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Consult Management at the VA Palo Alto Health Care System: Has the Implementation of Business Rules Improved Consult Management, and Did It Help Measure Performance for Select Services?

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**CONSULT MANAGEMENT AT THE
VA PALO ALTO HEALTH CARE SYSTEM:**
*Has the Implementation of Business Rules Improved Consult Management,
and Did It Help Measure Performance for Select Services?*

by
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INTRODUCTION

The Veterans Health Administration (VHA), within the United States Department of Veterans Affairs (VA), provides health care services for eligible veterans through its system of hospitals and community based outpatient clinics (CBOCs) within the US and overseas. "In recent years, VHA has faced a growing demand for providing outpatient medical appointments" (Draper, 2014d, p. 1). Given the complex health care needs of a diverse veteran population, coordinating health care services has been challenging and encumbered with delays in veteran access to care. Veteran patients with specialty care needs, such as physical therapy and mental health, often require referrals to specialty providers who have expertise in these areas. Referrals are also necessary when veterans require services that are not readily available at a VA facility. Referrals for care, otherwise known as "consults", may be internal to the facility (provider to provider), inter-facility (VA to VA), or external (VA to non-VA), and they are managed through a consult management process (L. Hutcheson, personal communication, December, 2015).

Although the consult management process has been in place, VHA historically has had limited oversight of the process. To support timely access to care and improve VA's ability to oversee consults, VHA launched the Consult Management Business Rules Initiative in May 2013. Every VA health care system, including VA Palo Alto Health Care System (VAPAHCS), implemented the business rules, with some local modifications as appropriate to the facility's operations. Despite implementation of the consult management business rules, reviews of consult data by the Chief of Staff's Office in VAPAHCS indicated that consults were not being managed adequately to ensure that veterans were receiving timely access to care (L. Hutcheson, personal communication, December, 2015).

VAPAHCS in Palo Alto, California has implemented the new business rules (L. Hutcheson, personal communication, December, 2015), but successful implementation of the

guidelines is not happening in every service. It was unclear whether implementation of these

rules improved VAPAHCS' oversight of the consult process. Some services have adopted

individual business practices that have resulted in a high degree of success in managing consults,

while others have struggled to effectively manage consult referrals (L. Hutcheson, personal

communication, December, 2015). Therefore, this research project was developed to determine

whether the new business rules implemented at the VAPAHCS have resulted in an improvement

in the delivery of critical health care services through consults; and whether this process can be

used as a Key Performance Indicator (KPI) for measuring performance of clinical services by

health care administrators.

BACKGROUND

History of the VA

From its birth in the Colonial Era, to its increased worldwide development, the VHA has provided comprehensive care that serves a constantly changing population, including paraplegics, geriatrics, and women (VA History in Brief, 2009, p. 5). President Abraham Lincoln promised that the government would "care for him who shall have borne the battle and for his widow, and his orphan". His words still stand true today, as the expansion of the VA has adapted to the many challenges wars have bred for veterans and their family members. These words were later adopted as the VHA's mission statement.

Before the Veterans Benefits Administration (VBA), veterans' benefits were designed to respond to the disabilities that came from war, but these benefits evolved throughout the years. The financial burden of disability payments was originally on the States, but in 1808 a Bureau of Pensions was established to provide pensions to veterans. Pensions were also "extended benefits to dependents and survivors" (VA History in Brief, 2009, p.3).

By 1944, financial benefits were not limited to disabilities and pensions, post-war. The transition period from serving active duty and immersion into civilian life was supported by benefits for eligible veterans provided through the Government Issued (GI) Bill of Rights. There were three types of assistance packages in the GI Bill. The first was education or vocational training for up to four years, which covered "tuition, fees, books and supplies, plus a monthly subsistence allowance" (VA History in Brief, 2009, p.13). Second, the "benefit provided veterans with federally guaranteed home, farm and business loans with no down payment" (VA History in Brief, 2009, p.14), and the third was unemployment compensation. The GI Bill,

though readjusted in numerous ways, has continued to provide financial assistance to veterans and their families, (VA History in Brief, 2009, p.14).

To cater to a growing population of the US military, the "Veterans Health Care Act of 1992 provided authority for a variety of gender-specific services and programs to care for women Veterans" (VA History in Brief, 2009, p.28). In addition to access to medical care and financial benefits their male counterparts were given, female service members under the Veterans Health Care Act were provided gender-specific care needed, with the reassurance of being treated with "dignity and respect" (VA History in Brief, 2009, p.28).

Aside from the expansion of these benefits, the VA has strived to evolve with the times and combat the tragedies of war through the care it provides in its VA Medical Centers (VAMC). This includes "VA services available to help deal with the stress of combat, including professional readjustment counseling for war trauma, family readjustment counseling, and other social readjustment problems" (VA History in Brief, 2009, p.34). The increasing population of geriatric patients has also led to the extended benefits through Geriatric Research, Education and Clinical Centers (GRECCs), which assist with the special needs of aging veterans. However, despite the financial benefits and quality health care, many veterans are reportedly having difficulty getting access to medical care (Merlis, 2012).

Use of Consult System at VAPAHCS

VHA tracks consult data through a system called VHA Support Service Center (VSSC). Staff enters original consult information into a system called VistA, which is then exported into the National Data Warehouse every night. This information is then categorized and organized into systematic statistical illustration of the different services or departments in any Veteran's Integrated System Network (VISN)—a group of regional VAMCs (D. Farnsworth, personal communication, October 2017). There are currently 23 VISNs across the US and in other US

territories such as the Philippines, Puerto Rico, and Virgin Islands (VA Locations, 2017). VAPAHCS is part of VISN 21, the Sierra Pacific Network. VAPAHCS is located just south of San Francisco, CA, composed of three divisions, and seven outpatient clinics (VA Locations, 2017). This research examined VAPAHCS and compared the process of backlogged consults managed before the implementation of the business rules with post business rules' results. The services analyzed in this study were those that encounter the highest volume of demand, have comparable rates of incoming consults, and have the notice of the Chief of Staff's Office due to the services' performance (D. Manitoba, personal communication, September, 2017). The study will focus on two of the services that are most successful in managing their consults and compare their processes with two services that have struggled to manage consults effectively.

The key sources of data included the VSSC, participant-observation, and subject matter experts such as Data Analysts, Health System Specialists, Group Practice Manager, Administrative Officers, and other administrative support staff from VAPAHCS. The research used the guidance provided by Sylvia and Sylvia (2014) in their section on "Applying Standards and Managing Change" through a four-phase process intervention model (p. 90). The four phases are: Problem Identification, Solution Development, Implementation, and Feedback Evaluation.

This research was screened by a Deputy Ethics Official of the VA Office of General Counsel (OGC), to ensure that the use of VHA data for this research was be deemed as ethical and appropriate. With the granted permissions from OGC and VAPAHCS's local Privacy Office, VAPAHCS data may be used under the condition that the services be de-identified. Therefore, the services will be labeled with alphabetic identification, such as Service A and Service B, versus Service X and Service Y.

Problem Identification

At VAPAHCS, the patient flow is facilitated by the consult statuses veterans have in their electronic health records, housed in a Computerized Patient Record System (CPRS). Veterans interact with VAPAHCS through an appointment, a walk-in, or a "consult", which is a "specific document, most often electronic, which facilitates and communicates consultative and non-consultative service requests and subsequent activities" (VHA Consult Policy, 2008). These consults refer veterans to specialty care clinics if directed by their primary care provider (PCP) for further care, such as to Dermatology Service to diagnose and treat skin conditions. Consults are also used as communication tools and may communicate a request for scheduling (Figure 4). In an effort to improve the patient experience with consults, new business rules were implemented (Draper, (2014d, p.1). The purpose of this research is to examine whether the implementation of the new business rules improved the consult management process at VAPAHCS, and whether this process can be used as a Key Performance Indicator (KPI) for measuring performance of clinical services by health care administrators.

When a specialty care provider receives a consult, it is the provider's responsibility to review each consult and determine clinical appropriateness. If he needs additional information, or if he finds that the consult is inappropriate, the specialty care provider needs to specify that response by properly inputting a comment in the consult in CPRS. Unfortunately, not all consults receive a response in a timely manner based on the business rules' guidelines (Figure 1). This leaves an increasing number of open consults waiting for days, weeks, months, and even years for their statuses to be changed, which led VHA officials to conduct audits and investigations to find the root cause of open consults (L. Hutcheson, personal communication, December, 2015). In some cases, even though a veteran was seen, the consults remained open

because of a failure to link physician notes to consults (L. Hutcheson, personal communication, December, 2015).

Before consult management became a major national concern, consults had no real oversight for timely completion (J. Shinoda, personal communication, September, 2017). Consult management was a person-based process, which relied solely on one person in a service to process. This led to an overwhelming number of consults with no management structure. Consults were tracked through what was called a "paper system". Typically open and new consults were manually pulled daily through VistA and copied onto an Excel sheet. With the Excel sheet, the program support assistant (PSA) or administrative equivalent would go through each consult and enter it into CPRS to conduct an action on them. Some services had a manageable caseload with five or ten a day, but others had more than 50 cases. There was no viable way to track and audit the consult status (J. Shinoda, personal communication, September, 2017).

Solution Development

In response to the rise in the number of open consults, VHA launched a Consult Management Initiative in May 2013 to all VAMCs. Medical Center Directors were instructed to oversee the implementation of the national business rules (Draper, 2014b, p.14). At VAPAHCS, the national business rules were used to revise policy for managing local consult requests for its three divisions and seven outpatient clinics. VAPAHCS referred to these rules as "Consult Business Rules" (see Appendix A). A consult may have one of six different CPRS statuses. When a consult is first created, it is in a "pending" status. When the specialty care provider receives this consult, VHA policy indicates that action must take place on the consult within two days to meet performance standards. The specialty care provider has an option to change the

CPRS status for the consult to "active," "schedule," "cancel," "discontinue," or "complete" (see

Appendix A).

To assist with consult management, clinicians or administrators were advised to use the

VHA Service Support Center (VSSC) database to generate their respective consult reports on a

weekly basis (L. Hutcheson, personal communication, December, 2015). Since 2013, data on

VSSC has now evolved into multiple dashboards created by VAPAHCS Office of Business

Analytics (OBA). The dashboards were designed to view specific data, such as consult trends

and daily snapshots. Additionally, VAPAHCS created local consult reports using the same data

sources that generated the VSSC reports. This database, which is updated daily, captures the

number of consults that are in pending, active, scheduled, scheduled past appointment, and

partial status (L. Hutcheson, personal communication, December, 2015).

VAPAHCS Consult Status	0-7 days	8-37 days	38-90 days	> 90 days	Total Consults
1. Pending	1,597	826	183	64	2,670
2. Active	764	2,281	1,183	787	5,015
3. Scheduled	642	3,679	2,111	684	7,116
4. Scheduled/Past Appt	0	13	91	209	313
5. Partial Results	147	200	131	59	537
Total	3,150	6,999	3,699	1,803	15,651

Figure 1. VAPAHCS snapshot of all service consults. Adapted from VAPAHCS by D.F. Menlo
Park: 2015. Reprinted with permission.

Implementation

Health System Specialists (HSS, or healthcare administrators), Data Analyst Specialists,

and other consult committee members worked as a task force to implement the local business

rules throughout VAPAHCS. Anyone who interacted with consults was trained, such as

administrative officers, physicians, residents, and other clinicians. Posters of consult

management rules were hung up in different offices or services, and training was conducted on how to access consult reports. The new business rules have had an impact. In 2014, there were more than 20,000 consults over 90 days old that needed action. Today, that number is just under 2,000 (L. Hutcheson, personal communication, December, 2015).

As shown in Figure 1 above, the numbers in red indicate consults which require action and are falling outside of the business rules. Pending consults require immediate action. Active consults are open consults and also require action, but have not yet been updated to a different status. For example, the service may have scheduled an appointment for the patient, but have not linked the appointment to the consult yet. Scheduled appointments are normally not red, as veterans have a projected date to be seen. Scheduled past appointments status indicates that a patient was seen, but the doctor's notes were not appropriately linked to the consults by changing their status in order to close them. Typically, consults with a partial results status indicate that a patient was seen, but an attending provider has not signed off the notes.

By identifying consults that are not meeting the business rule requirements, the Chief of Staff's Office (COS) support staff is able to meet with individual services and advise them on changes needed to improve the response to consults, and to assist in providing an action plan to create the improvement. For example, the COS Office met with Logistics Management Service because they had over two hundred active consults. Reports showed that all that was required was for the consults to be administratively closed, because they were communicating a request for a bed pick-up that had already been done. The consults were administrative in nature; they were not clinical (L. Hutcheson, observation, 2015).

To assist in implementing improvements to consult management, there are tools created to practice *visual* management of consults with a Consult Management Dashboard and a

National Toolbox. When a clinician receives a consult, the toolbox assists in providing standard language to triage or prioritize a consult before a consult is forwarded to a scheduler. Before the toolbox was implemented, records of service requests for a consult would lack information or be inconsistent. However, when a consult is received, the toolbox provides drop-down menus of predefined language to help guide the consult through a more streamlined communication process from clinician to scheduler and back to clinician if necessary (D. Jones, personal communication, September, 2017).

The Consult Management Dashboard gives services the ability to extract data and build reports. Building reports acts as visual tools to examine the productivity of a service and to identify what areas need to be addressed. There is a link for all the locally developed analytic tools by OBA such as Incomplete Encounters Report, Consult Management Report, and Unsigned Notes Report. The dashboard acts as an auditing tool that shows what should be worked on currently and what may be past due. It is a platform to work in real time to be proactive, instead of reactive (D. Jones, personal communication, September, 2017). OBA designed it to show what consults need to be discontinued instead of having to sift through individual reports. Based on Consult Business Rules, tools created by OBA, and the National Toolbox, the effectiveness of consult management varies in the four services observed.

Feedback Evaluation

In 2016, the Consult Business Rules were modified. Instead of using the chart in Appendix A, the local policy in VAPAHCS made significant changes for consult scheduling and processes and procedures. VAPAHCS Services revised consult processes to adapt to improvement changes found in VAPAHCS' local policy, known as Health Care System Memorandum (HCSM) No. 11C-16-10. Services A and B have managed to adapt successfully

with this change, while Services X and Y, yet moving to change, are still facing consult

management challenges, as noted in Findings.

METHODOLOGY

This research used Sylvia and Sylvia's (2014) process intervention methodology and a participant-observer approach to examine two highly successful VAPAHCS services to determine what business practices lead to their success, and then used this as a benchmark to evaluate two VAPAHCS services that were struggling to effectively manage *outpatient* consults. Outpatient consults are requests for "evaluation where the sending provider and receiving provider are in the same facility and the receiving provider is treating the patient in an outpatient setting" (VAPAHCS HCSM 11C-16-10, 2016, p.18). The outcome of this analysis is a list of business practices that lead to the greatest efficiency in managing veterans' consults, and a recommendation to the VAPAHCS Chief of Staff for dissemination of these efficient business practices to all services.

Problem	Solution	Implementation	Evaluation
Consults sit in the system with no resolution, and veterans are denied needed medical care from outside sources.	Consult Management Initiative, 2013	Identify consults not following business rules, follow up to clear consults	Service A and Service B have adapted to the new business rules and are responsive; Service X and Service Y are still not meeting the business rule standards. So what is best practice?

LITERATURE REVIEW

Appointment Scheduling as a Medical Management Challenge

The VHA is not the only medical practice that must meet the challenge of scheduling outpatient consults. The American College of Rheumatology conducted a study using Health Information Technology to effectively manage their referral (consult) process. Their method included electronic referrals (eReferral) and a concept called "preconsultation exchange, defined as back-and-forth communication between referring and specialty care providers, facilitating triage of referrals, requests for more information, or resolution of questions without a visit." (Scheibe et al., 2015, p.1158). In a span of five years between 2008 and 2012, they reviewed 2,105 eReferrals. With the system's redesign and use of preconsultation exchange, one-fourth of these referrals did not require an actual patient visit. This system allowed rheumatologists to keep up with their increasing number of eReferrals, while "reviewer response time averaged between 1 and 4 days" (Scheibe et al., 2015, p.1158).

Similarly, in Champlain Local Health Integration Network in Ontario, Canada, "excessive wait times and unequal access to specialist services can negatively impact patient care" (Skeith, et al. 2017). Skeith, et al. (2017) evaluated the use of electronic consultations or eConsults in thrombosis medicine. These eConsults are also reviewed through a process of what Scheibe et al. (2015) would describe as a "preconsultation exchange" between primary care provider (PCP) and specialist. The specialist had the "option of providing a recommendation, requesting more information, or suggesting a face-to-face referral" (Skeith et al., 2017, p. 105). Within four years, 109 PCPs and three thrombosis specialists implemented the use of 162 eConsult cases. The eConsults not only reduced the number of face-to-face visits, it also identified eConsults that were inappropriately referred. This process gave specialists the

opportunity to educate PCPs to better manage their patients. There were three themes found in the close-out survey: "improved timely access and resource utilization; value expert guidance; and educational opportunities" (Skeith et al., 2017, p. 107). Use of eConsults provided a convenient way for distant patients to schedule a visit with a specialist and it also provided non-ambulatory patients the option to seek virtual specialty care.

When designing an efficient appointment scheduling system, the intent does not only require an appropriate referral process, it requires the use of patient classification. Not all appointments can be considered homogeneous. Each appointment can be unique with variable patient needs, such as "service time, patient age, equipment needs, or procedure type" (Cayirli, Veral, & Rosen, 2006, p. 47). Cayirli, Veral and Rosen (2006) analyzed the use of an appointment system (AS) that is sequence-based to assist managers to "choose the best AS based on the specific characteristics of their clinic environments" (p.48). The research used combinations of sequencing rules and appointment rules. Sequencing rules classified patients as new patients, return patients with new concerns, or follow-up patients. There were seven appointment rules that represented combinations of time blocks that are offered in an ambulatory care outpatient setting. For example, one appointment rule offered five time slots available for two patients per slot, each separated by the same time interval (Cayirli, Veral, & Rosen, 2006, p. 49); this was symbolized as MBFI or Multiple-block/fixed-interval rule. "Implementation of a sequence-based AS requires the scheduler to identify each slot by patient class" (Cayirli, Veral, & Rosen, 2006, p. 47). As a result, sequenced-based AS outperformed the traditional scheduling of plugging in a patient by a first-call, first-appointment basis (Cayirli, Veral, & Rosen, 2006, p. 56). The best combination of an appointment rule was the use of the MBFI and 2BEG, "individual-block/fixed-interval rule with an initial-block of two patients" (Cayirli, Veral, &

Rosen, 2006, p. 49). These appointment rules worked best with specialties that either have short consultation times or unexpected factors that affect consultation times such as no-shows or walk-ins. Their findings indicated the "best choice among these appointment rules, depends on the combination with a particular sequencing rule" (Cayirli, Veral, & Rosen, 2006, p. 57).

Cayirli and Veral (2003) examined AS in an outpatient setting. By understanding the different environmental factors, "outpatient clinics can be regarded as queing systems, which represent a unique set of conditions that must be considered when designing AS" (p. 520). They considered simulation studies of the number of doctors, the arrival process, the length of service times, and even the "lateness and interruption level of doctors" (Cayirli & Veral, 2003, p. 523). In Cayirli and Veral's (2003) section regarding the adjustment for no-shows, walk-ins, and emergencies, they found that there are ways to "reduce their disruptive effects" when designing AS (p. 530). As much it would make sense to assume that "walk-ins and no-shows cancel out each other", Cayirli and Veral (2003) considered the research of Fetter and Thompson who say that it is "dangerous, since they rarely occur in the same volume or at the same time within a session" (p. 530).

In the *Journal of the Royal Society of Medicine*, Murdock et al. (2002) posed the question of "Why do patients not keep their appointments?" They studied 100 patients and their responses to why they did not attend their booked appointments to a gastroenterology outpatient clinic. Whether it was because patients forgot or felt better, Murdock et al. (2002) concluded that the "fundamental cause of non-attendance in these groups was apathy" (p.285). In England, the cost of a missed appointment during 1997 was about £65 or $87.00 (Murdock et al., 2002, p.284). Technology is a factor in implementing an efficient tracking appointment system, as an "electronic booking system" did not exist. In order to decrease the percentage of no-shows or

cancellations, they found that overbooking is the only short-term fix to reduce waste of resources.

Cayirli and Veral (2003) provided a table that shows multiple combinations of decision-making considerations for an appropriate design of AS (p. 531). It covered options to consider for appointment rules, patient classification, and adjustments for unexpected scenarios or patients. The results of their findings indicated that not one AS can virtually cover all scenarios. "Each situation must be individually considered before an AS can be recommended" (Cayirli & Veral, 2003, p. 537). Future studies are recommended to "develop easy-to-use heuristics, have more realistic representation of outpatient clinics, and use multiple measures of performance to evaluate AS" (Cayirli & Veral, 2003, p. 537). Cayirli and Veral's (2003) research invites more exploration on real-life performance versus simulated studies in multiple outpatient settings.

When collecting data to research ways to improve healthcare, Rebuge and Ferreira (2012) offered a process mining approach to better understand "processes by analyzing event data recorded in healthcare information systems" (p. 99). Conventional forms of data collection regarding patient scheduling for example would typically require the use of "stakeholders and process analysts" (Rebuge and Ferreira, 2012, p. 100). There are two issues with "traditional business process analysis (BPA)" (Rebuge and Ferreira, 2012, p. 100): time and the translation of a process among the people involved. The time aspect involves extensive discussion with employees. When processes are complex, "it is difficult for workers to have a shared and common perspective of the global process" (Rebuge and Ferreira, 2012, p.100). Process mining documents the events in a process by "extraction of process knowledge from systems" (Rebuge and Ferreira, 2012, p. 101). For example, if a patient went into a pharmacy for medication, the event data from the written prescription to the patient receiving the medication would be

documented with each step providing data for each event. Details of date, timestamp, type of medication for which patient and for what purpose would be recorded. These automatically recorded steps reduce the time for process analysis.

Using event data can be useful in interpreting different perspectives: "control flow, organizational, performance and data" (Rebuge and Ferreira, 2012, p. 101). Control flow looks at the behavior behind a process, leading to understanding why certain steps were taken during a process, providing insight into the reasons for different decision-making activities. Organizational perspective "focuses on relationships between the users who performed the activities" (Rebuge and Ferreira, 2012, p. 101), what groups or departments they are from. Performance perspectives examine the gaps or the obstacles and data, such as problems encountered during a process. Finally, data perspective looks at "data objects that serve as input and output for activities in a case" (Rebuge and Ferreira, 2012, p. 100).

To apply process mining to a healthcare system, "intensive preprocessing of clinical events to build the event logs" (Rebuge and Ferreira, 2012, p. 102) needs to occur. Once the preprocessing is completed by using a process miner (ProM) platform to organize the data, the data is translated into "sequence clustering" (Rebuge and Ferreira, 2012, p. 103) algorithms to analyze while also providing anticipatory decisions. Process mining allows an analyst to classify "different behaviors to study them separately" (Rebuge and Ferreira, 2012, p. 115).

Allegations and Government Audits

Negative media coverage has shed light on numerous VA facilities across the nation, with allegations of veterans dying from delayed service or the inability to get access to care. As an example, in a 2013 VA Office of Inspector General (VA OIG) Office of Healthcare Inspections report, a description of the process of a Gastroenterology (GI) Service at William Jennings Bryan

Dorn VA Medical Center, in South Carolina is covered in detail. There were over 2,300 delayed consults backlogged from July 2011 (VA OIG, 2013). The historical findings of consult delays resulted in a $1M VISN fee-basis funding project (VA paying for care outside the VA, which cannot be fulfilled interfacility), but the consults rose to 3,800 delayed GI consults in December 2011. Lack of communication and "allegations of clinical mismanagement" led to a number of delayed diagnoses and nine lawsuits (VA OIG, 2013, p.3). To address this major concern, an Administrative Investigation Board (AIB) conducted a thorough investigation of the allegations from a complainant in order to resolve the backlog.

The major complaints investigated were that nursing leadership was refusing to fill GI nurse positions, that "non-physicians, including clerical staff, were giving medical directions to patients" (VA OIG, 2013, p.9), the misuse of fee care funds (payment for non-VA medical care to veterans who could not be seen at the facility for any reason), and consult management (VA OIG, 2013, p.9). The failure to hire adequate numbers of GI nursing staff was due to the facility's Planning Council (the committee responsible for human resources), and inability to prioritize the need for GI staffing due to the outnumbering of administrative staff to clinical staff on the committee. This ratio hindered the approval for nursing leadership's request for more full-time employees. The Resource Management Board (formerly Planning Council) now has a more equal committee of clinical and administrative staff members.

"In September 2012, an influx of gastroenterologists, GI nurses, and GI technicians from other VHA medical centers came to the facility to assist in reducing the colonoscopy backlog" (VA OIG, 2013, p.9). A witness noticed that non-clinicians were making clinical decisions for pre-operative care, such as prescribing laxatives. The AIB did not find any evidence that veterans were harmed in this case.

The AIB investigated the use of the fee care funds and discovered that "$1.02M in early September 2011 [was available] to address the GI backlog but that only approximately $275,000 was actually used for this purpose through August 2012" (VA OIG, 2013, p.9). The Dorn Medical Center is part of VISN 7, whose Chief Financial Officer (CFO) failed to specify that the funds were allocated for the GI fee-based services. Therefore, the Business Office was not aware that the funds could be used for external GI services. The AIB also revealed that a former Chief of Staff (COS) wrote to the Business Office to discontinue non-VA care for GI cases, in an attempt to internalize the reported 700 critical colonoscopies as much as possible. However, "data provided by the facility's Business Office reflects that about 100 Veterans received colonoscopies via fee care between January 1, 2012 to March 29, 2012. In-house colonoscopies during this same time period decreased from the previous quarter" (VA OIG, 2013, p.10).

Clinical Gastroenterology and Hepatology (2015) published a recent research study on VAMCs and colonoscopies. Partin et al. (2015) studied the "Factors Associated With Missed and Cancelled Colonoscopy Appointments", which include wasted resources and delayed appointments that impacted patient care. Proposed changes to organization and process can "reduce missed and cancelled colonoscopy appointments" (Partin et al., 2015, p.7). They concluded that limiting the number of consults to those who have a "limited life expectancy could reduce missed appointments, and use of opt-in scheduling and reductions in appointment lead time could improve both outcomes" (Partin et al., 2015, p.7).

In William Jennings Bryan Dorn VA Medical Center, consults were not tracked or managed properly. GI Service did not generate their consult reports in order to visually track their growing number of consults, and the consult statuses were being improperly entered into CPRS, without showing any indication of proper action. "The facility also found that staff were

not properly linking progress notes and other reports to consults, so they were not being closed out correctly in the computerized patient record system (CPRS)" (VA OIG, 2013, p.12). As a result, administrators properly closed out consults, deleted duplicate consults, and clinical staff prioritized "remaining consults into priority groups for further action" (VA OIG, 2013, p.12).

In April 2014, VA recognized that the consult delay issues at two medical facilities required a nationwide acknowledgement of all open consults (Department of Veterans Affairs, 2014). Since 1999, "over a quarter billion consults were requested across VA's system of care" (Department of Veterans Affairs, 2014, p.1). Consults that were used for non-clinical requests, such as facilitating patient travel, "were not closed after the request was completed". The Department of Veterans Affairs (2014) also announced that the VHA has conducted efforts to restructure the consult process and "allow the system to distinguish true clinical consultation from other administrative uses of the consult package" (p.1).

The Government Accountability Office (GAO) issued a report titled *Ongoing and Past Work Identified Access Problems That May Delay Needed Medical Care for Veterans* (Draper, 2014a), which illustrates some of the varied indicators that caused a delay in veterans' appointments and other needed specialty care. "In May 2013, VHA launched the Consult Management Business Rules Initiative with the aim that standardizing aspects of the consults process" would improve services (Draper, 2014a, p.2). GAO conducted a study of five VA Medical Centers (VAMC) to examine their consult processes. They discovered that "VAMCs have developed different strategies for managing future care consults—requests for specialty care appointments that are not clinically needed for more than 90 days" (Draper, 2014a, p.9). In one VAMC, "specialty care providers were instructed to discontinue consults that did not require an appointment within 90 days", which cannot be tracked in the electronic consult system.

Another VAMC acted on the future care consults by scheduling them, regardless of them being open more than 90 days. Although these are seen as "open more than 90 days" in their

VAMC	Total consults in sample	Number of consults for which veterans did not receive care within 90 days (percentage of total)	Number of consults for which veterans received care within 90 days (percentage of total)
A	30	26 (87%)	4 (13%)
B	30	27 (90)	3 (10)
C	30	17 (57)	13 (43)
D	30	24 (80)	6 (20)
E	30	28 (93)	2 (7)
Total	150	122 (81%)	28 (19%)

Figure 2. Percentages of consults "for which Veterans did not receive care within 90 days". Adapted from GAO by Draper, D: 2014d, p.12. Reprinted with permission.

consult report, it does not mean that the veterans are receiving delayed care. "Officials from this VAMC stated that they continually have to explain to VISN officials who monitor the VAMC's consult timeliness that these open consults do not necessarily mean that care has been delayed" (Draper, 2014a, p. 9). Another VAMC piloted a different approach to their GI clinic by tracking future care consults outside the electronic consult system. The outside system notifies the requesting provider 30-60 days from the needed appointment to submit the consult request to the specialty care provider. This system is called recall reminders.

Another issue provided by Draper (2014a) is how to manage consults where a patient "no shows and cancelled appointments, particularly when Veterans repeatedly miss appointments, which may make VAMCs' consult data difficult to assess" (p.10). One VAMC had a local policy that practiced a "1-1-30 rule", which described the process for attempting to schedule a veteran. The first "1" is a phone call from the VAMC, the second "1" is a letter from the VAMC, and the "30" is the number of days the veteran has to respond before the provider can discontinue the consult (Draper, 2014a, p. 13).

Another GAO (Draper, 2014b) report titled *VA Lacks Accurate Information about Outpatient Medical Appointment Wait Times, Including Specialty Care Consults* was released a month later. This GAO report discussed the variables associated with delays in appointment times due to consult management. For example, in three out of ten consults reviewed in a VAMC's GI clinic, about 210 days passed without veterans being seen. The veterans were on electronic waiting lists (EWL) because there were no appointments available. In a physical therapy consult review at another VAMC, over 100 days passed before four consults reviewed had any action taken. "In 1 of these cases, several months passed before the Veteran was referred to non-VA care, and he was seen 252 days after the initial consult request. In the other 3 cases, the physical therapy clinic sent the consults back to the requesting provider, and the Veterans did not receive care for that consult" (Draper, 2014b, p. 9). On August 12, 2014, VA Office of Inspector General (VA OIG) released a report from the Office of Healthcare Inspections, regarding "Improper Closure of Non-VA Care Consults at the Carl Vinson VA Medical Center, Dublin, Georgia" (VA OIG, 2014b). Non-VA Care Coordination (NVCC) is formerly fee-basis consults where eligible veterans receive care outside the VA in order to be seen sooner for specialty care, or because the VAMC where they receive care cannot provide the service. Prenatal care for women veterans, for example, is considered non-VA Care, because VAMCs are not equipped to provide the necessary examinations required for pregnant women. NVCC is managed under the Health Administration Service (HAS).
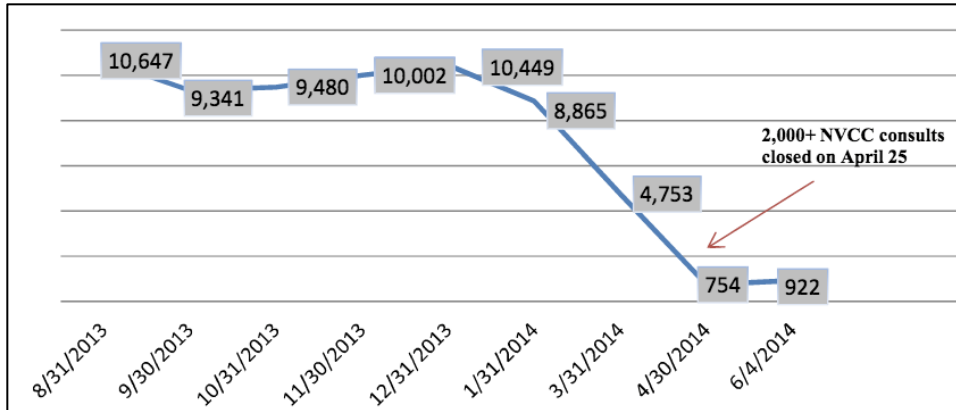
Figure 3. Dramatic decrease in NVCC consults closed. Adapted from VA OIG, 2014b, p. 8. Reprinted with permission.

In Carl Vinson VAMC, a concerned congressman reported an unauthorized batch closure of 1,546 NVCC consults. Eight hundred sixty three (863) were scheduled appointments, 648 were waiting for appointments with NVCC providers, and 35 were "pending review and authorization for NVCC care" (VA OIG, 2014b, p. 8). Although the batch closure did not cancel any appointment, re-entry of the pending and scheduled NVCC consults were made. The VA OIG "substantiated that the batch closure was completed to meet organizational goals" despite their efforts to manually facilitate each consult. Carl Vinson VAMC attempted to meet the VISN deadline as part of the Wave 5 Consult Clean-Up effort, which they achieved, but additional work was needed to address the improperly closed NVCC consults.

GAO released a report on five VAMCs titled *Management and Oversight of Consult Process Need Improvement to Help Ensure Veterans Receive Timely Outpatient Specialty Care* (GAO, 2014d). This report emphasizes the importance of oversight and tracking strategies that are missing from the nationwide directive of consult management. They also provide a visual demonstration of how the flow of consults should be conducted within a VAMC. The simplicity of Figure 4 does not take into account the factors involved among the different transitional steps within the process. Delays in reviewing, scheduling, and incorrectly closing out consults

contribute to consult mismanagement. In a sample review of 150 consults, 81% of the consults showed that veterans "did not receive care within 90 days" (Draper, 2014d, p. 16).
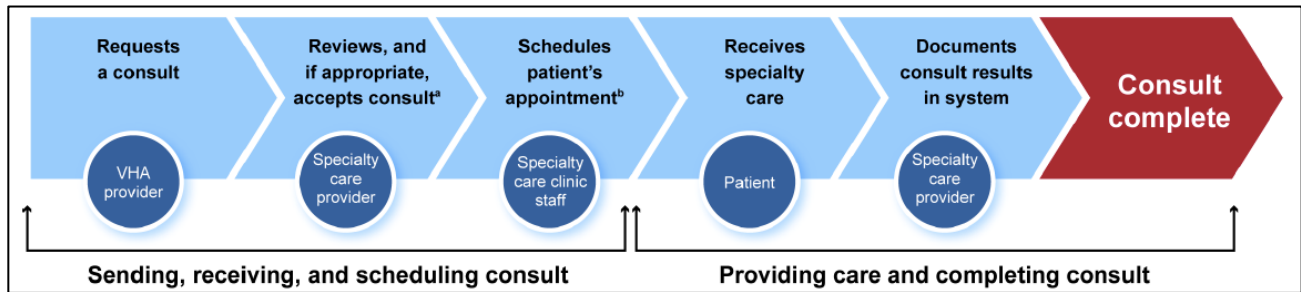

Figure 4. Standard consult process. Draper, D., 2014d, p.7. Reprinted with permission.

Although in some of these consults veterans were seen, the appointment was not properly documented or input incorrectly due to lack of training. "Officials attributed this ongoing issue in part to the use of medical residents who rotate in and out of specialty care clinics after a few months, and lack experience with completing consults" (Draper, 2014d, p. 13). For those consults where veterans were *not* seen, no appointments were available and they were put on the EWL, or they were cancelled appointments or no-shows.

A review of "patient wait times, scheduling practices, and alleged patient deaths at the Phoenix Health Care System" (VA OIG, 2014a) addressed allegations of "gross mismanagement of VA resources and criminal misconduct by VA senior hospital leadership, creating systemic patient safety issues and possible wrongful deaths" (VA OIG, 2014a, p.3). Because of the national media coverage, similar allegations were reported from other VAMCs as well. As a result, multidisciplinary teams investigated the Phoenix Health Care System and other VAMCs to see whether they were compliant with "VHA's scheduling policies and procedures" (VA OIG, 2014a, p. 4). Interviews and audits with schedulers revealed inappropriate scheduling practices that were identified as different schemes. Schedulers made appointments look like veterans had zero wait times for an appointment by entering an available appointment as the desired

appointment, or staff at two VAMCs deleted any consults greater than 90 days without doing a thorough clinical review. In order to "ensure all veterans receive timely appropriate care" (VA OIG, 2014a, p.12), VA OIG submitted recommendations to the VA Secretary to implement a review of 1,700 veterans who are not on waitlists, a review of veterans who are on waitlists, a review of veterans on waitlists nationwide, and management of newly enrolled veterans to receive "appropriate care" (VA OIG, 2014a, p.12).

In a March 2013 report, GAO discovered similar inconsistencies in scheduling processes in VAMCs (Draper, 2013). "Staff at some clinics told us [GAO] they change medical appointment desired dates to show clinic wait times within VHA's performance goals" (Draper, 2013, p.6). VAMCs also used paper waitlists instead of the electronic waitlist mandated by VHA's scheduling policy, which led to losing proper track of patients. Additionally, GAO revealed that schedulers did not complete the scheduler training required as part of the implementation of the VHA scheduling policy. To provide "reliable measurement of how long veterans are waiting for appointments and improve timely medical appointment scheduling" (Draper, 2013, p.8), GAO made recommendations to VA Secretary to take action on the reliability and consistency of implementing VHA scheduling policy. Two requirements mentioned were, "VAMCs to routinely assess scheduling needs for purposes of allocation of staffing resources, and implement best practices to improve telephone access for clinical care" (Draper, 2013, p.8).

In a VA OIG (2014c) report following up on Phoenix VA Health Care System's well publicized appointment management failures, a number of deaths allegedly attributed to the patient wait times demonstrated the need to change certain scheduling practices. For example, in Case 21, a veteran in his 60s walked into the Phoenix VA Health Care System (PVAHCS)

Emergency Department (ED) with complaints of "swelling and shortness of breath" (VA OIG, 2014c, p. 13. Since he was a patient already in the system for about five years with his medical history, he was "restarted on his medications, [his] pulmonary function and other tests were scheduled, and a Schedule an Appointment consult was placed for Primary Care" (VA OIG, 2014c, p. 13). Six weeks later, his test results revealed "significant COPD [chronic obstructive pulmonary disease]". Furthermore, even 19 weeks after he was seen in the ED, the veteran was not seen by a primary care provider.

Regarding their scheduling practices, VA OIG revealed correspondence between a former Medical Service Chief and another physician about her opposition to increasing specialty clinic appointment slots. The former medical service chief was coaching the other physician on how to tell the Health Administration Service to "make sure they NEVER use the next available scheduling function; that is a killer on the 98% performance standard" (VA OIG, 2014c, p. 50). Additionally, she advised to screen consults "very aggressively" to avoid in-person encounters.

Another problem is the tracking and use of cancelled or no-show appointments, or what the VHA considers "missed opportunities" (VA OIG, 2008, p.i). In this VA OIG (2008) audit, they found that the VHA does not have an "effective way to track unused appointments, and VHA had not implemented an effective process to reduce missed opportunities." A few of the factors that contributed to the missed appointments were outside of the VAMC's control, such as veterans' transportation and inclement weather. Staff found that it was easier to fill the unused appointments with walk-ins, resulting in "(60 percent) of the 4.5 million appointments that were canceled prior to the appointment [being filled]. However, the remaining 1.8 million appointments (40 percent) went unused" (VA OIG, 2008, p.iv). In Fiscal Year (FY) 2008, the cost of unused appointments is shown in Figure 5.

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Primary Care	Specialty Clinics	Total Clinic Costs Per DSS	Number of Scheduled Appts	Average Cost of Scheduled Appts
$664,767,343	$534,505,255	$1,199,272,598	6,586,835	$182

Figure 5. Determining cost of unused appointments in 2008. VA OIG, 2008, p. 19. Reprinted with permission.

During an ongoing review of the implementation of the consult business rules, GAO examined five VAMCs (Draper, 2014c). They discovered that although the consult business rules were designed to "standardize aspects of the consult process" (Draper, 2014c, p. 15), VAMCs have different ways to implement the consult business rules. GAO found that there are significant changes needed to be made before implementing the consult business rules. For example, the need to identify how to process future care consults (consults that are put in for care months in the future), two VAMCs implemented a "separate electronic system to track needed future care outside of the consult system" (Draper, 2014c, p.16). When addressing unresolved consults greater than 90 days, "none of the five VAMCs in our [GAO] ongoing review were able to provide us with specific documentation in this regard" (Draper, 2014c, p.16). Furthermore, to manage patients who no-show or continuously cancel appointments, one VAMC also used the "1-1-30" rule to generate contact with the patient, and if those three attempts do not work, the VAMC is to discontinue the consult (Draper, 2014c, p.17). In the end, GAO routinely made recommendations to VA Secretary to ensure scheduler required training is implemented, improve wait time measures, and "routinely assess scheduling needs for purposes of allocation of staffing resources" (Draper, 2014c, p.20).

Efforts for Improvement

In 1950, two Toyota Motor Company (TMC) employees came to America on a site visit to observe Western production systems. One of the employees, Taiichi Ohno, witnessed "two major flaws: Producing components in large batches resulted in large inventories, and the methods preferred large production over customer preferences" (Teich & Faddoul, 2013). This observation led to a management concept called "lean:" "a systematic approach to the identification and elimination of waste and non-value added activities through employee development and continuous improvement in all products and services" (Lean Systems, n.d.). This concept was adapted to drive improvement by using lean in healthcare. Teich and Faddoul (2013) listed a number of wasteful activities in the healthcare industry that need to be addressed, such as a surplus of inventory passing its shelf life, over-processing of patients with forms, and waiting in line. The patient "has to be the center of the initiative, while time and comfort should be added as key performance measures in the system" (Teich & Faddoul, 2013).

Successful implementation of a lean project in Virginia Mason Medical Center exemplified that cutting waste garnered an increase in productivity. "Other reported benefits are an 85% reduction in how long patients wait for a lab result, increased productivity by 93%, and lowering inventory costs by $1 million" (Teich & Faddoul, 2013). The redesign revolved around patient-centered care and focused on results of clinical services through continuous process improvement.

In the 1990s, VHA adopted the Toyota Production System way of Lean Thinking. This process-improvement effort is still applicable and seen in the 2010 Systems Improvement Framework, produced by VHA Office of Systems Redesign for VHA leaders to "share leading practices so that all employees contribute to continuous improvements" (VHA: Systems

Improvement Framework, 2010, p. 4). As a health care system, process of achieving outstanding patient care is backed by a culture that promotes continuous improvement with feedback, support, and other resources that are innovative. Experimentation is seen not as a risk, but as a way of performing effectively through unconventional means.

To reduce wait times and delayed access to care, VHA adopted an approach from the Institute for Healthcare Improvement (IHI), called "advanced clinic access (ACA)" (Armstrong, Levesque, Perlin, & Rick, 2005, p. 399). ACA allowed veterans to see a provider of their choosing within 30 days. The program provided a list of practices (see Appendix B) to implement at primary care clinics that would reduce "wait times to less than 30 days, with the ultimate goal of achieving same-day access to primary care" (Armstrong, Levesque, Perlin, & Rick, 2005, p. 402). The results revealed data over a span of five years. At the national level, there was a gradual decrease of appointment wait times from 2001 to 2005. Wait times for the next available appointment was reduced from 42 days in 2001 to 15 days in 2005. At a facility level, one facility showed promising results in a span of three years. After implementing ACA in 2001, wait times went from a little over two months down to 10 days in four months. From then, wait times remained steady around the 30-day mark. The ACA initiative was able to reduce wait times without the increase of resources and without "compromising the quality of care delivered" (Armstrong, Levesque, Perlin, & Rick, 2005, p. 400).

Schall, et al. (2004) published the application of ACA in four clinics and narrowed down the concepts in Appendix B into three VHA strategies: shape demand, match supply and demand, and redesign the system to increase supply (Schall, et al., 2004, p. 416). Shaping demand mainly required reducing the backlog, creating a service agreement between PCPs and specialty care providers, having consults screened by a physician assistant or physician as

needed, classifying appointment types to "new" and "follow-up", and eliminating "automatic rebooking for no-shows" (Schall, et al., 2004, p. 417). In Fargo VAMC, primary and specialty care clinics established a service agreement that drew out the criteria of patients to be referred, procedures required before a specialty care visit, and organized communication (Schall, et al., 2004, p. 417).

Matching supply and demand required following three measuring methods: accounting for every patient request in a day (measure true demand), understanding supply inventory (measure supply), and "match true demand and capacity" (Schall, et al., 2004, p. 418). Knowing the amount of patient requests by counting the number of walk-ins, or inquiries through phone calls, faxes or e-mails, provided the true number of demand to match with supply. The supply not only covers medical supplies, but it also incorporates the number of exam rooms, physicians, and open appointments. In a Urology clinic of Martinsburg VAMC, "all consult requests were screened" by a physician or trained urology nurse the day they were received (Schall, et al., 2004, p. 419). This allowed equal assignments among the urologists.

Finally, the third strategy is redesigning the system to increase supply required optimization of a care team. The care team is usually comprised of a physician, clerk, and a nurse. "Every staff member should be allowed to work to the highest level of his or her expertise and training" (Schall, et al., 2004, p. 420). This can be accomplished by removing any unnecessary tasks from the scarce resource, the physician. If possible, a registered nurse or nurse practitioner can be tasked with screening consults. In the VA Western New York Healthcare System, "some patients were seen by the nurse or even treated over the phone by protocols" (Schall, et al., 2004, p. 421). This method reduced the demand and increased supply. One of the major changes in this strategy was the alternative to face-to-face visits.

The results of Schall et al. (2004) case-study findings question whether the ACA initiative can be applied to the other thousands of VHA clinics nationwide. It is understandable that each specialty clinic is different and varies in processes and needs, but Schall et al. (2004) suggested their studies be a "solid foundation for bringing ACA to every clinic in its outpatient system" (p. 423). The case studies set the stage for other clinics to emulate, however the process to implement in each facility would be challenging.

VHA released a nationwide VHA Directive (VHA, 2008) explaining the details involved in the process for managing consults for patient care in a VAMC. The definition of what consults are and the types of consults are important in understanding how this mechanism is being used to facilitate the communication between the physician and a specialist, who will provide a veteran the specialty care. The consult is an electronically drafted referral input into CPRS, which alerts medical staff to take action for individual veterans who require specialty care. The responsibility of each VAMC director is to oversee the management of consults and develop strategies and procedures that ensure compliance with the VHA directive which requires that "requests for clinical consultation be clinically completed with results consistent with VHA timeliness standards and resolved efficiently taking into account individual health care needs" (VHA Consult Policy, 2008). In 2010, VHA Outpatient Scheduling Processes and Procedures Directive 2010-027 outlines the step-by-step processes owned by each facility director to comply with these guidelines. Responsibilities include, but are not limited to, defining "standard work for clinic teams to operate the clinic, such as ensuring clinic flows, and proper documentation of orders in CPRS" (VHA Outpatient Scheduling Processes and Procedures, 2010).

FINDINGS

Key Players

Before exploring the consult processes conducted within the different services, it is important to understand the leadership who dictate the Consult Business Rules and consult processes. Because consult management is clinical in nature, the Office of the Chief of Staff (COS) conducts oversight on these processes. In the COS office, there are two physician leadership positions: the Chief of Staff and the Deputy Chief of Staff. The Chief of Staff, Dr. Lawrence Leung, has a "leadership role in promoting the ongoing collaboration in research, clinical care, and graduate medical education with the health care system's educational affiliate Stanford University School of Medicine" (VAPAHCS Leadership Team, 2017). The Deputy Chief of Staff (DCOS), Dr. Stephen Ezeji-Okoye, oversees the day-to-day clinical operations, while also seeing patients under his care in the San Jose Outpatient Clinic. In VAPAHCS, the Director for Clinical Support, the acting Group Practice Manager (GPM) and Management and Program Analyst in the COS office work as a team under the DCOS to enforce effective ways to manage consults that align with National Directives.

David Jones, the Director for Clinical Support, acts as a liaison with all clinical services to assist with special needs and concerns on behalf of the DCOS. He champions any new process, strategic initiatives, strategic planning, and ensures that the Administrative Officers (AO, who are the lead administrative arm of a service, who work closely with the chiefs of a service) are informed of changes and training that impact the services and the health care system. Mr. Jones maintains the highest level of oversight related to consults and polices within VAPAHCS (D. Jones, personal communication, September, 2017). Part of this oversight includes education and awareness of the clinical services. For example, he will meet with

Nutrition and Food Service and pay attention to the clinical dietitian related issues. He seeks to build better supervisory structures within the services, especially when it relates to consult management.

Duffy Manitoba, Assistant Chief of Ambulatory Care Service, is also acting GPM for VAPAHCS. VA Central Office (VACO) mandates that each VA health care system operate with at least one GPM whose responsibility it is to monitor and improve access, such as standardizing clinical practices, maximizing clinic and space utilization, and standardizing scheduling (L. Hutcheson, personal communication, August 2017). Ms. Manitoba acts as a direct supervisor over program managers, process implementation, access operation management, clinical infrastructure, and scheduling and consult oversight (D. Manitoba, personal communication, September, 2017). Her relationship with consults is health care system-wide by ensuring that services are referring patients into the appropriate service. "A consult is access and without appropriate access, a patient gets delayed access to care. It is imperative that services understand the different systems available to them in order to streamline consult processing" (D. Manitoba, personal communication, September, 2017).

Jed Shinoda, Management and Program Analyst, supports specialty services for Ambulatory Care Service, regarding access, consults, and reading templates. Mr. Shinoda designs innovative tools in CPRS for managing consults, such as the creation of templates in CPRS to help physicians provide better decision making, which leads to accurate and quality referrals (J. Shinoda, personal communication, September, 2017). The research included queries of Mr. Shinoda and Ms. Manitoba on which services they observed to require further assistance in consult management. The challenged services observed were Service X and Service Y, in comparison with services with improved consult management, Service A and Service B.

Service A

Service A historically had "difficulty in maintaining consults in appropriate consult status per HCSM guidelines, which impacts clinical workflow and patient care" (CSA, personal communication, October, 2017). The service processes over 14,000 consults per year, offering services in San Jose, Monterey, Livermore, Palo Alto, Modesto, Stockton and Menlo Park. Before their process improvement, there was no Medical Support Assistant (MSA) support or enough staffing for patients in Monterey. According to Chief of Service A, over half of Service A's clinics had 80% outstanding (Pending or Active) consults, so CSA blocked time to address the consults in his service.

He focused on four of the seven clinics to determine the root cause and countermeasures for each site requiring improvement and Standard Work. In his countermeasures, he notes that educating staff and MSAs decreased the inappropriate consults by at least 5%. In Service A, there is no blanket Standard Work, because each clinic is mapped or structured differently. As a result, each site has independent Standard Work. In Monterey for example, a physician will receive a consult, review for appropriateness, and then specify in notes any special instructions to the scheduler. Special instructions may indicate in which time slot or grid to schedule a patient, or permission to overbook if necessary. It is also Standard Work to review consults daily and to comply with the 1-1-21 consult guidelines to make "1" call, send "1" letter, and wait 21 days for a response from the patient. For weekly consult management, physicians are to review the consults that are Pending or Active. Any consults Pending should be immediately reviewed and forwarded for scheduling, and any consults Active must be reviewed per 1-1-21 guidance, and discontinued if there is no response from the patient.

Consult Status	0-3 Days	4-27 Days	28-90 Days	>90 Days	Total Consults
PENDING	24	4	5	0	33
ACTIVE	96	194	186	26	502
SCHEDULED	39	260	184	14	497
SCHEDULED/PAST APPT	0	1	8	0	9
PARTIAL RESULTS	0	5	3	0	8
Section Total	159	464	386	40	1,049
Total	231	756	545	45	1,577

Figure 6. VAPAHCS snapshot of Service A consults. Adapted from VAPAHCS by D.F. Menlo Park: 2017. Reprinted with permission.

Service B

In Service B the Administrative Officer (AOB) assists in managing his service's daily operations. Service B is offered in four locations: Palo Alto, San Jose, Monterey and Livermore. The AOB explained that his CPRS is constantly open so that he is aware of any alerts of new consults (A.O.B. personal communication, September, 2017). Previously, they used VistA to print out the consult report and forwarded the report to MSAs to schedule, but today, A.O.B. and his consult management team conduct the process of triage and appointment scheduling. The team consists of a Registered Nurse Practitioner (RNP), staff physician, and A.O.B. Once a consult is received, it is tasked to Service B's RNP or staff physician to review and triage for appropriateness within two days, then the consult is changed from Pending to Active.

Based on Service B's Standard Work, updated in February 19, 2016, 1-1-30 Rule is still applied versus the 1-1-21 Rule. However, instead of calling once, Service B attempts to call on two separate occasions and then they send out a letter. If the patient does not respond to schedule within 30 days, the consult will be discontinued. If a patient is scheduled, but is a no-show or cancel two times, the consult will be discontinued. The A.O.B. uses the tools found in

OBA to run a daily and weekly report on any pending consults over seven days old. Any pending consults greater than seven days are forwarded to the nursing team or physicians to manage appropriateness through the same steps as if receiving a consult for the first time.

When explaining the consult process, the A.O.B. describes it as centralized. He states that the scheduling is different in Service B, which would require familiarity and knowledge that MSAs do not have expertise on, so scheduling is the responsibility of his consult management team. Service B has attempted to use MSAs for scheduling, but it has not worked as efficiently as they planned. "We tried having the MSAs assist us in scheduling, but there was a lot of erroneously scheduled patients due to the lack of communication between the clerks and our service" (A.O.B., personal communication, September, 2017). What is effective is having a daily "huddle" or meeting, where they can actively discuss with administrative and clinical staff together what is pending, and what requires action.

Another challenge in managing consults is receiving a consult that is inappropriately sent to Service B. There are many occasions when a patient is referred to Service B without being treated at the lowest level first. This may lead to a backup in consults, delaying access to care for other patients who need Service B most.

Consult Status	0 - 3 Days	4 - 27 Days	28 - 90 Days	> 90 days	Total Consults
PENDING	14	0	0	0	14
ACTIVE	7	18	2	0	27
SCHEDULED	7	71	34	2	114
SCHEDULED/PAST APPT	0	1	8	0	9
PARTIAL RESULTS	1	2	0	0	3
Section Total	29	92	44	2	167
Total	29	92	44	2	167

Figure 7. VAPAHCS snapshot of Service B consults. Adapted from VAPAHCS by D.F. Menlo Park: 2017. Reprinted with permission.

Service X

In Service X, information was provided by the Consult Coordinator and Schedule Review Nurse (CCSRN). In 2013, she witnessed the overwhelming numbers of consults in her service and dedicated herself and her team to bringing down the numbers. They took action on current and past consults. They were taking care of them on both ends everyday for six to nine months until the oldest consult (three years old) was closed. In her service alone, there were at least 1,000 *pending* consults that had not been addressed for over a year. Because of the delay, there were many duplicate consults made, which added more to the pending list. In addition to the consults having no management process in place back in 2013, the CCSRN noted that MSAs were not able to schedule in a timely fashion, which also led to the delay in care (CCSRN, personal communication, September, 2017).

Today, the process is outlined through Standard Work. The members in the CCSRN's team who interact with consults are primarily clinicians: providers, nurse specialists, nurse practitioners, and scheduling coordinators. When a provider or physician receives a consult for specialty care, it is triaged, or prioritized based on the urgency, by a provider or registered nurse (RN). To comply with the Consult Business Rules, this triaging process occurs within the first three days of the consult, pending status. During the triage, the RN or provider reviews, approves, or denies consults. If approved, the consult will be forwarded to a procedure schedule coordinator nurse. If denied, the consult returns to the requesting provider with an explanation. If it requires additional review, the consult will be forwarded to a triaging physician to evaluate and make recommendations. If a consult is appropriately urgent, it will be indicated as such and scheduled within the desired time frame. In this step, the Pending status of the consult is

changed to Active. "It must be acted on immediately by making the first telephone call to patient" (CCSRN, personal communication, September, 2017).

Once a consult is approved, it is forwarded to a coordinator schedule review nurse who schedules the appointment for the patient. When the patient is successfully scheduled, the status of the consult should be changed to Scheduled. When the patient is seen, the provider will go into CPRS and change the consult to Complete. However, if the patient cannot be reached, compliance to the Consult Business Rules' 1-1-21 rule is applied and status in Active remains until scheduled: The first "1" is a phone call to the patient and a voice message is left with the contact information to call back and schedule. The second "1" is an attempt to schedule through an appointment request letter 21 days to pass from the day the letter is sent out. If within the 21 days the patient has not responded to the first call and letter attempt, Service A will call the patient one more time and if unsuccessful, the Active consult will be discontinued.

Consult Status	0-3 Days	4-27 Days	28-90 Days	>90 Days	Total Consults
PENDING	76	29	11	3	119
ACTIVE	9	281	130	86	506
SCHEDULED	11	203	265	34	513
SCHEDULED/PAST APPT	0	0	5	2	7
Section Total	96	513	411	125	1,145

Figure 8. VAPAHCS snapshot of Service X consults. Adapted from VAPAHCS by D.F. Menlo Park: 2017. Reprinted with permission.

Service Y

In Service Y, information was provided by the Nurse Manager, (NM) who oversees the consults and clinical staff for her service. She is responsible for ensuring that the consults are appropriate and closed out in a timely fashion. Service Y's consult management process involves printing out a sheet of the consults in the nursing station at each of the sites where Service Y is available: Monterey, Livermore and Palo Alto. Once printed, the clinical staff will

allocate which consults should go to which physician based on physician specialty in the service to review and forward for scheduling. The NM had a printout of the consults greater than seven days on her desk and she explained that some consults just could not be closed or discontinued due to the nature of a patient's situation. "The numbers are open so long because we care about the patient" (NM, personal communication, September, 2017).

Service Y faces a number of challenges that contribute to the number of Active consults. The NM mentioned that services get backed up when physicians go on vacation or space is limited to support the number of appointments. Training for Program Support Assistants or RNs to triage is also an important factor that would be helpful for Service Y to run more efficiently. The effective use of residents would assist with their caseload, and a more automated process would make the management of consults quicker.

Consult Status	0-3 Days	4-27 Days	28-90 Days	>90 Days	Total Consults
PENDING	16	2	0	1	19
ACTIVE	10	38	36	11	95
SCHEDULED	3	45	89	20	157
SCHEDULED/PAST APPT	0	7	49	1	57
PARTIAL RESULTS	2	6	2	0	10
Section Total	31	98	176	33	338

Figure 9. VAPAHCS snapshot of Service Y consults. Adapted from VAPAHCS by D.F. Menlo Park: 2017. Reprinted with permission.

ANALYSIS

Common Themes

Overall, the implementation of the business rules has changed consult management. Each service interviewed shared reactive approaches to the Consult Management Business Rules Initiative. Services A and B exhibit their move towards being proactive towards consults, while Service Y still remains reactive towards consults. A table is helpful to see what each service uses for consult management to illustrate the effectiveness of each service based on tools that are available to them:

	Service A	Service B	Service X	Service Y
Clinician Triage	X	X	X	X
Electronic Tracking	X	X	X	
Access to OBA	X	X	X	X
Toolbox	X	X	X	X
Standard Work	X	X	X	
Use of MSAs	X			X

Service A shows that it uses all tools and exhibits for efficient consult management. Service B and X similarly use four out of the five tools, but are noticeably different in consult volume. Service B and Service Y are comparable in terms of their low consult volume and Service A and Service X are comparable due to their high consult volume. The consult volumes in each service remain steady throughout the fiscal year (D. Farnsworth, personal communication, October, 2017), so each data table provided for each service was captured on the same day for consistency.

Whether they are RNs or physicians, clinicians are overall the first to triage an incoming consult. This is an effective use of staff when changing a consult from Pending to Active. In Service A (Figure 6) only 24 consults remain Pending under three days, while in Service X (Figure 8), there are 76 consults waiting to be Active. The dichotomy between the high volume

processing services is the triage. While Service A is quicker at triaging their consults, because they have trained and educated MSAs to schedule consults, Service X relies on the centralized trained clinicians to schedule due to procedural and other medical factors. In order to alleviate this step, Service X would require training and education of staff referring patients to Service X. Service X needs to make orders, know the patients' backgrounds and medical records to closely follow each consult through. Each service primarily had a clinician conduct the consult management interview, with the exception of Service B, which had an AO. Because the physician was unavailable at the time, the AO was able to provide responses, as he is an integrated part of Service B's consult management process.

Standard Work is essential for succession planning and contingency plans when there is a shortage or change in staff. Effective Standard Work will allow an incoming staff member to go through each step outlined and successfully complete a task with little to no training needed. To test Standard Work, it is common practice to give an employee's Standard Work to another person in the facility that does not know anything about another employee's duties and is able to deliver the task solely based on the information provided. For example, a good test would be giving Standard Work to a mail carrier on how to prepare travel arrangements for a leadership official.

Standard Work was witnessed throughout all the services except Service Y. Although Standard Work was provided from the other services, gaining access to OBA and other computer systems was not mentioned, which may be another form of Standard Work. Service Y struggles the most among the four services, as it runs principally on a person-based and paper-based systems. When NM of Service Y was asked if there would there be someone else who could take over if she left her service, she responded with a yes, but it is only one specific person. The

education and experience of the other individual and NM leaves with them without Standard Work.

Another risk to not having Standard Work in Service Y is potentially having displaced patients waiting for an appointment. While aware of the Consult Business Rules, Service Y leaves consults subjectively open due to high risk factors, and other individual needs of each patient. Service Y lacks the structure to continuously move consults through without allowing them to linger. By allowing consults to remain open for a long period of time and not discontinuing the consult, there is no active tracking method to see that the patient could not be reached or could not be seen at any particular time. Clinicians would have to continuously read notes or comments on Active consults, instead of seeing a consult as Discontinued. When a consult is discontinued, it communicates a message back to the referring provider. When it remains Active (Figure 9) for 28-90 days, it communicates delayed patient care, regardless of the good intent.

One highly disputed theme observed among the services is the use of the MSAs, or schedulers. MSAs usually have no clinical background, but if trained appropriately and given the correct tools to complete their task, MSAs would be used more frequently. The negative influence to consult management is the high turnover rate of MSAs (J. Shinoda, personal communication, September, 2017). A contributing factor to the turnover rate is usually pay. Once trained and experienced for period of time, it is easy for MSAs to apply outside of VA and do the same duties for the private sector at a higher wage. It can be frustrating to see an MSA leave shortly after investing time and effort into training them to be an asset for a service.

Service A uses MSAs and Service X chooses not to. Each had detailed Standard Work, but Service X (Figure 8) still had 86 Active consults greater than 90 days versus Service A

(Figure 6), with 26 Active consults greater than 90 days. This suggests that the difference between the two may be the use of MSAs. By properly training MSAs, Service A was able to significantly decrease Active consults. Clinicians with no interaction with MSAs manage the Active consults in Service X. Service B also prefers not to use MSAs with similar clinical reasons as those given by Service X.

Performance Measure

The implementation of the Business Rules can be used as a performance measure if services actively manage consults. AOB demonstrates this practice through daily huddles on consults in Service B (Figure 7). They only have two Active consults open between 28-90 days, while Service Y (Figure 9) has 36 Active consults open between 28-90 days. In a morning huddle, an administrative or clinical person can announce the current state of a service's consults that is updated daily on OBA. By collaborating, staff is aware and can visually see what they are working with, instead of everyone individually looking at consults arbitrarily. A consult huddle does not have to be an entire service. It can only consist of the operational leaders of a consult team: RN, RNP, physician, and administrative support. To assist in this change, chiefs can use "responsibility matrices to help organizations engaged in change strategies. The matrix is a written record of who is responsible for each planned change" (Sylvia & Sylvia, 2014, p. 102).

	Triage (Pending to Active)	Scheduling (Active to Scheduled)	Closing (Cancel, Discontinue or Complete)
Physician	A	I	A
RN/RNP	A	I	A
MSA	I	R	I
Admin	I & S	I & S	I & S

Sylvia and Sylvia's (2014) responsibility matrix "uses a four-letter code to delineate responsibilities" (p. 102). *A* means the responsible person has approval to the specified change.

I is for information that a person should be informed of in support of the changes to "anticipate what impact work-group activities will have on their organizational responsibilities (Sylvia & Sylvia, 2014, p. 103)". *R* stands for responsibility. As MSAs have an *R* designated to them, they "rely on the support of the person with the *A* designation". This means they must be fully trained and armed with the proper tools to effectively schedule for a specific service. Finally *S* means support. Support staff is the AOs, program support assistants, or administrative specialists that are "responsible for the project's success, although they usually have other duties that are of a greater priority for them (Sylvia & Sylvia, 2014, p. 102)" and not clinical in nature.

Business Practices

VAPAHCS cannot design an effective appointment system without effectively implementing an efficient consult management process. The following list should provide minimal basic practices to consult management:

- Access to OBA – without access to view data, staff could not be active participants

- Clinician triaging process – clinicians such as physicians or nurses are able to identify appropriateness of a consult

- Utilization of service-trained MSAs – reduces Active consults and outsources scheduling process, so services can focus on other important tasks

- Detailed and tested Standard Work – provides successful change over and contingency plans when staff changes

- Zero use of paper consult tracking – eliminates person-based and paper-based systems

- Use of the National Toolbox – saves time and creates consistent language communicated through life of consult

- Daily morning huddles on consult overview – provides awareness and engagement with consults among responsible staff to understand true work day's demand

- Responsibility matrix – provides accountability of staff and their duties based on change to a consult and to optimize care team to their highest level of expertise

Future studies

To accomplish VHA's three strategies to shape demand, match supply and demand and redesign the system to increase supply (Schall, et al., 2004, p. 416) in VAPAHCS, common business practices can be used to successfully improve the current consult management process while helping to measure performance. The local business rules (Appendix A) can act as a tool to shape demand by providing detailed guidance on working down the backlogs and manage current consults in each clinic. To match supply and demand in clinics, it is worth identifying how staff would gather the data to account for the true demand patient requests through the various sources of phone, e-mail, or consult. To be completely aware of demand and capacity, staff would need to huddle daily to discuss capacity for incoming requests and increasing or decreasing supply. Finally, to optimize staff through redesign to increase supply, the use of a responsibility matrix can assist in illustrating what tasks can be removed from the physicians and appropriately completed through nursing or clerical staff.

Outpatient consults are the trigger for initiating an appointment for patients. Without the proper pathway, clinics encounter barriers when successfully streamlining each consult through its entire process. VAPAHCS can benefit from an established preconsultation exchange process with eConsults or eReferrals researched by Scheibe et al (2017) and Skeith et al (2017). Although preconsultation exchanges for eConsults or eReferrals are already introduced in VAPAHCS, it is still not completely implemented in all outpatient clinics. This method would

be the use of what VAPAHCS calls "telehealth", which patients can use to virtually seek care without an actual face-to-face visit. Using telehealth would assist in shaping demand in all services where applicable.

Currently, VHA uses the traditional form of business process analysis (BPA) (Rebuge & Ferreira, 2012). In VAPAHCS, stakeholders or the consult management team comprised of the GPM, Director for Clinical Support and other support staff meet on a weekly consult call with a National Consult Management team. They have lengthy conversations on consults and how to process them. Questions arise on how to manage specific scenarios, and new proposals on how to manage consults are offered by different facilities. By adopting VHA's lean way of thinking, it would be an innovative approach to apply Rebuge and Ferreira's (2012) methodology on process mining. If VHA applied ProM to the consult management process to each clinic, services can "detect gaps between guidelines and actual practices, so that organizations can improve processes and systems alignment with their strategic objectives" (Rebuge & Ferreira, 2012, p. 99).

Conclusion

The implementation of business rules has improved consult management and it leaves the current condition with opportunity to thrive with better resources and technology. Despite the negative media, the audits and investigations of VAMCs are able to explain the many influences involved with processing consults. However, VA OIG, GAO, or any individual VAMC cannot fully alleviate the complex factors involved to seamlessly implement a standard protocol that can manage VAMCs' operations as a whole. Each VAMC may use the business rules as a nationwide directive and guide, but at a local level, VAPAHCS can focus on its own local policies. Furthermore, each individual service could not use a comprehensive Standard Work

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applicable to all services. At a minimum, they should apply the aforementioned business practices, while seeking to create innovate ways to manage future consult processes. It is probably also notable to declare that consults are not numbers that need to be reduced; they are veterans who need to be scheduled for medical services.

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CONSULT MANAGEMENT AT VAPAHCS

Appendix A
VAPAHCS Consult Business Rules

1-1-30 Rule *(does not apply to all services)*: 1 Call, 1 Letter, 30 Days to Reply; Discontinue if no response after 30 days				
CPRS STATUS:	**OUTPATIENT:**	**INPATIENT:**	**INTER-FACILITY:**	**STANDARD LANGAUAGE for CPRS COMMENTS:**
PENDING (p) *Consult is automatically placed in pending status and requires action.*	□ Status must be changed *within 7 days* reflecting the appropriate action: Scheduled/Cancel/Discontinue/ Completed	□ Status must be changed **within timeframe according to urgency** reflecting the appropriate action: Scheduled/Cancel/Discontinue/ Completed **INPATIENT URGENCY TIMEFRAME:** □ Routine: Within 7 days □ Next Available: By the next open slot for an appointment □ STAT: Within 6 hours and prior to discharge. STAT consults require person to person contact □ Today: Today consults require person to person contact	□ Status must be changed *within 7 days* reflecting the appropriate action: Scheduled/Cancel/Discontinue/ Completed	
ACTIVE (a) *Consult still requires action.*	□ Status must be changed *ASAP* reflecting the appropriate action: Scheduled/Cancel/ Discontinue/Completed	□ Status must be changed *ASAP* reflecting the appropriate action: Scheduled/Cancel/ Discontinue/Completed	□ Status must be changed *ASAP* reflecting the appropriate action: Scheduled/Cancel/Discontinue/ Completed	

CONSULT MANAGEMENT AT VAPAHCS

SCHEDULED (s) *An appointment date and time has been set for consult.*	□ Link scheduled appointment from VistA to consult request After appointment date, □ If patient was seen, complete consult *(refer to Complete)* □ If patient cancelled or no-showed, contact patient to reschedule □ If patient cancelled or no-showed ***two or more times,*** discontinue consult *(refer to Discontinue)*	**N/A - Inpatient consults do not generate outpatient appointments**	□ Link scheduled appointment from VistA to consult request After appointment date, □ If patient was seen, complete consult *(refer to Complete)* □ If patient cancelled or no-showed, contact patient to reschedule □ If patient cancelled or no-showed ***two or more times,*** discontinue consult *(refer to Discontinue)*	SCHEDULED - (date) at (time).
CANCEL (x) *Consult is either inappropriate or service is unavailable and NVCC consult for same reason has been entered.* ***Not to be used to alleviate capacity issues.***	□ If inappropriate, add comment explaining to sending service why service is inappropriate for receiving service □ If unavailable and NVCC consult was submitted for same reason, add comment with date of NVCC consult	**Do not use**	□ If inappropriate, add comment explaining to sending service why service is inappropriate for receiving service □ If unavailable and NVCC consult was submitted for same reason, add comment with date of NVCC consult	Cancel due to inappropriate consult (explain why). Cancel due to unavailability (refer to (date) NVCC consult).

CONSULT MANAGEMENT AT VAPAHCS

DISCONTINUE (dc) *Consult is "closed" without being "completed."*	Use when:	Use when:	If Sending Facility, use when:	Must be accompanied with a comment regarding when the appointment is scheduled.
	□ Received by wrong service	□ Received by wrong service	□ Request is no longer valid	
	□ Patient has two no-shows and/or cancellations	□ Service is no longer needed		Dc due to consult sent to wrong service. Please submit to (service).
	□ Service is no longer needed	□ Patient refuses service	If Receiving Facility, use when:	
	Patient refuses service	□ Patient is deceased	□ Received by wrong service	
	□ Patient is deceased	□ Duplicate consult is submitted	Patient has two no-shows and/or cancellations	Dc due to patient no-show/cancellation 2x. If patient would like to reschedule, please submit new consult.
	□ Duplicate consult is submitted	□ Consult was not completed prior to discharge	□ Service is no longer needed	
	□ If 1-1-30 Rule applies to service and service has received no response		□ Patient refuses service	
	Patient is already an established patient		□ Patient is deceased	Dc due to patient no longer needing services.
			□ Duplicate consult is submitted	
	If patient would like to reschedule after a consult has been discontinued:		If 1-1-30 Rule applies to service and service has received no response after 30 days	Dc due to patient refusing services. If patient would like to reschedule, please submit new consult.
	□ Alert the provider that a new consult must be submitted		If patient would like to reschedule after a consult has been discontinued:	
	□ Schedule patient for appointment		□ Alert the provider that a new consult must be submitted	Dc due to patient deceased on (date).
				Dc due to duplicate consult (refer to (newer consult date).
				Dc due to patient no longer inpatient.

FORWARD *Consult is sent to the appropriate specialty service.*	□ Forward consult to the appropriate specialty service	□ Forward consult to the appropriate specialty service for care to be provided during the inpatient stay	□ Forward consult to the appropriate specialty service	Forwarded to Service
COMPLETE (c) *Consult is "closed" via CPRS progress note.*	□ If patient was seen at appointment, confirm progress note has been (co)signed *(if not (co)signed, refer to Partial Results)* □ Link (co)signed note to consult	□ If patient was seen, confirm progress note has been (co)signed (if not (co)signed, refer to Partial Results) □ Link (co)signed note to consult	□ If patient was seen at appointment, confirm progress note has been (co)signed *(if not (co)signed, refer to Partial Results)* □ Link (co)signed note to consult	
ADMINISTRATIVE COMPLETE (c) *Consult is "closed."*	Use to close: □ Open consults where patient was seen, but progress note was not linked □ Consults with partial results as part of consult maintenance review; however, need to alert provider(s) that note requires (co)signature)	Use to close: □ Open consults where patient was seen, but progress note was not linked □ Consults with partial results as part of consult maintenance review; however, need to alert provider(s) that note requires (co)signature)	Use to close: □ Open consults where patient was seen, but progress note was not linked □ Consults with partial results as part of consult maintenance review; however, need to alert provider(s) that note requires (co)signature)	Patient was seen (refer to (date) Note). Patient was seen (refer to (date) Note). Note still requires (co)signature. Patient was seen (refer to (date) Note). Note still requires (co)signature.
PARTIAL RESULTS (pr) *Consult is automatically placed in Partial Results status after it is linked to a note that still requires (co)signature.*	□ Alert provider(s) that note requires (co)signature □ For consult maintenance review purposes, *refer to Administrative Complete*	□ Alert provider(s) that note requires (co)signature □ For consult maintenance review purposes, *refer to Administrative Complete*	□ Alert provider(s) that note requires (co)signature □ For consult maintenance review purposes, *refer to Administrative Complete*	Note from (date) requires (co)signature. Please sign and complete consult.

Figure 10. VAPAHCS inpatient and outpatient Consult Business Rules. Adapted from VAPAHCS Business Rules. 2013. Reprinted with permission.

Appendix B
Change Concepts for Advanced Clinic Access

1. Work down the backlog.
   - Gain immediate capacity.
   - Temporarily add appointment slots.
2. Reduce demand in primary care.
   - Maximize activity at appointments.
   - Extend intervals for return appointments.
   - Create alternatives to traditional face-face- interactions.
   - Optimize patient involvement in care.
3. Understand supply and demand in primary care.
   - Measure your demand.
   - Measure your supply.
   - Consider doing today's work today.
   - Make panel size equitable based on clinical full-time equivalents.
4. Reduce appointment types.
   - Use only a small number of appointment types.
   - Standardize appointment lengths.
5. Plan for contingencies.
   - Manage demand variation proactively.
   - Develop flexible, multiskilled staff.
   - Anticipate unusual but expected events.
6. Manage the constraint.
   - Identify the constraint.
   - Drive unnecessary work away from the constraint.
7. Optimize the care team.
   - Ensure that all roles in practice are maximized to meet patient needs.
   - Use standard protocols to optimize use of other providers.
   - Separate responsibilities for phone triage, patient flow, and paper flow.
8. Synchronize patient, provider, and information.
   - Start the first morning and afternoon appointments on time.
   - Do patient registration by phone when confirming the patient's appointment.
   - Check the chart to make sure it is complete, accurate, and present for the appointment.
   - Use health prompts to anticipate full potential of today's need.
   - Make sure that rooming criteria include having the patient be ready.
9. Predict and anticipate patient needs at time of appointment.
   - Use regular "huddles" to anticipate and plan for contingencies.
   - Communicate among care delivery team throughout the day.
10. Optimize rooms and equipment.
    - Use open rooming to maximize flexibility.
    - Standardize supplies in exam rooms and keep them stocked at all times.

Figure 11. Change Concepts for Advanced Clinic Access. Adapted from "Reinventing Veterans Health Administration: Focus on Primary Care," by Armstrong, B., Levesque, O., Perlin, J., & Rick, C., 2005, *Journal of Healthcare*. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/16640137