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Improving Patient Access to Gastroenterology Through a Nurse-Practitioner-Led Clinic: A Quality Improvement Project

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Improving Patient Access to Gastroenterology Through a Nurse-Practitioner-Led Clinic: A

Quality Improvement Project

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Abstract

The United States has a critical healthcare access issue for gastroenterology patients. Delays in treatment can lead to expensive complications, including emergency room visits, hospitalization, and surgery. Creating a rapid-access clinic (RAC) for gastroenterology so that patients can obtain a quick and efficient evaluation of their symptoms in a shorter appointment time can help decrease the delay in care and generate more revenue for the hospital. Over 8 weeks in 2023, Dartmouth Hitchcock Medical Center Department of Gastroenterology used a telemedicine-only RAC to see patients for 20 minutes rather than the traditional 60-minute period. As a result, the RAC saw more new patients in 1 day than a provider usually sees per week. Patients benefited from being seen in a faster amount of time. Additionally, the clinic generated a significant revenue increase due to timely patient test ordering. Thus, an RAC could be an effective, life-saving measure for gastroenterology patients by helping to manage the healthcare shortage.

Keywords: rapid access clinic, patient care access, gastroenterology, quality improvement

Introduction

Problem Description

Approximately 24% of adults in the United States have been diagnosed with gastrointestinal (GI) disorders, so these conditions make up a significant portion of healthcare utilization (Mathews et al., 2022). In a 2019 review of the burden and costs of GI disorders, healthcare access to gastroenterology specialists was difficult to obtain (Peery et al., 2019). This review noted more than 54.4 million ambulatory clinic visits for GI disorders annually. The most common reasons for these clinic visits included abdominal pain, vomiting, and diarrhea, followed by gastroesophageal reflux (GERD) and constipation. These symptoms could have been related to conditions such as irritable bowel syndrome (IBS) or GERD, which need supportive measures, or they could have been related to diseases needing active and specific management, such as malignancy, inflammatory bowel disease (IBD), eosinophilic esophagitis (EOE), and celiac disease, among other rarer, more serious diseases (Peery et al., 2019). Differentiating between uncomplicated conditions and more serious disease may require specialty evaluation; however, the shortage of gastroenterology specialists persists.

When the COVID-19 pandemic struck, healthcare services were unavailable for a substantial period, creating a large backlog in an already strained system. Approximately 20% of adults could not seek necessary care because of the pandemic, and over half experienced an adverse health outcome. Moreover, 15% of adults could not complete elective procedures or surgeries during this time (Findling et al., 2020). As a result, there has been a backlog of gastroenterology referrals requesting consultation and testing while assuming a subset of care. Unfortunately, the United States has a growing shortage of gastroenterology providers, which is expected to worsen.

A shortage of 1,630 gastroenterologists is estimated by 2025, considering the U.S. population's needs (Health Resources Service Administration, 2016), as the second-greatest care shortage in medical specialties. Hence, the number of patients seen per provider will need to increase to meet these needs, or an influx of new gastroenterology providers will be required. Otherwise, the delay in healthcare access will continue to worsen.

Findling et al. (2020) found that 69% of people who reported healthcare delays since the COVID-19 pandemic (for all reasons, not just GI) said that an inability to find a provider contributed to this issue. However, a report by the U.S. Health Resources Service Administration (2022a) asserted that the increasing availability of nurse practitioners (NPs) can help meet the shortage of physicians. Nevertheless, the question is whether these efforts will be sufficient without increasing the number of patients seen.

Healthcare 2030 identifies timely access to healthcare providers as a targeted measure for improvement. Nevertheless, as of 2020, there has been a substantial wait period for patients to be seen by a gastroenterology specialist in the US (U.S. Department of Health and Human Services, 2022b), which can take upwards of 180 days. However, early diagnosis and management (usually through endoscopic procedures) are critical for patient outcomes.

In a review of national hospitalization rates from 2016–2018, Fansiwala et al. (2023) reported that GI cancers are associated with the highest hospitalization costs, length of stay, and poor patient outcomes. Early detection of these GI cancers is the best way to help improve these factors. However, without an outpatient clinic evaluation for GI symptoms, many patients will not have adequate access to necessary testing (Fansiwala et al., 2023).

Within the Department of Gastroenterology at Dartmouth Hitchcock Medical Center in Lebanon, NH, the average wait period for a new patient referral can be over 80+ days.

Subsequently, most patients need an endoscopic evaluation to determine the cause of their

symptoms, which is not ordered until after the clinic visit. This lag leads to an additional delay in

diagnosis and treatment. In contrast, patients who use IVCS (i.e., IV conscious sedation using

fentanyl, midazolam, and sometimes diphenhydramine) have a shorter wait period of 14+ days,

which can become longer with scheduling restrictions from the patient or insurance difficulty.

However, patients requiring MAC (moderate anesthesia care using propofol) must wait 3+

months after the order is placed. MAC is commonly required for many patients due to other

comorbid conditions such as heart and pulmonary disease, intolerance of previous procedures,

allergies, or if they misused alcohol or marijuana.

The standard goal given by Dartmouth Hitchcock Medical Center (DHMC)

administration is that the wait be less than 14 days for at least 55% of referrals. Before initiating

this project, the department was less than 25%. Given that many times, patients have been

referred for symptoms of GI cancer, bleeding, IBD, EOE, celiac disease, difficulty swallowing,

and weight loss, this delay has led to a significant increase in adverse health outcomes. It could

also lead to increased emergency room visits and hospitalizations.

Available Knowledge

GI illness and disease are common reasons patients seek care through the emergency

room, their primary care providers (PCPs), and referrals to gastroenterology specialists. Referrals

to gastroenterology are usually based on symptoms the patient describes, so it can be challenging

to prioritize them properly, with urgent cases seen faster. An example is rectal bleeding, which

can be from hemorrhoids, anal fissures, IBD, or colon cancer. All these conditions can be

referred to under bright red blood per rectum (BRBPR). Thus, even when patients are triaged

based on the severity of symptoms, having an overall fast referral rate is critical so that more significant cases are not delayed because less urgent cases are triaged incorrectly.

Long Wait Periods Across Nations

Prolonged wait times are common in gastroenterology departments in many countries. In a survey of 173 patients within an outpatient gastroenterology clinic in Canada, Telford et al. (2019) found that the average wait time for gastroenterology care was approximately 160 days, and even urgent cases had an average wait time of 66 days. This finding corresponds with the wait times at DHMC Gastroenterology, which are greater than 80 days and can cause significant harm to patients. Telford et al. gave each participant a survey consisting of 40 questions in four sets of ten. Surprisingly, despite the delay in being seen, most patients, 77%, were satisfied with the wait time to see their gastroenterology provider.

Telford et al. (2019) also investigated patient perceptions regarding wait times and prioritizing patients based on their presentation. They found that 81% of participants supported using a triage system for gastroenterology patients. However, the study considered when the wait time would be too long for a low-risk patient. In their study, 14% of patients waited over 25 weeks for their appointment (Telford et al., 2019). The researchers also found that 10% of participants sought emergency room care while waiting to be seen after the referral was placed.

Telford et al. (2021) acknowledged that, even though most of their participants were satisfied with the wait time, patient satisfaction could not be generalized, given the limited number of participants. Overall, the wait for gastroenterological care within Canada is a significant issue. For example, a more extensive survey of 916 patients across several Canadian provinces by Paterson et al. (2010) found that patients felt they should not have to wait more

than 3 months to be seen. They also found that over 20% of gastroenterology patients missed

work or school while waiting for their evaluation due to GI symptoms.

Quality Improvement Project for IBD Diagnosis

Supporting the findings of Telford et al. (2019) was a quality improvement (QI) study by

Walker et al. (2020). This study included 304 adults across 49 gastroenterology practices within

the UK to identify factors contributing to the delay in diagnosis and care for IBD. Data were

collected between January 2014 and December 2017 for patients presenting GI symptoms to a

general practitioner. Walker et al. (2020) collected this information using a national database

from the Royal Devon and Exeter NHS Foundation Trust, which provides care to over 378,000

people within the UK. They also collected patient data for the year following diagnosis regarding

IBD-related hospitalizations or surgeries.

Walker et al. (2020) found that one-third of IBD patients had symptoms for more than 1

year before a definitive diagnosis. Thus, 1 year of severe inflammation went untreated. Prompt

diagnosis of IBD is critical for avoiding hospitalization and surgeries and is associated with

significant improvements in the quality of life for these patients. Walker et al. found that the

median time from onset of symptoms to diagnosis was 4.3 months. However, they also admitted

that the limitations of their study included the exclusion of patients who could not define the

onset of symptoms and a relatively small study group (304 patients). Additionally, this study was

completed in the UK, which may have limited the direct correlation with delays seen in

healthcare within the US due to the different provider structures and availability. However,

Walker et al. (2020) stated that their findings were similar to those in other countries, including

the US, so the information was still applicable.

Rapid Access Clinics (RACs) to Evaluate Chest Pain

Rapid access clinics (RACs) have been tried in various ambulatory care settings, from chest pain to gynecology to acute spine pain and gastroenterology. Their success has been highly variable, depending on the structure utilized. In Australia, at Royal Hobart Hospital, a prospective comparison study on clinic visits for chest pain within the cardiology department included 1,914 patients: 1,479 were seen in their rapid access chest pain clinic (RACPC), while 435 were seen during standard visits. The evidence showed the following compared to traditional visits (Black et al., 2019):

- More patients had a diagnosis by the end of their first visit: Every patient at the RACPC had a diagnosis, but only 32% of the traditional visits did.

- Less unplanned ER visits: At 30 days, unplanned ER visits were 1.6% instead of 4.4%. At 12 months, they were 5.7% instead of 12.9%.

- Less major adverse events: Major adverse events were 0.2% rather than 1.4% with standard visits.

- Decrease in time taken to review: The median time to review for RACPC was 12 days instead of 45 days for standard visits.

Overall, the study found that chest pain was more effectively evaluated at the RAC than during traditional visits (Black et al., 2019).

The RACPC accepted referrals from both the emergency department and PCPs. Once the referral was received, patients were contacted within 3 days, offering an RACPC appointment within the next 2 weeks. First, patients were seen by a registered nurse to document cardiovascular disease risk and obtain an EKG. An advanced provider reviewed the patient data. If additional testing was needed, it was ordered. Then, visits and results were followed up by a

telephone call 48 hours later. Patients in the control group were obtained using a retrospective

chart review over the same length as the current RACPC patients. They had to meet eligibility

requirements for their data to be included (Black et al., 2019).

Over 20% of patients seen at the RACPC were high-risk based on their cardiovascular

disease assessment. Thus, the risk of complications would be much higher if they needed to wait

an average of 45 days before a specialist review. The demographics and comorbid conditions

between the two groups were not significantly different ($p > .05$). Most were in their mid-50s,

and the most common risk factors were dyslipidemia and hypertension (Black et al., 2019).

RACs for Acute Back Pain. Halfpap et al. (2022) used an RAC at a large military

treatment facility for patients with acute spine pain. They limited patients to those who had pain

for less than 7 days and less than three episodes over the past 3 years who were not already

receiving treatment or did not have complications from their back pain (e.g., trauma or

bowel/bladder dysfunction). The RAC was staffed with physical therapists: one licensed and the

other board-certified. Patients could walk into these visits or receive same-day referrals if they

visited their PCP or urgent care. Halfpap et al. (2022) found that the RAC was effective in

improving healthcare utilization.

Within gastroenterology, previous attempts at an RAC have been focused on IBD

patients. In one clinic by Shariff et al. (2022), the focus was on scheduling certain patients for

endoscopy faster than in a clinic evaluation. Using their IBD-Disk tool, fecal calprotectin, and

demographic information, they accepted patients who met inclusion criteria based on their

scoring system to be quickly tracked into care. The study correlated an IBD diagnosis with many

patients who met their criteria for inclusion (Shariff et al., 2022).

Kwon et al. (2020) focused on IBD patients, but this time included clinic visits. They used criteria to help flag patient calls to be placed into their fast-track system. The primary difference with this study was its design for existing patients with an IBD diagnosis. This intervention was initiated in a private community practice. The RAC prevented patients from going to the emergency room by offering same-day or next-day appointments and ordering additional testing immediately (Shariff et al., 2020).

Stewart et al. (2021) initiated an RAC using telehealth at Dalhousie University, Canada. They updated their triage system to help expedite patients seen at telehealth clinic visits and sent to endoscopy for testing. The study focused on standardizing the review process for referrals sent to their center. Patients were then given a consultative service evaluation in urgent clinic appointments, which decreased the time from referral to visit from 16.2 days before intervention to 3.6 days after initiating their RAC (Stewart et al., 2021).

Khan et al. (2018) used an urgent care clinic for patient referrals from the emergency room to decrease the wait time for this group. They dedicated time for six patients per week to be booked within 3 weeks of referral (Khan et al., 2018). The authors found that having an urgent clinic was an effective way to see these subacute visits quickly. Nonetheless, they wanted to work on additional optimization to better triage patients with chronic GI illness (Khan et al., 2018).

The evidence supports using RACs within the healthcare literature reviewed for this QI project, but this principle has not been common in general GI practices. The focus thus far has been on patients referred from the emergency room (Khan et al., 2018) or with IBD (Shariff et al., 2020). Stewart et al. (2021) tried to decrease the wait from referral to clinic appointment using an urgent care clinic and telehealth. However, the focus was more on improving the

triaging process from when referrals were received than improving the rate of patients seen within the clinic.

Rationale

The maximum number of new patients who can be seen daily per provider is typically eight to ten (depending on the length of the clinic day) if the provider only sees new patients. However, established patients must also be seen for follow-up visits, so for many providers, the number of new patients seen daily is up to four. Typically, the gastroenterology department receives 60–80 new referrals daily, creating a significant backlog. Therefore, the number of new patients seen per day per provider can be increased by decreasing the time required for patient visits and simplifying the information gathered during them. These adjustments would lead to increased patient access to gastroenterology providers.

Specific Aims

This QI project aimed to decrease the time patients must wait to be seen after a referral for their GI concerns to help decrease the adverse outcomes associated with delayed care. This study investigated if using an RAC decreased the time from referral to the first visit. Additional benefits of increasing the number of new patients NPs see in clinic could include increasing the volume in the hospital's endoscopy center (increasing revenue and service utilization) while decreasing the clinical burden on the gastroenterologists, who can spend more time on procedures. Currently, the Department of Gastroenterology at DHMC can accommodate 25% of new patient referrals within the 14-day benchmark set by the hospital. Therefore, this project aimed to see if this statistic could be improved through an RAC using one provider, one day per week. This QI project assessed the impact on the time between referrals and visits, the number of new visits, billing for a standard versus RAC day, and the clinic's sustainability.

Methods

Context

DHMC is a large tertiary care center and teaching hospital in Lebanon, NH, that provides advanced care services to residents throughout Northern New England (primarily in New Hampshire, Vermont, and Maine). The DHMC Gastroenterology Department comprises gastroenterologists (including fellows) and advanced practice providers (APPs; e.g., physician assistants (Pas) and NPs). An outpatient office visit is how patients often receive appropriate testing for their symptoms through telemedicine or in-person visits.

Before initiating this intervention, the Chief of Gastroenterology, Dr. Siegel, actively sought to increase the number of patients seen weekly. Dr. Siegel wished to utilize the concept of an RAC to meet these needs. The hospital administration was also highly interested in ways to help improve patient care access. Realistically, an RAC overseen by a gastroenterologist would reduce the time spent on endoscopy. Thus, efforts to significantly improve access to ambulatory clinic appointments would be more beneficial if administered by APPs.

Cost-Benefit Analysis

Since this project used an existing telehealth system, it resulted in little additional cost. The NP used the work computer for standard telemedicine visits utilized by this practice. The primary cost was that the NP in the RAC required additional administrative time for reviewing results compared to other APPs within the practice. Typically, APPs in DHMC Gastroenterology are allocated 20% administrative time, equaling 8 hours for every 32 hours of patient care. However, the RAC provider required closer to 25% administrative time to address the influx of patient results since three times as many patients were seen per hour, resulting in a loss of 2

patient care hours per week. However, because the number of patients significantly increased due

to the project, a net gain of patients was seen.

Table 1

Cost-Benefit Analysis

Cost per hour (NP)	55
Patient care hours per week	8
Administrative time	4
Total	$660

Table 2

Possible RVU for New Patients During 8 Clinic Hours

Billing codes	99203	99204	99205
$ per encounter	$486	$717	$898
Max $ per day, standard visit (8 patients)	$3,888	$5,736	$7,184
Max $ per day, RAC (22 patients)	$10,692	$15,774	n/a

Table 3

RVU for Returning Visits During 8-Hour Clinic Day

Billing codes	99213	99214
$ per encounter (return)	$297	$457

Max $, standard visit (16 patients, return)	$4,752	$7,312

Ultimately, the revenue gained by increasing the number of patients seen by the NP outweighed the cost of losing the level-5 visits (99205). During 8 clinical hours, an RAC can see approximately 22 patients (with two 20-minute blocks left open). In comparison, standard 8-hour clinic sessions can handle a maximum of eight new patients or 16 follow-up visits.

There was also a cost-saving benefit for patients by decreasing the cost of travel to the hospital. DHMC is a critical access hospital for patients throughout Northern New England. Thus, patients must take time away from work and lose wages for the visit. Therefore, the RAC benefited the practice and patients.

Intervention

Protocol Development

The project members developed the guidelines for the RAC based on our combined patient care experience. There was no established protocol for RACs within gastroenterology for the broad range of available diagnoses. Therefore, we used existing data from other attempts at RACs to provide additional insight, which began with a meeting between members of the QI team to develop the structure of these visits, the types of patients or symptoms to be seen, and the follow-up process after a visit was complete.

Patients were seen in 20-minute blocks for the visit rather than the standard 60-minute visits currently used by the department via telemedicine because of the delays associated with in-person visits (e.g., patients arriving late, checking in, and taking vital signs). Patients had to join the video visit within 5 minutes of the start time, or they were considered "no-shows," which correlated with the 15-minute allowance given to patients seen during 60-minute visits. Patients

were sent a text message or email when the visit started and a link to the visit if they experienced

technical difficulties. Patients could reschedule later if they missed the appointment.

     The inclusion criteria of this clinic were primarily based on the diagnosis or symptoms

provided by the referring provider (Table 4). Eventually, an abnormal liver function test (LFT)

diagnosis was removed from the inclusion criteria. Another inclusion criterion was that patients

had to be 18 years of age or older. Exclusion criteria included patients without a MyDH account

(the DHMC telemedicine portal), second-opinion patients, patients who had previously seen a

gastroenterologist or APP for this symptom/problem, patients with endoscopy or colonoscopy

within the past 5 years for this symptom/problem, and those with no prior motility studies for

this symptom or problem. After further discussion, the requirement to have an active MyDH

account was dropped if the patient could join a Zoom video visit from a provided link.

Table 4

Inclusion Criteria Diagnosis

| Iron Deficiency Anemia	GI bleeding	Anemia (such as B12 or folate)
Hematemesis	Abnormal LFT	Heme positive stool
Bloody stool	Melena	Diverticulosis
Diverticulitis	Abnormal imaging findings	Odynophagia
Gastritis	Dysphagia	GERD or heartburn
Bloating	Change in bowel habits	Abdominal distension

Diarrhea	Peri-procedure visit	

In addition to the standard inclusion criteria, patients already scheduled for a procedure at DHMC were offered a periprocedural visit to address questions or concerns. Additionally, some referrals to the endoscopy center were sent for a periprocedural visit to understand why the procedure was needed, the best type of sedation for the patient, and if the procedure benefits outweighed the associated risks. These visits were included in the RAC clinic because they allowed for faster evaluation if there were concerns for the patient to have the procedure. The RAC also allowed for more timely coordination prior to the upcoming procedure.

Patients were identified for this clinic through a guided question process from a scheduling team member. The screening used a series of guided questions developed by the QI team to identify patient exclusion criteria (Figure 1). Patients were asked the screening questions and passed through them; they could then choose whether to wait for a standard visit or participate in the RAC. If they agreed to join the RAC, they were sent the welcome letter and scheduled for the next available clinic day. This letter was developed by Mariah Connolly (GI Scheduling Chief), Belinda Ray (GI Patient Care Coordinator), and Lauren Barry (Practice Manager). This letter helped patients understand the structure of these visits to avoid confusion (see Appendix A).

Figure 1

RAC Decision Tree Flow Chart
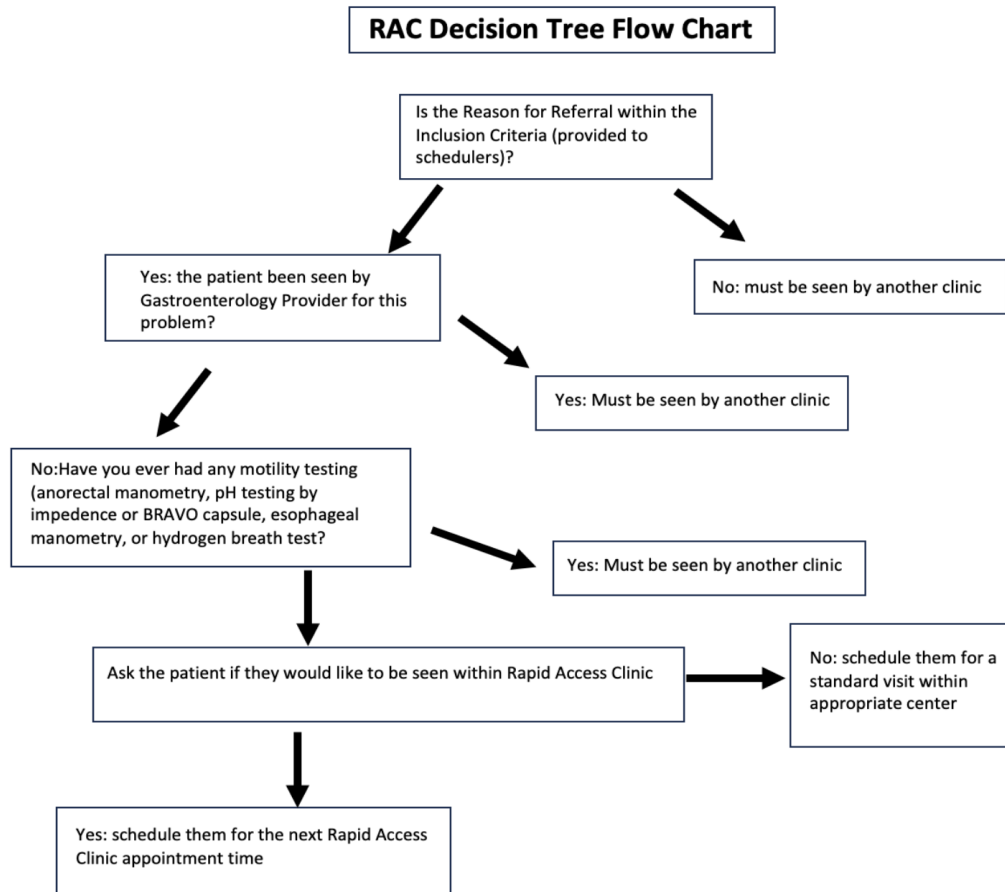
The clinic day was divided into 20-minute blocks with two 4-hour sessions. One 20-minute block was reserved in the middle of the day to help provide flexibility within the schedule if any visits ran over 20 minutes. Hence, each provider could see over 22 patients daily when fully booked. Providers spent minimal time with "chart review" (reviewing available patient records), which they typically spent much time doing during standard visits. Therefore, second opinions or patients seen by gastroenterologists were excluded since they required time to review previous records.

After the visit, the patient chart was sent to an assigned endoscopy scheduler, who expedited dedicated time slots for RAC patients. The provider completed the simplified note, a visit diagnosis was assigned, and the visit was billed as either level 3 or 4 based on the volume of testing ordered. The patient's PCP was sent a copy of the note for review. The assigned endoscopy scheduler made three attempts to contact patients so that they would have the opportunity to schedule testing. After that, testing orders were closed.

After completing each test, patients were sent letters detailing the results. If a patient had a condition requiring a prescription, it was provided. Patients were assigned a provider and given a follow-up visit for conditions that needed specialized follow-up, such as EOE and IBD. Patients with GERD, functional dyspepsia, or IBS were given a letter detailing ways to help manage symptoms.

Letters. Patient care letters were developed for common diagnoses found after completed testing, including EOE, IBD, IBS, and GERD. Letter templates were also created for patient results, including serology, stool studies, and imaging studies, which helped decrease the time providers required to address diagnostic results. The letter for patients with IBS was adapted from an existing letter used by the mobility department within Gastroenterology (see Appendix B for an example letter).

Inbox Messaging. Patients who sent inbox messages through the patient portal were advised to seek care from their PCP or warned that responses might take extended periods as they lacked a permanent gastroenterologist.

Patient Calls. Patients calling and asking for advice or treatment before testing was complete were directed to their PCP.

Patient Visit Templates. The note template used by providers for the RAC was developed in collaboration with the project members. A simplified note template was utilized for these visits. It included the problem list, surgical history, medicine list, and social history generated by the electronic health record Epic. The history of present illness was available for the provider to take notes regarding symptoms, with sections specifying previous and current medications and supplements used for this condition (to decrease the need for peer-to-peer calls by insurance). Previous testing was pre-filled with "none" for imaging, labs, and procedures, as the expectation was that these patients lacked significant testing. However, this information could be updated if a patient had prior workups through their primary care (e.g., serology testing for celiac disease). Family history was also auto-filled with "non-contributory" but could be changed if a patient did have a significant family history of GI conditions such as malignancy or IBD.

A section for the provider to outline the plan (e.g., tests ordered and goals for elimination) was designed to minimize the need for peer-to-peer calls. The available verbiage explained that patients were expected to continue seeking care from their PCP as this was considered a triage visit. Appendix C includes an example of the template for these types of visits. The patients were also given an after-visit summary (AVS), which provided the names of all testing orders and phone numbers they could call to schedule these tests (Appendix D). The AVS was available in their MyDH account once the provider signed and closed the encounter. Within the AVS, a post-visit survey was provided so that patients could share their perspectives and opinions on the experience of receiving care from the RAC (Appendix E).

Increasing Qualifying Patients

After 3 days of piloting the RAC, the project group held a meeting as the number of patients in each clinic was far below the number of available slots, requiring the reevaluation of some exclusion criteria. Thus, the updated protocol then included patients with prior procedures, as long as they were not endoscopic ultrasound (EUS) or motility studies such as Bravo, ARM, high-resolution esophageal manometry (HREM), or Imp. This revision improved access for patients excluded due to standard screening colonoscopies and other routine procedures. Endoscopic retrograde cholangiopancreatographies (ERCPs) were also deemed acceptable since they are often used for acute illnesses such as cholelithiasis, requiring sphincterotomies and sweeps of stones. The project team briefly considered including abnormal LFTs. However, a hepatology provider found these visits quite complex since they did not encompass the severity of patient presentation.

Study of Interventions

Data from this intervention was compiled for a 60-day (2-month) period of 8 clinic days (1 day per week) between July 10 and September 25, 2023. Several data points were examined to assess whether the intervention positively impacted patient care access. One data point was the average wait period between referral and first visit. Another variable considered was patients' demographic information within these clinics. The goal was to avoid bias toward or against any group of patients based on, for example, age or gender. These data were compared to data from the same time from a control clinic (CC) provider (featuring the same amount of clinic time) from July 10 to September 26, 2023. The difference in the termination date was due to scheduling differences between the CC and RAC providers. The data from the control and

experimental groups were entered into a statistics program, JMP Pro 16, to create the distribution plots.

Measures

Information from each patient seen was compiled into an Excel spreadsheet, including the assigned patient number, age, date of service, date of referral, days from referral to service, gender, billing code, referral reason, testing ordered, procedure ordered, Rx given to the patient, diagnosis after testing, the number of inbox messages from the patient (through the patient portal) or phone calls, follow-up visit needed, the date of the follow-up visit, and negative patient responses to care. Moreover, if a patient was not supposed to be scheduled in the RAC, there was a space to provide why they were inappropriate for it. Patient information was de-identified, so the name, date of birth, and medical record number were removed from the final data set. Only the NP who performed these visits had access to protected patient information before deidentification.

Once the data were collected, these various patient measures were compared to those of the CC clinic. This information was compiled by the practice manager and provided to the other project members. Additionally, we calculated the revenue obtained through each clinic over this time period to determine the potential financial impact on the Department of Gastroenterology by introducing RAC visits into the mix of new patient visits.

Analysis

The information that was collected for this project was analyzed using Microsoft Excel and JMP Pro 16 (statistics software available for University of New Hampshire Students):

- the number of patients seen per provider (1 day RAC vs. standard visit model of

  another APP within the practice as well as number of new patients seen per week by

  the control model),

- patient demographics of age and gender,

- patient no-show rate (compared to traditional visits),

- time from referral to first visit,

- RAC patients who reached out and were unsatisfied,

- patient access data,

- new patients sent for additional follow-up (RAC versus CC), and

- revenue per 8 hours of CC versus RAC.

Ethical Considerations

This research was approved by the University of New Hampshire Nursing Program as a

QI project and did not require IRB approval. DHMC also did not require IRB approval for this

project. All patient participation in this clinic was voluntary and offered to all new patient

referrals. They were given the same testing and considerations as current management standards.

This project's author has no conflicts of interest to disclose.

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Results

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After the RAC was implemented, it took several weeks for the scheduling staff associated

with this QI project to learn which patients should and should not be included in this clinic. The

first few clinic days were not booked to capacity. By the end of the data collection period, the

number of patients booked for the RAC had increased. The number of new patients who could be

seen with 1 clinic day per week exceeded those seen by a full-time APP (i.e., PA) over an entire

week.

The exclusion criteria needed to be recalibrated, as initially, they were too restrictive, and several patients who otherwise would have been excellent candidates for treatment at an RAC were prevented from receiving care. For example, all patients who had had a procedure within the past 5 years were initially excluded, which excluded those who had screening colonoscopies within the past 5 years. Consequently, adults completing their screening colonoscopies could not be seen for a new onset of diarrhea. By adjusting the exclusion criteria to restrict patients who had undergone more advanced procedures (e.g., EUS and HREM), the number of patients who could be scheduled into the clinic increased dramatically. The reasons patients were scheduled in the RAC are detailed below in Table 5 (with percentages rounded to the nearest hundredth). Diarrhea, GERD, and changes in bowel patterns or stools were the most common.

Table 5

RAC Patient Reasons

| Diagnosis	Patients Scheduled	Percentage
Diarrhea	28	29.17%
GERD or chest pain	24	25%
Change in bowel pattern or stool	9	9.38%
Dysphagia	7	7.29%
Constipation	7	7.29%
Blood in stool, BRBPR, melena	6	6.25%
Bloating or belching	5	5.21%
Diverticulitis/diverticulosis	5	5.21%
Pre-procedure	3	3.13%
Incontinence	1	1.04%
Iron deficiency anemia	1	1.04%

Distributions

Number of Patients Seen

Over the 8 RAC days, 96 new patients were scheduled (100%). The supermajority of

patients seen within the RAC utilized video (97.7%), while only two used a telephone call due to

technical difficulties (2.3%). Six of the 96 patients scheduled did not show up for their scheduled

appointment (6.25%), so two were rescheduled. Three patients were scheduled inappropriately

for the clinic since they had been managed by a gastroenterology provider in another location

before (3.125%). The data appear in Figure 2 below.

Figure 2

RAC Type of Visit (Left) vs. CC Type of Visit (Right)
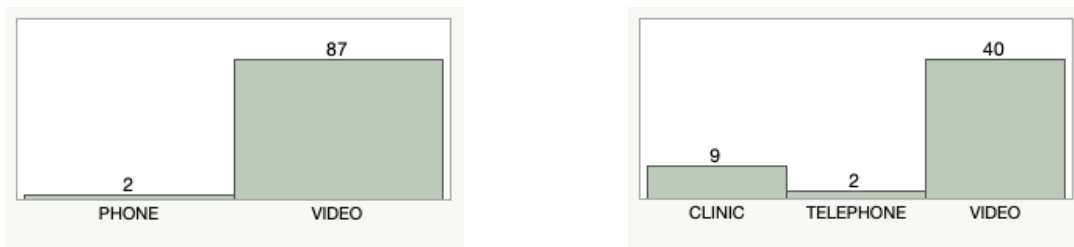
By comparison, the CC saw 55 patients, including follow-ups, during the 8 clinic days.

Four patients did not show up for their appointments (7.27%). Of the 55 patients scheduled, 20

were new patient visits (36.36%). Moreover, 15 patients received transfer of care (TOC) visits

from another provider who had left the practice. These visits were given 60-minute new patient

time slots but were billed as established patients. Forty patients were seen using video, two

required telephone calls, and nine were seen in person (Figure 2).

The RAC provider saw as many new patients during the 8 weeks using 1 clinic day per

week as the CC provider saw throughout the entire 40-hour week. This finding correlated with

the data collected by the Gastroenterology Department during the post-study continuation of this

clinic. Per practice mentor, Dr. Corey Siegel, "The RAC is more effective than hiring an entirely

new provider" while only operating one day per week. The no-show rate over the 40-hour work

week of the CC was 14 patients out of 96 (14.58%).

Age

The age distribution of patients seen within the RAC clinic trended toward younger

patients compared to the CC, with most patients 30–40 years old (Figure 3). The median age

seen in RAC was 41 years old. For the CC, the most common age group was 60–70 years old

(Figure 3). Despite the distribution shift in age, the RAC patients' ages ranged from 18 to 92, so

elderly patients were not excluded from the clinic. The range of the CC was from 20 years to 83

years.

Figure 3

*RAC Age Distribution (Left) vs. CC Age Distribution (Right)*
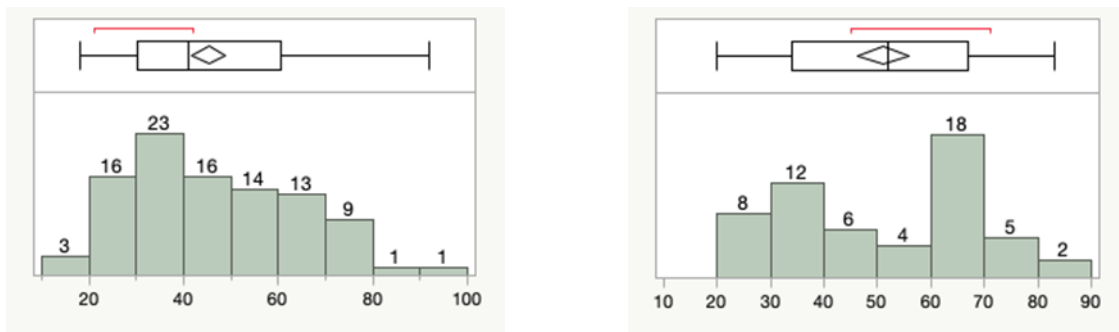
Gender

More women were seen within both the RAC and the CC. However, when looking at the percentage of clinic compositions, men favored the RAC compared to women: 66.67% of patients within the RAC were female, compared to 81.8% of CC patients (Figure 4).

Figure 4

RAC Gender Distribution (Left) vs. CC Gender Distribution (Right)
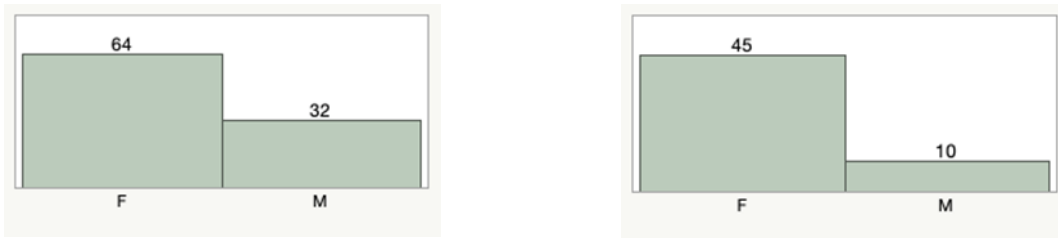
Inbox and Phone Call Burden

The number of inbox messages and phone calls from patients was minimal in both clinics. Most RAC patients did not send messages or make phone calls. For instance, only 28.1% of RAC patients sent at least one inbox message to the provider. The CC was minimally more likely to have patients send at least one inbox message (30.9%), as shown in Figure 5 below. The two patients who sent the most messages were both diagnosed with IBS, and one of those was inappropriately scheduled into the clinic as they had previously been under the care of a gastroenterologist. This outlier was also the only patient to reach out and voice dissatisfaction with the process. All patients who were appropriately scheduled for the clinic were satisfied.

Figure 5

RAC Inbox Messages (Left) vs. CC Inbox Messages (Right)
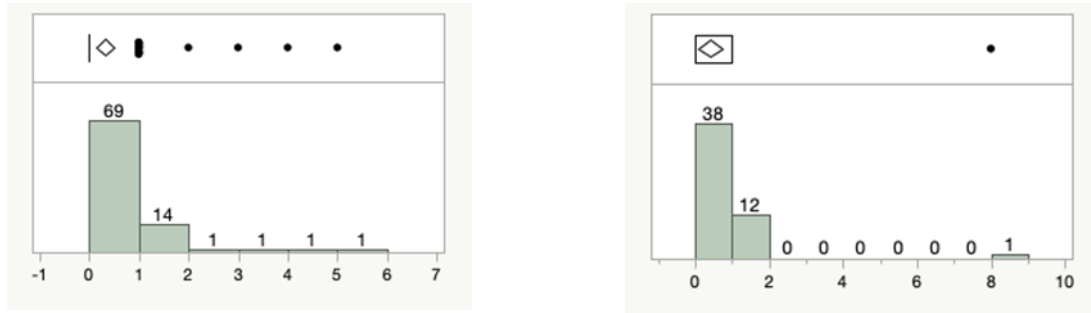
The non-IBS patient who made the most phone calls to the RAC provider was diagnosed with microscopic colitis. Phone calls were focused on coordinating treatment and the next appointment, which was appropriate and in scope for the QI project. The number of phone calls received by both clinics was similar: 83.3% of RAC patients did not make phone calls, while 81.8% of CC patients also did not (Figure 6).

Figure 6

RAC Phone Calls (Left) vs. CC Phone Calls (Right)
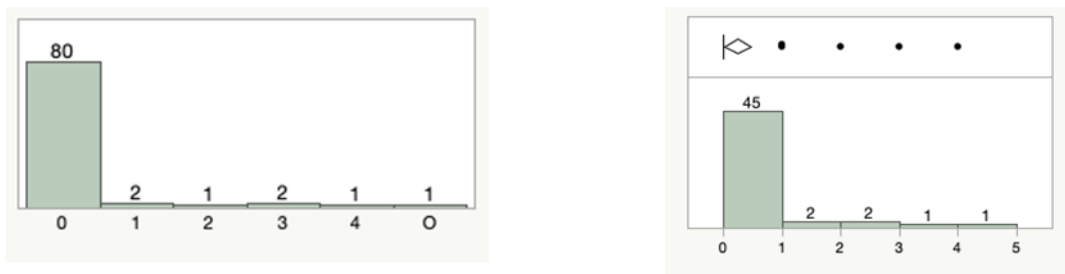
Need for Follow-Up Visit

The RAC visits resulted in 36 patients recommended for follow-up within the GI

Department (40.9%). Another was sent back to the PCP with recommendations, with no specialty

follow-up recommended (55.6%). Three patients were referred to another provider, most often

for surgery (3.4%). Eight patients did not have a plan determined by completing this QI project,

of which six were not seen because they did not join the telemedicine visit. The remaining two

patients were followed up to complete their scheduled diagnostic testing. The CC resulted in 25

patients being recommended for follow-up (49%), of whom 21 were sent back to their PCP

(41.1%), and three were referred to another practice (5.8%). The last two were transferred within

gastroenterology (3.9%), as seen in Figure 7 below.

Figure 7

RAC Plan After Testing (Left) vs. CC Plan After Testing (Right)
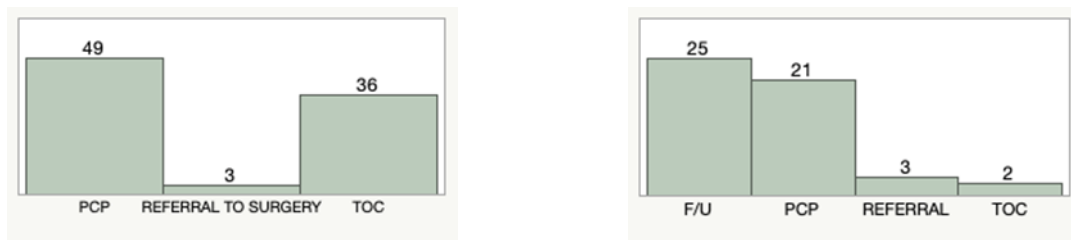
Figure 8

RAC Follow-Up Needed (Left) vs. CC Follow-Up Needed (Right)
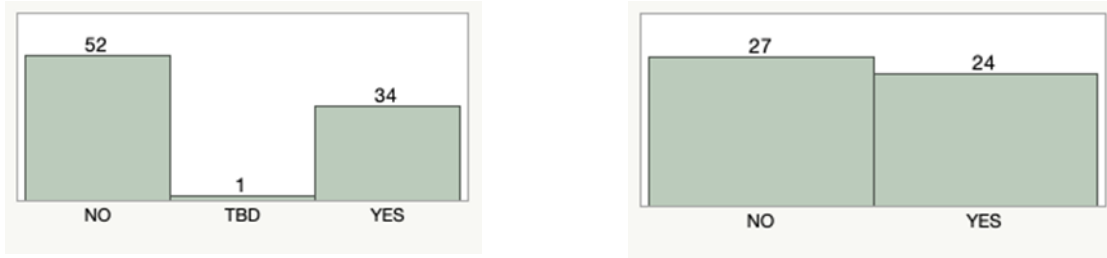
Number of Tests Ordered

There was a substantial difference in the volume of tests ordered between the RAC and CC. Orders placed during the visit were divided into laboratory testing (e.g., serology and stool studies), procedures (e.g., endoscopy and colonoscopy), and other testing (e.g., imaging studies and hydrogen breath testing). Most RAC patients did not require serology or stool testing (62.5%, 60 patients). However, most had at least one procedure ordered for evaluation purposes. Only ten of 96 patients did not have procedures ordered (10.42%). For other testing (e.g., hydrogen breath testing, motility tests like pH monitoring, and HREM), 50 patients received at least one order, matching the percentage of patients receiving serology testing (Figure 9).

Figure 9

RAC Serology/Stool Studies (Left), Procedures (Center), and Other Orders (Right)
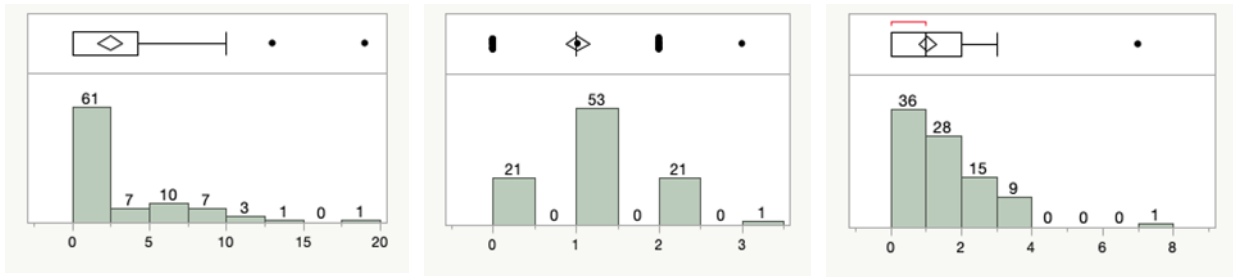
Many CC patients did not receive orders. For instance, 45 patients did not have serology or stool orders, while the other five had between one and three serology or stool orders written. Moreover, 29 patients did not have procedures ordered, another 17 had one procedure ordered, and four had two diagnostic procedures ordered. Finally, 36 patients did not have other testing orders placed, such as a hydrogen breath test (Figure 10).

Figure 10

CC Serology/Stool Studies (Left), Procedures (Center), and Other Testing (Right)
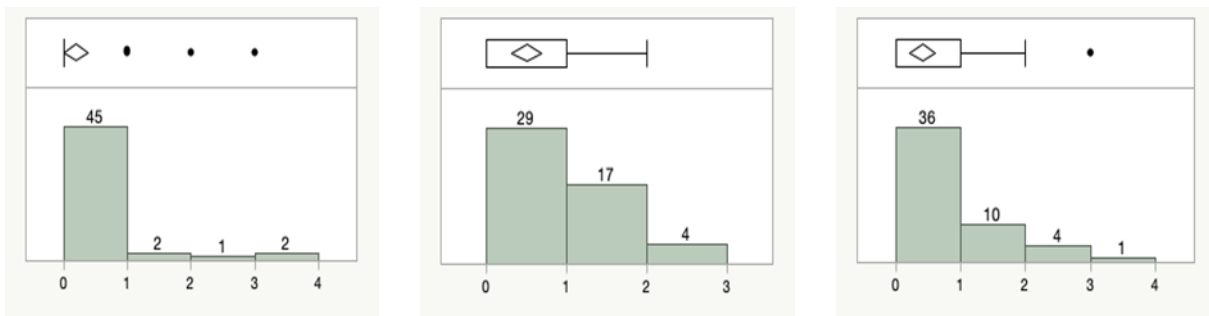
Revenue

Since the CC included many follow-up visits that did not require testing, the most common billing code used was 99214, a level-4 visit for established patients. Thus, 21 of 55 patients were coded with 99214. Of the 20 new patients, 17 were billed as 99204, a level-4 new visit. No level-5 visits were billed despite the longer appointment times. Nine more patients were

coded as 99213, established level 3; these visits did not need additional testing orders. The four

patients who did not join their visits could not be billed for the visit. The RAC had 90 billable

visits since six patients were no-shows. Hence, 22 visits were billed as 99203 (22.92%), one visit

was billed as 99205 (1.04%), and the remainder were billed as 99204 (67 patients or 69.79%).

Consequently, the higher level of billing, combined with the higher number of patients

seen, resulted in a profound difference in the revenues generated by the CC and the RAC. The

RAC visits generated $30,441, a 264% increase compared to the CC. The CC revenue was

$11,547. Additionally, these figures did not consider the higher volume of procedures ordered

within the RAC compared to the CC as a revenue generator for the department and the hospital.

RAC patients were predominantly billed as 99204 due to the amount of testing ordered as part of

their initial evaluation. The median revenue for the CC was $457, while the median revenue for

the RAC was $717.

Time From Referral to Visit

The number of days from referral to a patient being seen within the RAC ranged from

same-day referrals to a 180-day wait (Figure 11). The median wait time was 26 days. Notably, 78

of 96 patients were scheduled less than 50 days from referral (81.25%). Only 6.25% of patients

waited longer than 100 days.

In comparison, the CC ranged from 12 to 362 days, with a median of 140 days (Figure

11). Only eight of 35 patients were seen in less than 50 days from referral. Specifically, 15 of 35

patients were not "new" patients but TOC visits. However, their wait for a TOC visit was

comparable to new patients and were included in the data. Finally, 22 (62.9%) patients had to

wait longer than 100 days.

Figure 11

Time from Referral to Visit in the RAC (Left) and CC (Right)
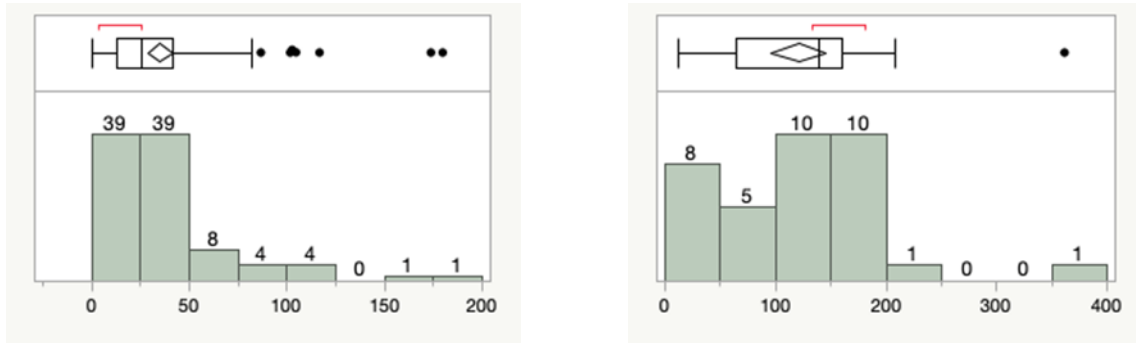
Discussion

Summary

The initiation of the RAC was highly effective in reducing patient wait times from referral to the day of the visit. The median wait was 26 days for the RAC rather than 140 days for the CC. There was a 538% improvement in the wait time from referral to visit for patients seen by the RAC versus the CC. However, this result did not meet the goal of 14 days set by the hospital. The RAC provided this improved wait time without sacrificing revenue for the department or unintentionally withholding or prejudicing access to any particular demographic group.

Conversely, the CC saw fewer patients, generated less department revenue, and had longer patient wait times. The RAC generated 264% more clinic revenue compared to the CC. Due to patients within the CC not needing additional procedures for functional bowel disorders such as IBS or functional dyspepsia, there was also a reduction in income from testing. Lastly, there was no incentive for a CC provider to order most testing upfront since the patient would most likely return for a follow-up visit.

Patient Perspectives and Survey Results

Beyond the positive impact of the RAC on the department and hospital, the importance of a positive patient experience cannot be overstated. Patients were surveyed about their opinions of the visit to this new clinic. The survey was developed by the Gastroenterology Team at DHMC, led by Lauren Barry (Practice Manager) and Belinda Ray (Patient Navigator for the Gastroenterology Department). Questions asked during this survey can be viewed in Appendix F.

The patient feedback provided through the survey results was positive. Patients reported being happy to be seen in an accelerated time frame compared to the treatment they had received before the clinic's creation. Patients did not mind the abbreviated length of the visit (20 instead of 60 minutes). The one discordant patient who provided negative feedback and voiced dissatisfaction with the experience was a second-opinion evaluation and should not have been seen at the clinic based on the exclusion criteria.

Provider Experience With the RAC

Overall, the experience of the RAC was positive. The fast pace helped keep the day moving briskly, and the convenience of remote working was overwhelmingly positive. It was exciting to see a wide variety of patients and testing results. The Gastroenterology Department at DHMC is subspecialized, meaning that each provider primarily sees patients within a specific group: pancreas, hepatology, IBD, or mobility. The Comprehensive Gastroenterology Care Center is the subclinic that sees a wider range of patients. However, it is mainly reserved for patients who do not fit neatly into the other Centers of Excellence jurisdictions. This subdivision allows providers to become highly experienced in certain aspects of gastroenterology; however, the downside is that the types of patients seen can be repetitive. In contrast, a more heterogeneous patient pool spanned all centers in the RAC.

One of the negative aspects of working at the RAC was, in part, the design of the QI project. A full 8-hour clinic day can be mentally exhausting since a provider can see 20+ new patients within that time. This issue could be solved for future RAC providers by allowing for 4-hour time blocks rather than a full 8-hour day.

Recalibrating the clinic and administrative time balance was critical for the project's success. Significantly more testing was ordered per patient in this clinic with the goal of patients obtaining a definitive diagnosis compared to the CC, where most patients would be seen in follow-up visits. The RAC decreased the need for follow-up visits by providing diagnosis and management recommendations, which helped increase the number of appointments for new patients in the standard clinic.

The current administrative time policies in place for most providers do not encourage the practice of bulk ordering testing upfront. Instead, they encourage patients to undertake multiple visits to acquire a diagnosis due to the slow trickle of results that need to be reviewed individually following each visit. By increasing the administrative time available, the RAC provider could comfortably manage the number of diagnostic examinations each patient completed. Careful consideration would need to be employed when examining any potential pilot expansion to determine how to balance the mix of patient and administrative time while maintaining the efficiency and profit the pilot's RAC demonstrated.

Interpretation

The institution of the RAC within the Department of Gastroenterology was highly successful at decreasing the wait time from referral to visit while drastically increasing the number of new patients seen per week. The median wait time of the RAC was 26 days, whereas the CC was 140 days. The CC findings are comparable to those of Telford et al. (2019), who

found that the average wait time for gastroenterology care was approximately 160 days in

Canada.

By decreasing the wait time from referral to their first visit, two patients were diagnosed

with esophageal cancer sooner and could seek more effective treatment. Other patients were

diagnosed with IBD or EOE, decreasing their likelihood of needing emergency room services or

hospitalization. Walker et al. (2020) found that many patients with IBD had symptoms for more

than 1 year prior to their diagnosis. With an RAC, this wait time could be reduced substantially.

The age of patients seen within the RAC tended to be younger than the CC, but including

clinic visits in the control data could have influenced this outcome. Older patients more often use

clinic visits (in person). Despite this, the age range of the RAC exceeded that of the CC: 18–92

years old. The gender distribution was more evenly divided for the RAC, which could be related

to the limited options for patients to select a different provider compared to the CC. Both clinics

had a comparable percentage of patients using inbox messaging and phone calls following their

visits. The RAC did not lead to a significant increase in burden for providers compared to the

CC.

The RAC resulted in more testing orders than the CC, producing a faster diagnosis since

patients did not have to wait for a follow-up visit for additional testing. More testing is not

necessarily better, but if testing is expected for diagnosis, RAC patients are more likely to get all

necessary testing ordered during the first visit rather than requiring multiple visits. This finding

is similar to the findings of Black et al. (2019), who found that chest pain patients were more

likely to receive a diagnosis after completing testing at the first visit than at their CC.

The downside of increased orders placed during the visit is that if patients did not need

tests, they held appointment spots until they were canceled. For example, if a patient was seen

for GERD in the RAC, they were often scheduled for endoscopy, HREM, and pH impedance

testing (motility testing) following the visit. However, motility testing was canceled if significant

esophagitis was seen on the endoscopy. Hence, these appointment slots would have otherwise

been available. The positive was that the scheduling team was responsive to canceling

unnecessary tests (per the providers), so they could fill these spots with patients on a waitlist for

faster testing.

  The opposite was true for the CC since many patients did not receive additional testing or

orders during the visit. Patient visits would result in recommendations for managing symptoms

before testing since a follow-up visit was expected. Alternatively, patients may have completed

testing outside the facility since the CC included second-opinion visits. Thus, the CC was more

effective at using resources and decreasing patient cost burden. Nevertheless, the slower, step-

wise evaluation also meant a diagnosis could be delayed further, resulting in testing over several

years, where patients' deductibles renew, increasing their out-of-pocket costs.

  The CC was much more likely to result in a follow-up visit than the RAC, ultimately

decreasing the availability of new patient referrals. This model is unsustainable for the practice,

with more than 60 new referrals daily. Patients seen at the RAC are given education and

recommendations to return to their PCPs, which helps decrease downstream clogging and delays

for patients with functional dyspepsia and IBS. These patients tend to be high utilizers of health

resources when most of the interventions needed are holistic, dietary, and lifestyle-driven. Using

the IBS letter for patients with unremarkable procedures and laboratory testing helped decrease

the need for follow-up visits in these populations. Nonetheless, these patients were not refused

return visits if requested, but most were happy to complete testing and receive recommendations.

Limitations

This QI project had several limitations. One was significant staffing shortages, which impacted the efficiency of scheduling and expanding the RAC. Moreover, additional variability in the dates used for data collection may have occurred due to summer vacations, thus impacting the number of new patients seen by the CC.

There was a learning curve to scheduling. As the new clinic became established within the Gastroenterology Department at DHMC, the scheduling staff had to learn how to present options to patients effectively. Over time, this process improved and positively impacted the number of patients seen per day, which increased over time. By the final day of the clinic, 18 of 22 patient slots were filled.

There was also an impact of expanding diagnoses within the clinic, which skewed the data as we included patients already waiting for a full visit. Thus, some referral-to-visit times were protracted. Finally, local weather patterns over the project data collection period impacted patients' ability to schedule and join visits. This extreme weather during this QI project included heavy rains and flooding in the region. Hence, many patients could not access telehealth visits via the internet, as it was down in the region. This situation decreased the number of patient bookings to the clinic early in the data collection.

Conclusions

The RAC effectively decreased patients' wait times from referral to visit. The number of new patients seen within the 8-week project period using 1 day per week exceeded those seen within a full 40-hour clinic week using standard clinic times. The percentage of patients who did not keep their appointments was comparable to the CC. The median age was typically younger

within RAC. However, the telemedicine-only design did not exclude elderly patients who could either have helped setting up the visit or were comfortable with video visits independently.

Nonetheless, expanding the number of diagnoses seen within the RAC made remaining within the 20-minute appointment time more challenging. For future clinics or if additional providers were added to this clinic, maintaining a balance between a broad reach and provider burnout would be imperative. Moreover, there would need to be a substantial expectation shift for new patients who had previously seen gastroenterology providers (as evidenced by the person providing negative feedback).

Additionally, the more complex the patient presentation, the more tests and results are needed, so there is less time within the visit to complete documentation. We suspect that all of the above could increase the risks of provider burnout and higher turnover rates. Therefore, a higher ratio of administrative time is critical for success, thus allowing providers to absorb the volume of test results and patient messages at a higher volume.

For the future expansion of this clinic, we are considering the use of group medical appointments to help supplement the need for follow-up visits. The goal is to provide education on common gastroenterology conditions, such as IBS (both constipation and diarrhea), GERD, and functional dyspepsia, to improve access to gastroenterological care within our region because it will help decrease the use of follow-up visits to support these chronic health conditions. This approach can ultimately increase the availability of appointments for patients who require more complex care.

The Department of Gastroenterology has permanently adopted this QI project. However, providing a welcome video rather than a welcome letter could more effectively explain the nature of this clinic to patients. Nonetheless, the RAC was a successful QI project used within

the Department of Gastroenterology at DHMC to help improve patient care access, a common

problem in our region. This program has been successfully adopted permanently within the

practice and will be expanding shortly.

Funding

Thank Yous

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Appendices

Appendix A: RAC Welcome Letter

@FDATE@

@NAME@

@ADD@

Dear @NAME@,

This letter is to confirm your appointment in Gastroenterology

Thank you for choosing Dartmouth Hitchcock Medical Center for your medical needs. You are scheduled for a mydh video visit on ***, at ***. Please be logged into your video appointment about 15 minutes prior to your visit.

This is a telehealth appointment and instructions can be found here https://www.dartmouth-hitchcock.org/patients-visitors/attending-your-virtual-appt. If you need technical assistance call 603-650-0499, Monday through Friday, 7:30 am to 5:00 pm. Please note you do need an active myDH account. You can join the myDH Video Visit from your tablet, smartphone, computer or laptop. For ease of setup, we recommend you use your smartphone or tablet to join the visit.

This appointment is in our **Rapid Access New Patient Telehealth Clinic**. We are excited to offer this service to allow for our patients to be seen more quickly. The intent of this 20 minute video visit is to start your initial workup with a Gastroenterology (GI) Provider. You will meet with either a Physician or an Associate Provider to discuss your GI symptoms and any previous testing. The goal of this brief visit is to arrange specific GI testing that may be needed, and to match you with a provider at one of our Gastroenterology Centers of Excellence to discuss

diagnosis and treatment options after that testing is complete. Learn more about our Centers of

Excellence on our website: https://www.dartmouth-hitchcock.org/gi/centers-excellence.

      Note: the provider you see in this first visit will likely not be the same provider who you

will follow-up with, but be assured that we will get you in as quickly as possible to continue the

process for best managing your GI symptoms. Our amazing team of providers, nurses, and staff

look forward to serving you with your GI care!

      If you have any questions or are unable to keep your upcoming appointment please call us

at (603) 650-5261.

Sincerely,

The Gastroenterology Team

Phone: 603-650-5261

Fax: 603-676-4068

Appendix B: RAC Example Results Letter

@NAME@

Thank you for completing the testing ordered during your visit. All of the results have

been unremarkable.

Bloating can be related to the types of food we eat or certain habits that can lead to

swallowing air. This can also be related to a diagnosis called IBS (irritable bowel syndrome).

Please consider the recommendations below for managing this chronic condition.

Thank you for allowing us to participate in your care

Warmly,

@ME@

Department of Gastroenterology and Hepatology

Dartmouth Hitchcock Medical Center

RECOMMENDATIONS:

- some patients find peppermint soothing for abdominal discomfort: drinking peppermint tea

twice per day OR using IBGard (supplement available over the counter)

-Try the FODMAP diet to identify food triggers. This is meant to be a TEMPORARY

elimination diet.

INSTRUCTIONS

1) Download the Monash app (https://www.monashfodmap.com/ibs-central/i-have-ibs/get-the-

app/) to get started, which contains references, meal plans, and common questions

2) Do the full low FODMAP elimination diet for four to six weeks

2) If the full diet results in symptom or quality-of-life improvement after 4-6 weeks, start

reintroducing foods one-at-a-time to identify specific food triggers. Do not stay on the low

FODMAP diet long-term due to concerns for possible vitamin and mineral deficiencies or

changes in the intestinal flora over time

4) if the full diet does not work at all, <u>stop</u> the low FODMAP diet completely and do not avoid

specific foods from an IBS management standpoint.

-Tips to avoid swallowing excessive air (Aerophagia) to minimize burping, bloating, and

excessive gas:

1. Changing our Eating HabitsConsume food and drink slowly. One of the most effective

ways to keep yourself from swallowing air is to eat your food and drink beverages slowly. Try to

take 3 to 5 seconds with each bite and space out your sips. Relax while you are eating, as stress

can cause you to eat food too quickly.Chewing your food fully before swallowing will also help

keep air out when you swallow.

2 Avoid straws, if possible. They will make you drink faster than you should, and can pull

air up with them.

3. Stay away from carbonation. Carbonated beverages contain carbon dioxide, which is a

major component of air. Drinking them will be similar to drinking a great deal of air all at once.

If your goal is to avoid burping, this is one of the most important steps you can take. Beer and

sparkling wine, while not artificially carbonated, are also major culprits for aerophagia

4. Avoid chewing gum. As you chew gum, you swallow air along with it. Particularly if

you open your mouth as you are chewing gum, this is an easy way for air to enter your stomach

and esophagus. Other chewy foods and candy, like fruit leathers or caramel, will cause you to

swallow air as well.

5. Try not to talk while you are chewing. As you talk, you are allowing air into your

mouth that will go to your stomach when you swallow. Finish each bite before you begin to

speak, and don't open your mouth as you are eating. If you are asked a question while you are chewing, wait until you have finished your bite before responding.Improving your health Additional recommendations:

• Stop smoking or vaping. Along with all of the other health benefits associated with quitting tobacco, you can prevent yourself from swallowing air by avoiding smoking altogether. Each inhale of smoke or vapor from a cigarette or vaping device will allow air to enter your esophagus and stomach

• Smoking products other than tobacco can also cause you to swallow air. It is the smoking mechanic, rather than the substance that causes aerophagia.

• Take deep breaths to stop hyperventilating. If you tend to hyperventilate when you are nervous, take steps to slow your breathing in order to avoid accidentally swallowing air. Breathe from your diaphragm in order to have more control over the size and duration of your breaths.

•There are also ways to prevent hyperventilation, like exercising more frequently and breathing through your nose.

• Adjust your CPAP machine if you use one. Check the pressure, as it may be too high or too low, which can lead to hyperventilation. It is also possible that you need a mouth breathing apparatus rather than the standard nose one. If you think the pressure is too strong, ask your doctor if it is possible to lower it.

• Check your dentures for a loose fit if you wear them. If your dentures fit loosely, adjust them to fit your mouth. Any gaps in the teeth can leave room for air to enter your mouth and get swallowed unintentionally. You may have to get a new size if you have had a sudden weight change.

Appendix C: RAC Note Template

Gastroenterology RAC (telemedicine)

Chief Complaint: @NAME@ is a @AGE@ patient referred for consultation by Dr.

@REFPROVLNAME@ for ***

History of Present Illness: @AGE@ @SEX@ with ***

Current Medication/Supplement for this symptom

***

Previous Medication/Supplements tried for this symptom:

***

Relevant prior GI evaluation *

Laboratory studies: none

Imaging: none

Endoscopy: none

Medications: @ENCMEDSTART@

Allergies: @ALGP@

Relevant Past Medical History:

@PROB@

Relevant Past Surgical History:

@PSH@

Family History: non-contributory ***

Social History: @SOCHXP@

Physical exam:

No physical examination performed during this telemedicine visit

Assessment/Plan:

@M@ @LNAME@ is a @AGE@ patient with ***

This patient, if needed, will be scheduled for the next available clinic visit with a provider within the Gastroenterology Department at Dartmouth Hitchcock Medical Center. If testing is being performed the follow-up will be after these results are reviewed. Patients should continue to seek help from their primary care team while waiting for any relevant testing and results. They have not been assigned a gastroenterology provider as of this triage visit.

@ME@

Appendix D: Rapid Access After-Visit Summary Template

@NAME@

It was nice to meet you today. The following orders were placed during our visit today:

@ORDERSNMENC@

For procedures that have been ordered please call :Endoscopy Scheduling at 603-650-5030

For imaging studies at the DHMC Lebanon campus, please call radiology for scheduling (numbers listed below).

Main radiology scheduling line (603) 650-4488

Direct phone numbers:

MRI, please call GI scheduling: (603) 650-5261

CT, you can directly call: (603) 650-7452

ultrasound, you can directly call: (603) 650-7451

If we have ordered any imaging outside of the Lebanon Campus, you will need to contact the radiology department at the facility it was sent to. Anything sent through fax may take a few days for that facility to process.

For blood work or stool studies ordered, please go to 3L or any Dartmouth-Hitchcock-affiliated lab. If these were sent to a facility outside of Dartmouth Health, please call the facility prior to going.

As the results come back from your various tests, we will only contact you for results which require urgent attention. Otherwise, you will receive these results from our team either at a follow-up visit, phone call, letter, or through eDH. You will likely see the results through your myDH portal several days before you get additional communication. This is normal.

Please note given the ongoing COVID-19 pandemic, there has been delays in the scheduling and completion of various investigative studies. We are working to improve this, and in the meantime, we appreciate your patience and cooperation.

Sincerely,

@me@

Department of Gastroenterology and Hepatology

Dartmouth Hitchcock Medical Center

Appendix E: Post Visit Survey for Patients

Dartmouth RAC Assessment Version: 2.2 Revised 9/20/23

First we will ask for some basic demographic information:

1. *What are the GI problems you were seen for? (Select all that apply):*

> (Drop down options):
>
> Abdominal distention (belly feels swollen or enlarged)
>
> Abnormal findings on imaging
>
> Anemia (low red blood cells)
>
> Bloating
>
> Blood in stool
>
> Change in Bowel Habit
>
> Constipation
>
> Diarrhea
>
> Diverticulitis (infection of bulging pouches in the intestine)
>
> Dyspepsia (indigestion; pain in upper abdomen)
>
> Dysphagia (difficulty in swallowing food or drink)
>
> Gastritis (inflammation/irritation of stomach lining)
>
> GERD (reflux of stomach acid)
>
> GI bleeding
>
> Heartburn
>
> Hematemesis (vomiting blood)
>
> Iron Deficiency
>
> Irritable Bowel Syndrome (IBS) (change in bowels and abdominal pain)

Melena (Black or tarry stools)

Odynophagia (Painful swallowing)

Stool test showing blood in stool

Other

2. *Have you previously seen another gastroenterologist provider for these conditions?*

Yes/No

3. *What is your gender?*

Male, Female, Prefer not to say

4. *What is your age:*

(Drop down options):

15-25; 26-39; 40-59; 60-75, 76+

Next are questions to help understand your experience in the Rapid Access Clinic.

1. *Overall, how satisfied were you with that Rapid Access Clinic (RAC) visit and the follow-up*

that occurred?

Very satisfied, Satisfied, Neutral, Dissatisfied, Very dissatisfied

2 *Thinking back to your original call with a scheduler and the appointment letter that followed*

(if you received one): How well did you understand what to expect before the Rapid Access

Clinic telehealth visit?

Completely understood what to expect [Skip to: 4],

Somewhat understood what to expect,

Didn't know at all what to expect,

N/A – I did not receive an appointment letter [Skip to 4]

3 *How were your expectations different from what occurred?* [Free Text]

4 *Please rate the overall pace of your visit.*

Excellent, Very Good, Good, Fair, Poor

5 *How satisfied were you with having enough time during the appointment to discuss your goals and concerns?*

Very satisfied, Satisfied, Neutral, Dissatisfied, Very dissatisfied

6 *During your Rapid Access Clinic visit, how confident were you that the provider understood your symptoms and made an appropriate plan for next steps to address it?*

Very confident, Confident, Somewhat confident, Not confident at all

7. *If you have already been scheduled with another provider in GI, how satisfied were you with the wait to see that person?*

Very satisfied, Satisfied, Neutral, Dissatisfied, Very dissatisfied (add) NA

8 *Is there any other feedback you'd like to share with our team as we continue to develop this clinic? Your suggestions will help us improve our process with the goal to see patients as soon as possible, while making it a great experience.* [Free Text]

Message [10] Thank you so much for taking the time to complete this survey and providing this very useful feedback!

Press FINISH to submit.

Direct back to URL: https://www.dartmouth-hitchcock.org/gi