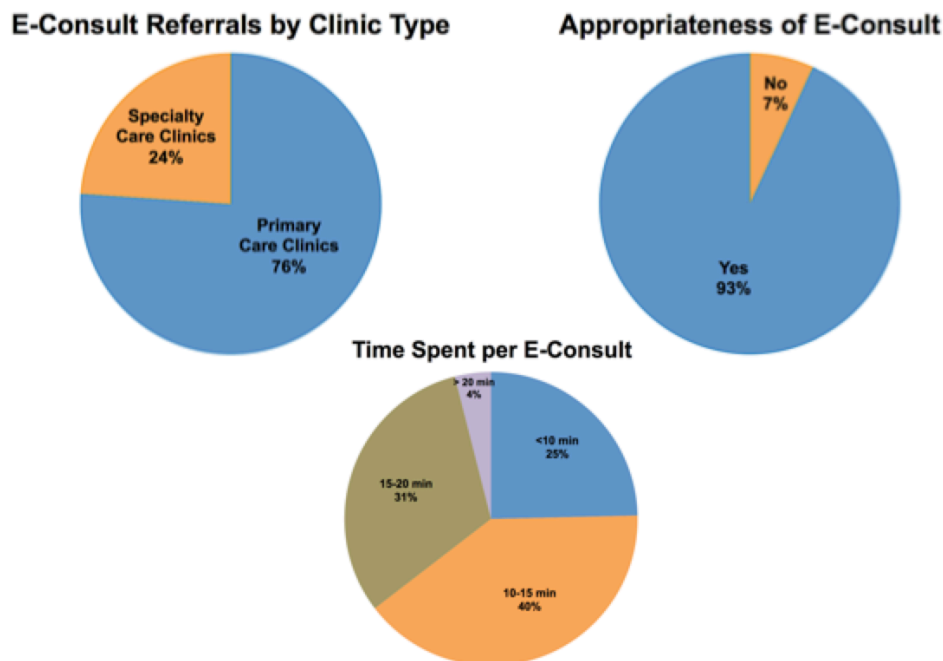


Figure 9

Challenges to Implementation

Provider Reimbursement

Among the challenges to implementation of an E-consult program, the most often cited ones were lack of reimbursement mechanisms for specialists, inadequate funding for ongoing cost to support the technology and the administrative support to maintain the system²⁹. Currently, the Centers for Medicare and Medicaid Services (CMS) does not recognize asynchronous telemedicine as a reimbursable form of delivery of care. As a result, there is no standard for reimbursement of providers who participate in e-consults, either referring or specialty providers. Therefore, each institution develops its own reimbursement plan.

Within the Mayo Clinic Care Network, for instance, specialists are given 1.74 work relative value units (wRVU) per e-consult. This is the equivalent to what they would earn for a F2F visit²⁰. Because its providers are in a closed system, UCSF's reimbursement model consists of 1 wRVU per eReferral which is shared by the referring provider and the specialist²¹. MGH, as part of an ACO, has the incentive to pay for e-consults as a method to enhance value in outpatient care. For its cardiology e-consult service, for instance, in 2014, the specialist was paid \$52 per e-consult.

Resistance to Workflow Change

The establishment of e-consult systems leads to a change in workflow for both the referring provider and the specialist, which can often be met with provider resistance. In order to receive a meaningful response to their e-consult, referring providers must spend more time carefully crafting their referral question and ensuring that any pertinent patient information is included²⁹. Once a reply is received, the referring provider often has to implement specialist recommendations that, without support staff, can lead to more work for the referring provider. From a specialist perspective, because of the asynchronous nature of the e-consult, certain cases may take several weeks to satisfactorily address while awaiting further work-up, such as laboratory or radiologic tests. This may lead to e-consults becoming “stale” and not answered adequately.

Integrated Electronic Health Record

Another barrier to widespread implementation of an e-consult program within or between healthcare systems is the lack of integration of the electronic health record. In order for the e-consult program to run efficiently, the referring provider should have the ability to enter the e-consult request within an electronic health record to which the specialist has shared access. This facilitates communication between the providers and allows for easy review of data pertinent to the e-consult.

Summary

As healthcare moves away from a fee-for-service reimbursement model to a value-based one, the importance of reducing cost without sacrificing quality is undeniable. Given its versatility, e-consultation can be applied to improve access to specialty care in a wide array of healthcare delivery systems, regardless of their motivating factors. Resource-limited systems such as VAH and safety-net hospitals have used e-consult programs to improve the supply-demand mismatch of specialty care. Similarly, ACO have implemented e-consults to reduce cost, thereby increasing shared savings. Academic centers have used e-consults to promote their mission of improving the health of the community while broadening their network of referring providers. Although there are certain barriers to widespread implementation of e-consult programs, these barriers are worth overcoming as healthcare moves towards achieving the “triple aim” of improving patient care, promoting population health, and reducing cost.

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