Department of Veterans Affairs

Opportunities to Improve the Scheduling of Medical Exams for America's Veterans:
A Report Based On a Review of VA's Scheduling Practices by the Northern Virginia Technology Council (NVTC)

Version 1.1

October 29, 2014

Thank You

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NVTC Team members wish to express their gratitude and appreciation to the Directors of the Medical Centers they visited during the course of this Review for the VA. During those day-long site visits, the NVTC Team met with many of your dedicated leaders, healthcare providers, schedulers and other specialists – all of whom were remarkably cooperative, clearly dedicated to providing high-quality services to Veterans, and quite generous in terms of the amount of time and information they readily shared with us.

The NVTC Team members value not just the information that was shared with them, about the issues and challenges that Medical Center workers encounter on the job, but also the opportunity to hear so many innovative and progressive ideas on how Veterans can be better served by changes that should be made to current scheduling processes, procedures, and practices. This Final Report has been richly informed by all that we learned from each of you. We hope that the recommendations made in this Report prove to be worth the time and attention that you devoted to us.

nvtc
NORTHERN VIRGINIA
TECHNOLOGY COUNCIL

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Record of Changes

Date	Reference (Table, Figure, or Paragraph Sections)	A=Add M=Modify D=Delete	Brief Description of Change
October 17, 2014			Initial Draft
October 22, 2014	All	A, M	Second Draft
October 24, 2014	All	A, M	Final Report, Version 1
October 27, 2014	All	A, M	Final Report, Version 1.1
October 29, 2014	Section 3.1	M	"Private Sector Providers" text

1   Executive Summary

This section provides a brief summary of this Report by answering three fundamental questions:

- Why was this review performed for the Department of Veterans Affairs (VA)?

- What were the findings that informed the Northern Virginia Technology Council's (NVTC's) recommendations to VA?

- What recommendations were rendered by NVTC?

1.1   Why NVTC Conducted This Review

The impetus for NVTC's review is found in Section 203 of the Veterans' Access to Care through Choice, Accountability, and Transparency Act of 2014[1]. Section 203 called for a Technology Task Force to perform a review of the scheduling system and software of the Department of Veterans Affairs.

Following the legislation's enactment, NVTC[2] began working with the VA to develop the plan for a team of NVTC member companies to evaluate the VA's scheduling processes and systems, for the purpose of recommending scheduling improvements. In a Memorandum of Agreement (MoA) signed by both parties on September 11, 2014, VA accepted NVTC as the Technology Task Force required

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[1] Public Law 113–146. Signed into law by President Obama on August 7, 2014; the statute's full title is, "To improve the access of Veterans to medical services from the Department of Veterans Affairs, and for other purposes." Besides Section 203, another key provision of this law (Section 101) is relevant to portions of this report because it requires hospital care and medical services to be furnished to Veterans through agreements with specified non-VA facilities if Veterans: (a) have been unable to schedule an appointment at a VA medical facility within the Veterans Health Administration's (VHA's) wait-time goals for hospital care or medical services and such Veterans opt for non-VA care or services; (b) reside more than 40 miles from a VA medical facility; (c) reside in a state without a VA medical facility that provides hospital care, emergency medical services, and surgical care and such Veterans reside more than 20 miles from such a facility; or (d) reside within 40 miles of a VA medical facility but are required to travel by air, boat, or ferry to reach such facility or such Veterans face an unusual or excessive geographical burden in accessing the facility. Section 101 also provides for such care through agreements with any healthcare provider participating in the Medicare program, any federally-qualified health center, the Department of Defense (DoD), and the Indian Health Service (IHS).

[2] In June 2014, Senator Mark Warner sent a letter to President Obama offering pro bono private sector assistance to address the VA's exam scheduling and workflow challenges. (*The pro bono offer to help VA leveraged a template established in 2010-11, when NVTC, at the request of Senator Warner, partnered with the U.S. Army to help address the serious technology and business process challenges being encountered at Arlington National Cemetery.*)

by Section 203 of the Veterans' Access to Care through Choice, Accountability, and Transparency Act. In a Scope of Work statement, attached to the MoA, the agreed latitude of NVTC's Review was outlined – i.e., for NVTC to examine and propose improvements to:

- The scheduling of a new patient for his or her first visit. This would start with the VA's attempt to arrange exam appointments, and include the activities required to schedule, communicate, and confirm each appointment with the Veteran – concluding with the exam itself and the delivery of requested exam results.

- The scheduling of a specialty consult visit from initial request from a primary care physician through the appointment being scheduled, communicated and confirmed with the Veteran (also concluding with the exam and effective delivery of its results).

In examining these two foundational processes NVTC agreed to an approach that is segmented into an analysis of four domains: people, process, technology, and performance measurement.

The purpose of NVTC's review was to identify improvement opportunities and recommend actions that will enable VA leaders to restore America's confidence in the enduring integrity of VA while servicing the healthcare needs of those who have selflessly served our country. The NVTC Team's approach to this assignment has been to discover root causes of VA's scheduling challenges in an effort to identify ways to help the Department overcome them.

The NVTC Team[3] conducted a six-week effort (September 15-to-October 29, 2014) to review VA's current scheduling "systems," which include people, processes, technologies, and performance measures. The findings and recommendations identified in this report were greatly informed by onsite observations at two VA Medical Centers[4]. During these visits, the NVTC Team met with VA staff to not just elicit information from them about the issues and challenges they encounter on the job, but also to listen to their ideas on how

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[3] NVTC selected Booz Allen Hamilton (BAH), HP, IBM, MITRE, and SAIC to serve as the core team for coordinating with other member companies (MAXIMUS, Qlarion, and Providge Consulting) to conduct this Review.

[4] The two site visits by the NVTC Team were graciously hosted by the VAMC Directors at the VA's Medical Centers in Richmond and Hampton, Virginia.

Veterans might be better served by making changes to current scheduling processes, procedures, and practices.

During the two site visits the NVTC Team was able to make, it met with many dedicated leaders, healthcare providers, schedulers and other specialists – all of whom were remarkably cooperative, clearly dedicated to providing high-quality services to Veterans, and quite generous in terms of the amount of time and information they readily shared with NVTC Team members. The NVTC team also observed a number of practices that had been put in place in the last six months to improve the timeliness of patient appointments. Additional opportunities for improvement still exist, however.

In addition to the two day-long site visits, NVTC team members also examined a library of scheduling related information[5] – provided by VA – to gather additional insight on the challenges and issues addressed in this report.

While this report is based on site visits and data from only two VA Medical Centers, we are reasonably confident that the findings are generalizable to many other VA medical facilities. We make this assertion because the findings of this Report are very similar to the findings of an older but more comprehensive Wait Times study done by Booz Allen Hamilton in 2008. That study was much larger and included longer site visits to 25 VA Medical Centers and many of their Community Based Outpatient Clinics. The recommendations of this Report echo those of the earlier Wait Times report and suggest that the issues identified are representative and enduring. We feel that this significantly enhances the power of the NVTC Report and the recommendations that have been made[6].

It is the consensus of the NVTC Team that the recommendations in this report will take a significant amount of time to be fully implemented, assuming they are accepted. Indeed, incremental but sustained improvements, based on a comprehensive plan of action will be needed – subject to persistent monitoring and periodic assessments – to ensure that initial gains in accountability and performance quality actually lead to results that consistently satisfy the healthcare access and delivery needs of America's Veterans.

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[5] From the "vendor library," available on the Federal Business Opportunities (FedBizOps, to support VA's solicitation to procure a new medical appointment scheduling solution:
https://www.fbo.gov/index?s=opportunity&mode=form&id=6672c05c6f046cf98d178d8981884d94&tab=core&tab mode=list&

[6] Final Report on the Patient Scheduling and Waiting Times Measurement Improvement Study, Booz Allen Hamilton, July 11, 2008 (hereinafter referred to as the 2008 Booz Allen Hamilton Wait times report)

NVTC is pleased to present this document with its findings and recommendations for improving the scheduling of medical exams for America's Veterans.

1.2   What NVTC Found

Through its on-site observations and analyses of current business processes, available technologies, and a review of industry and government best practices, the NVTC Team identified a number of findings and recommendations designed to help VA leaders address their most critical challenges. During that review period, a common theme emerged from the Team's analyses that can be summarized as follows:

> VA's exam-scheduling processes are insufficiently enabled by state-of-the-art technologies or (consistently applied) standard operating procedures. This situation has resulted in a counterproductive and error-prone working environment that has frustrated staff members for years, thus fueling a persistent staff-retention problem – the net effect of which has contributed in no small part, it appears, to the gradual erosion of public confidence in the Department's ability to provide Veterans with timely access to needed healthcare services.

NVTC's Team confirmed what VA already acknowledges – that the current scheduling processes do not adequately meet the needs of Veterans, healthcare providers or scheduling staff members[7]. Clinic grids are inflexible, productivity cannot be accurately measured, not enough scheduling resources (staff, rooms, equipment, etc.) are available, and linkages among scheduled appointments and ancillary appointments (e.g., lab and radiology) are not established. In the latter instance, the absence of such links results in appointment cancellations and re-bookings, additional travel costs, and higher levels of Veterans' dissatisfaction.

Though the findings of the NVTC Team may not be all that different from those already documented in VA it is hoped that, with the recommendations that follow, VA leaders will better understand how issues in one deficiency area (e.g., staff retention) actually cause (or exacerbate) persistent issues in other areas (e.g., the non-standard usage of scheduling processes and procedures). Other examples of this cause-and-effect relationship is the impact of inflexible clinic grids on the tendency to over-book scheduled appointments – or the impact of a scheduler's

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[7] Business Blueprint for VHA Medical Appointment Scheduling Solution, Department of Veterans Affairs, May 2014

inability to simultaneously view the schedules of multiple providers (a technical resource issue) on the ability of a scheduler to appropriately sequence ancillary appointments (often perceived as a human performance issue). Yet another is the impact of placing too much managerial emphasis on metrics that do not have the effect of driving desired scheduling behaviors.

NVTC Team members also hope that the insights derived from their analyses of VA's longstanding scheduling issues will shed a different light on the relative weight of individual issues, in terms of their respective impacts on scheduling activities, end-to-end. Also, some of NVTC's key recommendations may prove to be somewhat more innovative than others received by VA leaders in the past.

At a minimum, the NVTC recommendations should provide a useful framework for tackling near term challenges and issues, while at the same time motivating VA leaders to work with maximum urgency, to significantly enhance the experiences of Veterans served by the Department, which will lead to a steady rebuilding of public trust in both the timeliness and quality of healthcare being provided to America's most deserving heroes.

1.3 What NVTC Recommends[8]

As a result of its analysis of VA's scheduling processes, technologies, people, performance measures, and industry best practices, the NVTC team derived a total of 39 recommendations from its multi-dimensional review of VA's current medical exam scheduling operations. These 39 key recommendations – each of which is identified in the body of this Report – are associated with the following 13 groups of identified, key issues:

- Appointment Scheduling (Process)
- Appointment Metrics (Process)
- Patient Capacity (Process)
- Communications (Process)
- System Usability (Technology)
- Systems/Data Integration (Technology)
- IT Infrastructure Support (Technology)
- Recruitment/Hiring (People)

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[8] Consistent with findings and Recommendations of 2008 Booz Allen Hamilton Wait times report

- Training/Development (People)
- Staff Retention (People)
- Staff Management (People)
- Patient Wait Times (Performance)
- Management Data Usage (Performance)

More than half (i.e., 20) of the Team's 39 recommendations were derived from the four People-related groups of key issues: Recruitment/Hiring, Training/ Development, Staff Retention, and Staff Management.

The other 19 recommendations were fairly evenly distributed among the Process, Technology, and Performance dimensions of NVTC's Review.

The fact that 51.3 percent of the Team's recommendations align with "people" issues should not be misinterpreted by readers of this Report. More to the point, it must not be seen as an adverse reflection on the schedulers, healthcare providers, and other VA staff members currently engaged in scheduling activities at VA's medical facilities, who work quite hard – indeed, much harder than should ever be necessary – in their creative efforts to compensate for all the issues driving the 19 other process-, technology-, and performance-related recommendations made by the NVTC Team.

Furthermore, when it comes to cross-cutting issues discovered as a result of this Review, the evidence suggests that virtually all of the 19 issues driving the process-, technology-, or performance-related recommendations (in Section 4 of this Report) demonstrably impact, either directly or indirectly, at least one of the people-related issues/recommendations.

Consider – for just one example – the issue identified as "Additional Exam Rooms" under the Patient Capacity group (in subsection 4.1 of the full Report):

- The NVTC Team found that at least two exam rooms per provider are needed to allow rooming a patient while providing other team members (or providers) co-visiting opportunities. And, larger rooms would more readily permit efficient engagement of multiple team members in real time. Yet, it

appears that only one exam room is provided in many situations observed at the medical centers visited by the NVTC Team during the course of this Review. This process-related issue, which resulted in a recommendation that additional exam rooms be provided, has a direct impact on one of the People-related issues identified (in subsection 4.3 of the full Report), having to do with schedulers and providers working together as a team (for the benefit of Veterans). It also impacts the productivity of healthcare providers at most VA medical facilities. More significantly, a search of related VA documents provided to the NVTC Team revealed that a short supply of exam space is a critical infrastructure challenge for many facilities. Many sites indicate that primary care and specialty providers almost never have two exam rooms during clinic sessions, and site leadership commonly noted that one of the most significant interventions they can make to improve the timeliness of care is to increase available exam space.

Following a thorough analysis of all 39 of its key recommendations, to discover the cross-dimensional (or cross-cutting) implications of each of them, NVTC rendered the following set of 11 synthesized recommendations to VA:

Recommendation # 1 – VA should aggressively redesign the human resources and recruitment process. From General Schedule (GS)-5 clerks to senior clinicians, the hiring of needed staff proceeds too slowly. The causes are complex, but much of the delay can be traced to redundant, inconsistent, and inefficient hiring processes. There should be a system-wide focus on improving these processes as soon as possible. Measures that capture performance from the customer perspective should be carefully monitored. Such measures may include the time from a request for a position to be filled to the time the hired candidate actually begins work.

Recommendation # 2 – VA should prioritize efforts to recruit, retain, and train clerical and support staff. In many cases, clerical and support staff should be hired in anticipation of need rather than after vacancies are realized. Job stress, which contributes to turnover, should be reduced through careful study of workflow processes; for example, separating the call function from the frontline clerk function appears to be a prudent strategy. In many instances, "role creep" results in clerks performing functions that may be beyond their job descriptions

and GS levels. An inventory of functions should be carefully mapped to appropriate GS levels so that individuals are properly positioned—and compensated. Better retention will improve the impact of training, which should be another area of focus. Training should be based on a more standardized and frequently updated curriculum, and placed within a more clearly defined management infrastructure to support professional growth. A multi-modality approach to training should include case-based distance learning that leverages a learning management system and permits monitoring both at the facility and individual level. Overall, these measures will help to ensure that each physician has adequate support from clerical staff, which will help to maximize provider productivity.

Recommendation # 3 – **VA should develop a comprehensive human capital strategy that, based on projected needs, addresses impending healthcare provider shortages.** In addition to the current shortage of nurses, shortages of nurse practitioners, primary care providers, and specialty physicians are projected or already realized. VA needs to undertake an aggressive strategy that includes increasing provider efficiency (e.g., more support staff and exam rooms), using alternate types of providers (e.g., family practitioners, doctors of nursing practice, care coordinators, coaches), and developing its own aggressive recruitment pipeline (e.g., starting the recruitment process in high school, providing aggressive tuition forgiveness). Mid-level practitioners, especially nurse practitioners, have proven particularly valuable in providing or augmenting scarce specialty resources. There should be an immediate focus on recruiting, training, and retaining mid-level practitioners. Finally, there should be a deliberative effort within this human capital strategy to support team medicine, further enabling non-physicians to partner with physicians to directly accommodate patient needs.

Recommendation # 4 – **VA should create a stronger financial incentive structure.** This is especially critical for a location like Hampton, VA – where the VA must compete head-on with DoD in the healthcare provider marketplace. VA should explore the use of more aggressive incentive structures in compensation packages, especially for providers. VA should develop supply and demand projection models so that future staff needs—particularly for specialty physicians—can be anticipated. Recruitment cycles for physicians are often very long. Waiting until demand has exceeded supply will inevitably lead to chronic delays in care. Staffing needs, especially for specialty physicians, should be anticipated based on an understanding of how much supply is required to meet

changing patient demand, and appropriate supply models should be created and used across the enterprise.

Recommendation # 5 – **VA should accelerate steps to improve the agility, usability and flexibility of scheduling-enabling technologies that also facilitate performance measurement and reporting functions[9].** Another example of the cross-cutting effect of multidimensional issues is provided by IT, which – when optimally designed and deployed – is a critical enabler of human processes. However, IT that is not well-aligned to scheduling processes (as suggested by the System Usability group of key issues detailed in the body of this Report) causes costly, stressful human workarounds, and undermines system efficiency. The current scheduling software, which was first created in the time of paper records, has a non-intuitive "roll and scroll" interface that can be described as cumbersome, at best, to use. From a scheduling perspective, it is outdated; from a measurement perspective, it is inadequate—it was never intended to perform measurement functions. Nonetheless, the VA currently must rely on this tool to schedule tens of millions of Veterans' appointments each year.

Recommendation # 6 – **VA should take aggressive steps to use fixed infrastructure more efficiently.** Facilities should use projection models to anticipate needs for increased exam space and plan more strategically regarding building and/or leasing additional space. Facilities should use demand projection models to anticipate changing outpatient demand and should plan to increase space as necessary. Failure to use such approaches results in chronic undersupplies of space and human resources.

Recommendation # 7 – **VA should evaluate the efficiency and patient support gained by centralizing the phone calling functions in facility-based call centers with extended hours of operation.** While it is recognized that the best place for a patient to make a follow-on appointment is when leaving a clinic, a majority of the appointments made in VA are by patients calling for an appointment or receiving a call from the VA to schedule an appointment. Since the location of in- and out-bound patient scheduling calls differs among VAMCs, this evaluation would determine the most beneficial placement of the call center function and allow for sharing of lessons learned from individual Medical Centers VA-wide. Removing the in- and out-bound call requirement from the clinic

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[9] There are a number of COTS scheduling packages on the marketplace that might help meet VA's scheduling needs either by themselves or in concert (see, e.g., http://www.capterra.com/medical-scheduling-software/); VA would need to evaluate them to determine whether they satisfy the intent of NVTC's Recommendation # 5.

scheduler's responsibility, if appropriate for the individual clinic's needs, will increase efficiency of communication with Veterans and reduce stress on frontline clerks in clinics.

Recommendation # 8 – VA should invest in more current and usable telephone systems and provide adequate space for call center functions. Although most facilities have call systems that can track hold times, call abandonment, and other key measures, a number of questions were raised about these systems. Given the importance of efficient phone communications, a standard for functionality should be established and all facilities should be required to meet that standard. Centralized call centers improve the efficiency of communications significantly. In addition to enhanced technology, call centers should be provided adequate space and resources. Robust multi-modal communications infrastructures are important to support the frequency of contact essential to the Patient Aligned Care Team (PACT) concept of continuous healing relationships.

Recommendation # 9 – VA should take aggressive measures to alleviate parking congestion because it appears to have some impact on the timeliness of care. While less important than exam space, parking space was found to be in short supply at many VA facilities. Obstacles to parking may discourage Veterans from keeping their appointments and cause Veterans to be late for their appointments. Late arrivals can disrupt clinic flow for the rest of the session.

Recommendation # 10 – VA should engage frontline staff in the process of change. Successful process redesign requires behavior change. To sustain such change, those who do the work must be engaged in redesigning the processes that influence their work and behaviors. This is the critical, and often weakest, link between people and processes, and if it is not made, process improvement will not be optimized or sustained. A culture of innovation must be created in which everyone sees improving his or her job, and the processes associated with it, as part of his or her job. Success requires a critical nexus between leadership, culture, process redesign techniques, and employee engagement.

Recommendation # 11 – VA must embrace a system-wide approach to process redesign because this is the means by which many other recommendations may be successfully executed. Processes, the intermediate steps by which goals are achieved, often determine whether goals are achieved efficiently, or at all. To be successful in improving the many complex and interrelated processes that

influence the timeliness of care, sound systematic approaches must be used. An integral dimension of success will be to engage Veterans in process redesign. Even when conducted in a rigorous fashion, process redesign is not always successful. The most common sources of failure are related to poor staff acceptance, failure to actually change behaviors, and inadequate leadership. VA faces unique challenges in scaling change across an enterprise of its size, which stands alone in U.S. healthcare. As mentioned earlier, one of the key elements of success will be engaging frontline staff in the redesign and change process, which will increase the probability that processes will be properly redesigned and the likelihood that frontline staff will modify their behaviors.

1.4 Conclusion

Improving the timeliness of Veterans' care depends upon the readiness, willingness, and organizational and personal commitments to improve multiple dimensions of a complex, system-of-systems challenge. All aspects of the VA enterprise must be considered, and proven approaches to "systems" engineering and redesign must be implemented and scaled across the entire Department. This will require strong leadership and engagement of staff who have been empowered to effect real and lasting change.

However, improving the timeliness of care may be viewed in a broader context that extends beyond examination of VA's scheduling operations. Indeed, it goes to the intent of the Department's attempts to institutionalize, since 2010, a different relationship with the patient – with the launching of an initiative to transform the primary care system into a team-based care model (Patient Aligned Care Team, or PACT). The PACT system of care shares many features with patient-centered medical homes (PCMH). In addition to improving chronic disease management, the VA initiative aims to increase Veterans' accessibility to their primary care providers, improve continuity with the primary care team, intensify preventive health services, integrate mental and behavioral health into primary care, and enhance coordination of care as Veterans transition between primary and specialty care providers, hospital and ambulatory settings, and VA and private healthcare systems. The PACT model is meant to be proactive, personalized, and Veteran-driven, focusing not just on the management of disease but also more holistically on the Veteran's physical, psychological, social, and spiritual well-being. The model requires effective communication and coordination among team members

for acute, preventive, chronic, and end-of-life care to achieve improved continuity and efficiency – an aspirational goal in itself that remains unfilled across parts of the enterprise.

Such intensely Veteran-focused care would be delivered in many forms—not just through face-to-face visits. In this paradigm, the healthcare system would be responsive 24 hours per day every day, whether by phone, e-mail, e-consults, telemedicine, expanded use of personal health records, or other means. This vision is expected to include individual and group visits as well as an expanded role for team medicine that includes the coordinated efforts of physicians, mid-level practitioners, care coordinators, and care coaches. Assessments of access in this paradigm would not be limited to traditional VA measures of wait times and drive times.

While this model is still somewhat aspirational, it is an aspiration that VA is uniquely positioned to achieve. Yet, full accomplishment of this objective is what will be needed, at a minimum, to restore America's trust in the VA's ability to serve the healthcare needs of its Veterans.

NVTC is reminded that VA has a strong history and longstanding tradition of innovation—its enterprise-wide electronic health record; mail-order pharmacy system; clinical quality measurement and improvement programs; barcode drug dispensing system; telemedicine efforts; home-based care programs; and a broad array of clinical care innovations for special populations such as blind rehabilitation, post-traumatic stress disorder (PTSD) care, spinal cord injury care, and prosthetic expertise are but a few examples.

In the past, however, emphasis on innovation has, understandably, been more typically geared toward clinical processes. That emphasis must be sustained. At the same time, a similar focus must be also be placed on innovations that support customer-centric process redesign.

This will require excellence in executive leadership distributed broadly and deeply across the enterprise; correspondingly, this will require appropriate levels of empowerment conferred from the top-down.

Only by persistently staying the course will VA be positioned again, to blaze new trails for other healthcare systems to follow.

2 Introduction

This section of the NVTC Team's Final Report to VA explains the objective of the Review, the make-up of the Review Team, and the approach used to perform the Review.

2.1 Objective

NVTC's objective for this Review was to deliver evidence-based recommendations for improvements to VA, i.e., meaningful and useful improvements that VA's leaders will recognize as opportunities to significantly improve the experience of America's Veterans, whenever a Veteran needs timely access to medical care.

2.2 The NVTC Team

When NVTC received a memo dated 11 September 2014 from the Secretary of the VA accepting its offer to conduct a pro bono Review of VA scheduling operations, it immediately identified a candidate group of NVTC member companies that had expressed early interest in leading such a Review. After discussions with each of these companies about the contributions of needed expertise they could afford to make to this pro bono effort, NVTC selected Booz Allen Hamilton (BAH), HP, IBM, MITRE, and SAIC to serve as the core team for coordinating with other member companies to conduct the Review.

2.3 The Team's Approach

In the Memorandum of Agreement (MoA) signed by both parties on September 11, 2014, VA accepted NVTC as the Technology Task Force required by Section 203 of the Veterans' Access to Care through Choice, Accountability, and Transparency Act. In a Scope of Work statement, attached to the MoA, the agreed latitude of NVTC's Review was outlined – i.e., for NVTC to examine and propose improvements to:

- The scheduling of a new patient for his or her first visit. This would start with the VA's attempt to arrange exam appointments, and include the activities required to schedule, communicate, and confirm each appointment with the Veteran – concluding with the exam itself and the delivery of requested exam results

- The scheduling of a specialty consult visit from initial request from a primary care physician through the appointment being scheduled, communicated and confirmed with the Veteran (also concluding with the exam and effective delivery of its results.

In examining these two foundational processes NVTC agreed to an approach that is segmented into an analysis of the people, process, technology, and performance measurement dimensions of scheduling, as illustrated in Figure 2-1 and described below:

a. Process: Analyze overall end to end scheduling process to identify recommendations for critical to quality decision points enhancements

b. Technology: Evaluate how the scheduling process is supported by technology from the following perspectives:

- What parts of the process are well supported by technology that the VA has in place, currently?

- What parts of the process are not supported by technology currently and should be?

- What aspects of the currently deployed technology contributes to issues in the scheduling process?

c. People: Analyze process for the hiring, training, and managing of scheduling employees to identify improvement areas

d. Performance Measures: Conduct industry/best practice research analysis on scheduling and wait time performance measures, which the VA could use for benchmarking and improvement of measures.
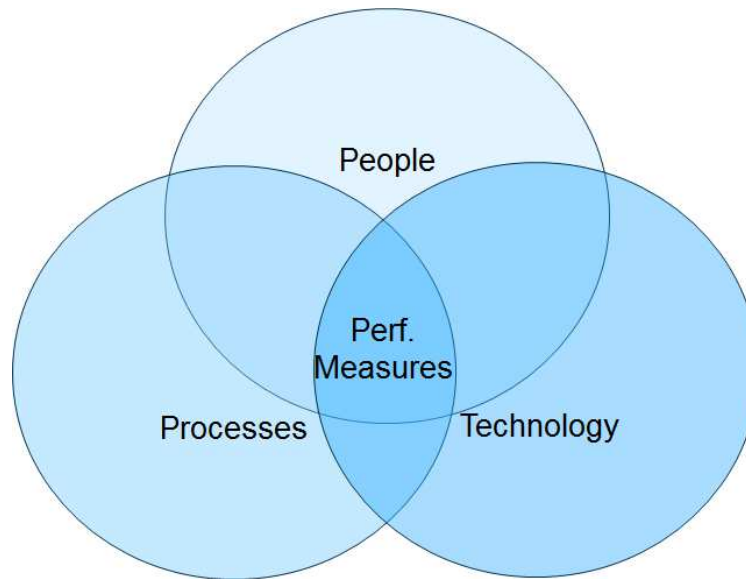
Figure 2-1. Multidimensional Perspectives of NVTC's Review

To make the best use of its limited time and resources, the core NVTC Team assigned primary roles for analyzing findings associated with each of the four dimensions of the "problem space" of its Review (refer again to Figure 2-1) to the different companies, as follows:

- Process Perspective – led by HP and MITRE

- Technology Perspective – led by IBM

- People Perspective – led by SAIC

- Performance Perspective – led by BAH and MITRE

Despite these assigned primary roles, all five companies contributed inputs to help shape the fact-finding, analysis, and results of all four dimensions of the "problem space" being reviewed – and they collectively worked to synthesize all the evidence gathered – not just from Site Visits (described in the next subsection) – but also from researching the library of scheduling-related documents shared with the NVTC Team by VA, as well as publically available information.

The content of this Final Report was also enhanced by feedback received from NVTC member companies MAXIMUS, Qlarion, and Providge Consulting, who volunteered their expert services to lend additional support to this initiative.

2.4 Site Visits

As part of its discovery process, members of the NVTC Team visited VA Medical Centers (VAMCs) in Richmond and Hampton, Virginia, with the primary aim of gathering scheduling and service provider information data in real operational environments. In preparation for these site visits, the NVTC Team coordinated closely with VA-designated points-of-contact (POCs) at both locations to assure that all staff needed to support NVTC's Review were made available and prepared to support a facility visit. The VA POCs ensured that the NVTC Team could see all areas of interest to the team members, including scheduling areas, exam rooms, data entry areas, call centers, etc. The VA POCs also made good faith efforts to have available for review, essential documents such as procedure manuals or standard operating procedures and site files. A meeting area was also made available at each location, which was used by the NVTC Team to discuss questions and findings during the visit, and to host interviews with many of the on-site professional healthcare service providers and other staff members with specialized expertise.

The Richmond VAMC, one of the largest VA Medical Centers (see Figure 2-2), makes its healthcare services available to more than 200,000 Veterans from 52 cities and counties in central and southern Virginia and parts of northern North Carolina[10].

The Richmond VAMC also offers Veterans' healthcare services via Community-based Outpatient Clinics (CBOCs) located in Fredericksburg, Charlottesville and Emporia.

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[10] From the description of the Hunter Holmes McGuire Medical Center found at:
http://www.richmond.va.gov/about/index.asp

Figure 2-2. The VAMC in Richmond, Virginia

The Hampton VAMC (see Figure 2-3) provides healthcare services to Veterans in southeastern Virginia and northeastern North Carolina. The Hampton VAMC provides comprehensive primary and specialty care in medicine, surgery, and psychiatry. The Medical Center is geographically positioned among one of the largest Department of Defense (DoD) active duty and military retiree populations in the United States. As a result, the Medical Center has seen a steady increase in the number of Veterans seeking VA care in recent years. The Hampton VAMC recently opened a state-of-the-art Women's Clinic designed to provide gender specific care under one roof. Additional expansions at the medical center include the Spinal Cord Injury Unit and Mental Health Unit[11].

The Hampton VAMC provides services to over 43,000 Veterans and also offers Veterans' healthcare services via two CBOCs, one in Virginia Beach and the other in Elizabeth City (NC).

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[11] From the description of the Hampton VA Medical Center found at: http://www.hampton.va.gov/about/index.asp

Figure 2-3. The VAMC in Hampton, Virginia

Though the Team wanted to visit more medical facilities, particularly in the Mid-Atlantic area, the 45-day time constraint imposed by the legislation that drove this initiative did not make those additional fact-finding visits very feasible.

Despite its relatively limited exposure "to real operational environments,"– at just two of the VA's 152 Medical Centers providing care to more than 8.3 million Veterans each year[12], the NVTC Team was able to corroborate (with information gathered from these visits), many of the scheduling-related issues that had been documented in the past, in other sources of information made available to NVTC by the VA. In effect, the Site Visits brought to life many of the previously-documented challenges that Medical Center workers encounter on the job. The visits also provided an opportunity for NVTC Team members to hear firsthand – from dedicated, hard-working VA employees – many innovative and progressive

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[12] From the National Center for Veterans Analysis and Statistics -- www.va.gov/vetdata

ideas on how Veterans can be better served by changes that should be made to current scheduling processes, procedures, and practices.

Indeed, this Final Report was richly informed by all that was learned from each of the people encountered by the NVTC Team at both sites.

2.5 Structure of This Report

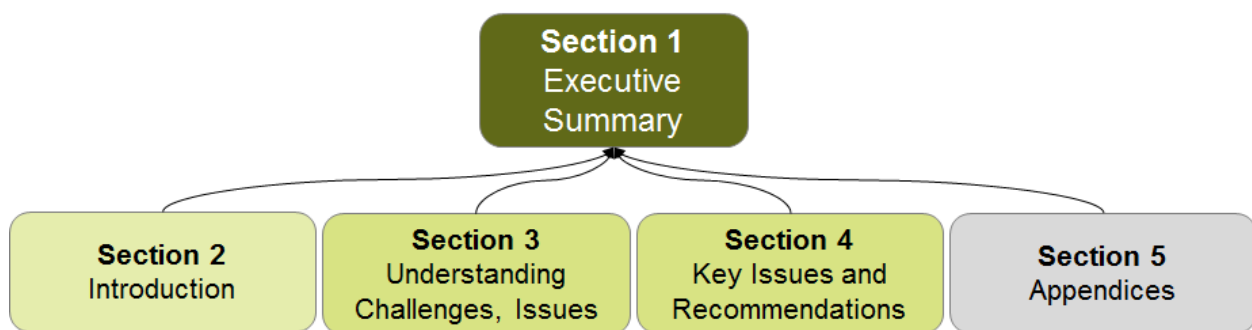Figure 2-4 indicates the organizational structure of the content of this Report.

Figure 2-4. Structure of NVTC Team's Report

3   Understanding VA's Scheduling Challenges and Issues

In this section of its Report, the NVTC Team identifies and describes its initial analysis of discovered, exam scheduling-related people, process, technology, and performance challenges and issues, pursuant to the approach defined in subsection 2.3 (above).

3.1   Process Perspective

The challenges and issues described in this subsection were discovered as part of the NVTC Team's review of the VA's end-to-end scheduling processes.

General Observations:

The NVTC Team review focused specifically on the processes used to schedule new patients to primary care, to schedule established patients for a return appointment and to schedule patients into specialty clinics. Each of these processes has some unique steps and, while both facilities used generally the same approach, there are some process differences across the two sites. The outcomes in both instances seem to be generally meeting the needs of the patients and healthcare providers in that patients are being scheduled the majority of the time within guidelines. However, in some instances the process is requiring more steps or efforts on the part of either providers or schedulers.

Primary Care Patient Appointments:

Veterans who are new to VHA healthcare services access the system by filling out an application, which is reviewed for eligibility by clerks who are trained specifically for the eligibility function. These clerks have access to the Veterans Health Information Systems and Technology Architecture (VistA) scheduling system in order to schedule the first appointment with primary care if the new patient desires an appointment. New patient appointments are scheduled for 60 minutes while established patient appointments are typically for 30 minutes. In one site, the scheduling system was set up with 60-minute appointments for new patients during certain days or times. In another, the clerks were charged with identifying two 30-minute slots that could be utilized for the new patient. This is a challenge at times. New patients are scheduled with a primary care team or PACT, which will be the team charged with providing and coordinating the Veteran's care on an ongoing basis. For new patients, the clerk uses the date the appointment is created as the desired date.

In both facilities, when the patient arrives for an appointment, he or she checks in on an electronic kiosk that allows the clinic front desk to know that the patient has arrived. The kiosk also checks for any changes in address and provides a print out of future appointments to the patient. Once the patient has checked in, the scheduler is automatically notified. In one facility the scheduler then sends an instant message to the healthcare providers so that they know the patient is available. In another, the clerk prints a roster when the patient checks in and places it in a folder that is then used by the nurses to call patients and check the patient off a master list. The nurse or physician will call the patient in for the appointment and place them in the room.

Several conditions in both sites add challenges to providing adequate time slots for patient care. Both facilities identified space deficiencies in their clinics that contribute to the lack of efficient time management. Acquiring additional space, whether by construction or lease, is a lengthy process over several years. Neither facility is able to keep pace with the space demand from a growth rate that is 6-8% per year. Consequently, physicians have only one exam room for their use, which contributes to slow patient turn around in the rooms. Both facilities identified the need to add additional healthcare providers. Competing with local physician salaries is challenging even with the recent new pay scale. Both sites identified the need for additional physicians and nurses. However, space to accommodate them is inadequate or non-existent. Also, log on time to Computerized Patient Record System (CPRS) in multiple rooms consumes provider time. Neither facility utilized mobile technology for the healthcare providers.

Once a patient is seen in the primary care clinic, the physician establishes the need for the patient to return. Clinicians made the point that return times should be based on the clinical need rather than arbitrary time frames. In one facility, the physician entered the return appointment order in CPRS (the electronic health record). The scheduler is then able to view the order when the patient checks out at the front desk and can make the next appointment. In the other facility, the return appointment order has not been entered into CPRS by the time the patient checks out, so the clerk relies on instant messaging, verbal, or hand written direction from the physician. If no information is available to the clerk, the appointment cannot be scheduled when the patient checks out. The patient must then be called at a later point. That facility is currently considering the use of scribes to assist in entering orders as the physicians see patients in primary care. Schedulers also identified the importance of clarity by the physician in identifying the return date for the patient.

When the patient checks out at the front desk in the primary care clinics, the scheduler asks the patient about their desired date for the return appointment based on the physician order. This date must be entered before the patient can be scheduled. If the patient does not indicate a desired date, the clerk scheduler must help the patient identify a date so that scheduling can proceed. The NVTC Team was told that patients often don't indicate a preferred date and say "whenever" is fine. Thus, the use of "desired date" creates a certain amount of ambiguity in the metrics that are collected. Several staff at various levels felt that date created is a better point from which to measure rather than desired date. If an appointment is available for the desired date within the timeframe for return indicated by the physician, the patient appointment is scheduled. If there are no appointment slots available within 30 days of the desired date and consistent with the provider's order, the clerk can request approval from the physician to overbook, can schedule with another provider, or can refer the patient to private sector provider care in the case of specialty appointments. In one facility, if the date is more than two weeks beyond the healthcare provider's request, it must be checked with that provider. Patients then receive a sheet with information on their next appointment before they leave the clinic. They also receive reminder postcards or letters approximately 10 days before their appointment.

The scheduling process is complicated by the fact that the scheduler is unable to view the entire schedule for the physician, but must view several different screens in order to find available times. Some schedulers have two monitors on their desktops to allow them to view both the VistA scheduling package and CPRS. When two monitors were not available due to either resources or space, the scheduler must toggle between the two systems. The schedulers also respond to patient phone calls and must manage both the patients at the front desk and those on the phone. One facility is considering moving the call center staff directly to the primary care clinics to manage all of the calls. Few schedulers had headsets, but those that did were pleased with them. Several clerical staff identified stress as a factor in their work and the major contributing factor was the lack of enough healthcare provider slots to meet the demands for patient appointments.

If the physician identifies that the patient does not need to return for over 120 days, the patient is put on a return recall list. Schedulers are not allowed to facilitate appointment scheduling beyond six months. However, nationally, VA has identified that no-shows by patients increase significantly if the patients are scheduled beyond 120 days. Once on the return recall list, the patient receives a

letter reminding them to schedule the return visit. The patient must then call for an appointment to be scheduled. If the patient calls and no appointment is available within the originally recommended timeframe, the scheduler must check with the provider to determine if the patient should be brought in on an "overbook."

In both facilities there is a call center staffed with schedulers who respond to patient calls for a variety of issues including medication refills, appointment scheduling, and other queries. Calls can be immediately transferred to a nurse for clinical issues. The call center staff can schedule appointments in the same manner as the clinic clerks. Calls are generally answered within 30 seconds and the drop rate on calls is five percent. The call center staff in one facility is in cramped and crowded space, which the facility is hoping to rectify by a remodeling project. Unlike the majority of the clinic clerks, the call center staffs have headsets to facilitate their work.

Specific Observations:

a) Specialty Care

When a primary care provider identifies the need for a specialty appointment for a patient, they initiate a consult in CPRS or direct the clerk to transcribe a consult order into the system. The consult is referred to the specialty clinic where it is reviewed and approved by the provider before it is scheduled by the clerk. New consults are scheduled for 60 minutes. Some consults are e-consults and do not require a patient appointment. Since CPRS is an open system, the specialist can see the consult order and review the patient record in order to provide a response. Some service level agreements are in place between primary care and specialty care, but both sites identified that these are challenging to maintain. The consults are identified in the initial order as urgent or routine and scheduled accordingly. On a daily basis, clerks in both the primary care and specialty areas check to assure that all consult requests have been closed out.

The importance of stable clerk staffing in the specialty clinics was underscored by both the clinicians and Health Administration staff. It takes weeks for a clerk to be trained and to understand the scheduling requirements and clinical needs in each specialty area as well as in primary care. Good communications and team effort were identified as prerequisites for smoothly operating clinics at both sites. High turnover among clerical staff makes the work more challenging

and can lead to scheduling problems such as significant overbooking or appointments where the patient has not had the proper pre-work.

Both primary care physicians and specialty care physicians identified that they spend a significant amount of time reading view alerts. Every time that a consult touched the system (e.g., setting up the appointment, changing an appointment time, etc.), the system generates a view alert to the physician. Two hundred view alerts each day are common. Physicians identified the need to be able to triage view alerts to reduce the time spent on administrative matters that are not pertinent to their care of the patient. Significant after-hours time is spent by clinicians on documentation and review of patient records.

b) *Private Sector Providers*

If patient consults cannot be scheduled in specialty care within an acceptable timeline or if certain specialties are not available in the facility, the patient can be referred to a private sector provider. As a result of recent legislation, both facilities have additional funds to direct to outside care. Each VA specialty clinic has a designated provider who reviews the outside consult and the authorization before it occurs. Facilities have access to sharing agreements or contracts with non-VA providers, and to any provider who will accept VA payment rates, consistent with the national contract with Health Net. In the case of a locally contracted provider, the claims assistant faxes the authorization and information on the type and number of appointments that are authorized for payment to an outside provider. The contract provider will schedule the appointment directly with the patient. The claims assistant will assure the medical documentation is obtained. If patients have previously seen a specific provider, they are rescheduled with that provider to maintain continuity.

If the patient is referred to a provider through the Health Net contract, the claims assistant notifies the Veteran to let him/her know that outside care is authorized and ask the time preference of the Veteran. The claims assistants send the authorization and consult to Health Net via the web. Health Net is required to schedule the patient within 2-5 days and have the appointment within 30 days. Health Net is used for Veterans based on non-availability of services at the facility. The facility follows up with the providers two days after the scheduled appointment to verify attendance and try to retrieve records. The Health Net contract calls for records to be returned via the website within 30 days. One day after the appointment occurs, medical documentation is made

available to the VA. The referring VA provider receives the documentation to allow monitoring of care. In one facility, they routinely refer 50-60 patients on a normal day, but up to 190 on some days.

From program inception through June 9, 2014, VA provided Health Net with approximately 28,000 authorizations nationally for care in 71 specialty areas. The top five areas of specialty care are optometry, physical therapy, gastroenterology, audiology and podiatry.

c) My HealtheVet

The VA offers Veterans the opportunity to enroll using a web-based application, called My HealtheVet, which allows a Veteran (or a designated caregiver) access to his or her clinical record and the ability to request medication refills and appointments as well as to send secure messaging to their provider. Facility schedulers receive messages regarding appointment requests and can then contact patients to schedule appointments.

3.2 Technology Perspective

The challenges and issues described in this subsection were discovered as part of the NVTC Team's review of the extent to which the VA's exam scheduling process is supported by technology from the following perspectives:

- What parts of the process are well supported by technology that the VA has in place, currently?
- What parts of the process are not supported by technology currently and should be?
- What aspects of the currently deployed technology contributes to issues in the scheduling process?

General Observations:

Information technology plays a vital role in VA's ability to provide timely and quality care to our Nation's Veterans. From initial contact, through provision of care at VA's Medical Centers or private sector provider clinics and other partner providers, to records management, and ongoing communication with the Veteran or his/her dependents, information technology systems enable, support, automate and integrate clinical, business and administrative processes to provide the best medical services and care to each Veteran. While information technology alone does not deliver medical services and care to the Veterans, its role is mission

critical: it must maximize and facilitate, not impede at any point, VA's ability to respond to the needs of Veterans under VA's care.

The NVTC team reviewed VA's information technology capabilities and challenges in the context of the scheduling process. The objective of our review was to determine how well the current scheduling process works and what challenges it presents to VA's medical and administrative staff. In the area of technology, our goal was to answer three questions: What parts of the scheduling processes are well supported by VA's current technologies; what parts are not technology enabled and should be; and what currently deployed technologies contribute to challenges and issues with scheduling Veterans' appointments.

Our site visits of the two VA Medical Centers in Virginia and discussions with various Medical Center personnel, including Medical Center leadership teams, primary and specialty care schedulers and their supervisors, care providers, HR, IT and Operations Managers, and other personnel, afforded the NVTC team with an independent perspective on the relative strengths and weaknesses of VA's scheduling practices - across process, technology and human capital management domains. Information technology was an important but not a dominant element in our review.

Findings:

Our review revealed the following findings, from a technology perspective:

a) Scheduling process supported by technology

The scheduling process is generally supported by VA's current scheduling technology but system usability and flexibility limitations create significant issues for system users.

The majority of the Richmond and Hampton VA Medical Center personnel interviewed by the NVTC team expressed an acceptable level of satisfaction with the scheduling system functionality and performance. While the interviewed VA personnel identified several improvement opportunities which, if adopted, would address some inefficiencies and frustrations experienced by VA staff using the system, the scheduling system generally supports the process of managing patient appointments for primary and specialty care. However, the current technology has significant limitations and as such has required manual workarounds and generated operational inefficiencies.

The interviewed VAMC scheduling staff did not identify scheduling technology as the biggest obstacle to their ability to deliver care to patients. The NVTC team was told by schedulers and their supervisors (who are the primary users of the VA scheduling system) that the system is relatively easy to learn and use and allows them to perform general scheduling functions and because it operates as a roll-and-scroll system where they just add data as they move down the screen, and usually does not cause significant delays or complications in their daily work unless they are trying to fit differing appointment lengths or view different appointment dates. This was true both for schedulers and supervisors working at the actual VAMC patient reception desks and for those working in the call centers supporting some VA clinics. In the Team's opinion, the ease of learning and using the system is more of a reflection of the personnel's creativity and ability to implement workarounds than a true reflection of the system capabilities. The difficulty in using the system has been identified in previous scheduling system reviews[13].

The core of the VA scheduling system is comprised of 26 packages, or modules, of the Veterans Health Information Systems and Technology Architecture (VistA) enterprise-wide information system. VistA was developed in the 1980's using the MUMPS Caché technology – an integrated platform of programming language and database management system (DBMS). VistA was originally designed and implemented in a highly distributed fashion, that is, individual VistA modules were designed and implemented to meet the clinical needs of individual VAMCs. Over time, VistA development and configuration efforts, and the resulting VistA version releases, have been standardized and centralized at the national level with local VAMCs providing system hosting and IT staff for basic maintenance and user support only.

VistA currently encompasses approximately 160 modules supporting VA's clinical functions, financial/administrative functions, infrastructure functions and patient web portal functions. While VistA provides a relatively stable backend environment characterized by highly efficient transactional

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[13] From the "vendor library," available on the Federal Business Opportunities (FedBizOps, to support VA's solicitation to procure a new medical appointment scheduling solution:
https://www.fbo.gov/index?s=opportunity&mode=form&id=6672c05c6f046cf98d178d8981884d94&tab=core&tab mode=list&

processing, portability, scalability and cost effective administration, its terminal "scroll-and-roll" user interface (UI) lacks many of the capabilities found in more modern applications. In an effort to address this limitation, VA deployed the Computerized Patient Record System (CPRS) in 1997. CPRS provides a more user-friendly graphical user interface (GUI) to several VistA modules and significantly improves the user experience (UX) compared to the VistA interface. For patient scheduling purposes, CPRS is used by scheduling clerks at the primary and specialty care clinics as well as customer representatives at VA's call centers, who use a CPRS call center template customized for call center functions.

Through the core VistA/CPRS scheduling system, the scheduling process is moderately automated. The scheduling system allows VAMC's scheduling personnel to perform the following actions:

- Make and manage appointments for Primary Care (new patients) and for Specialty Care;

- Make and manage appointment for follow-up visits; and

- Reschedule appointments - by clinic request, due to no show or by patient request.

During our interviews, VA personnel at all levels – from the VAMC leadership team to individual schedulers – indicated that the scheduling system, while dated, cumbersome and lacking agility, fundamentally does what it's designed to do; it allows the scheduling clerk at the clinic or call center to schedule, upon patient eligibility confirmation, an initial or follow up appointment. The system allows the scheduler to view providers' availability, based on predetermined daily grids programmed and maintained in the system, and schedule an appointment based on the Veteran's preference and provider's availability. The scheduling system also helps facilitate the patient's registration and check in at the clinic. After the patient's visit is completed and providers' notes and orders are entered into CPRS, the scheduling clerk can schedule a follow up appointment or request a consult at a specialty clinic. The clerk can also generate recall reminders and letters for follow up appointments. The system generates standard reports such as Encounter, In Patient, and Consult reports which are used for patient follow up activities, for tracking and resolution of various backlogs and wait lists, and for scheduling audits.

In addition to the core VistA/CPRS scheduling system, VA personnel reported the use of ancillary systems in support of various aspects of the scheduling process. A growing number of Veterans are using My HeraltheVet and Secure Messaging for appointment requests and other communication with VAMC personnel. Even though My HeraltheVet is not integrated with VistA, VAMC scheduling staff reported improved efficiencies in scheduling and communicating with Veterans as the result of the expanding use of My HeraltheVet and Secure Messaging as they reduce the need for other, non-electronic contact such as phone calls and regular mail.

Internally, VAMC staff has found an efficient way to communicate about patient appointment status via MS Lync – an instant messaging desktop application. MS Lync allows scheduling clerks, nurses, doctors and other VAMC staff to share real-time information about patients' status on the day of their appointment, such as their arrival at the clinic, without having to leave their desk or use other means of communication, such as a telephone. However, Lync is not integrated with VistA or CPRS.

VistA provides a set of relatively robust transactional capabilities and highly efficient processing power and as such is not the primary impediment to access to care. In combination with other systems, some of which are exposed to the Veteran and some of which are internal to the VAMC staff, the scheduling process is generally supported by VA's deployed technology. However, the NVTC team identified several technology limitations and issues which negatively impact VAMC personnel's productivity and morale.

b) *Scheduling process not supported by technology*

Several components of the current scheduling process would benefit from expanded technology capabilities.

While the current collection of systems deployed by VA in support of the scheduling process provides basic services to scheduling staff, the NVTC uncovered several significant opportunities for improvement. The VAMC personnel interviewed by the NVTC team reported several gaps where technology limitations result in manual workarounds, inefficiencies or staff frustrations.

- *Manual workarounds exist between scheduling clerks, nurses and doctors*

Some VAMC staff reported that local manual workarounds have been implemented to facilitate some of their interactions with nurses and doctors at their particular clinic. In one example shared with the NVTC team, scheduling clerks print out appointment or consult information out of VistA and place the printout in a folder. If the patient checks in using a kiosk, the printout is sent to the printer where the clerk retrieves it before placing it in the folder. Some scheduling clerks also print out a list of all patients scheduled for that particular day and hang it on the wall (Refer to Figure 3-2).

Figure 3-1. Patient Check-in List

When the patient checks in, the clerk initials next to the patient's name and a nurse or a provider cross the patient's name off when they take the patient in. Some nurses and providers utilize Vetlink for patient check in but this capability seems to be limited by system latency (e.g. it takes a long time to log into the system), bandwidth limitations (slow system performance) and a lack of system access from portable devices such as laptops or tablets.

In another example, providers do not always enter their orders and notes into CPRS immediately after seeing a patient. Providers' orders must be entered into CPRS before a follow up or a specialty consult can be scheduled in the scheduling system. Some providers do not

always enter their notes and orders directly into the system and instead write them down on a piece of paper and hand them to their clerks for data entry. The scheduling clerks in turn must interpret the doctor's orders, enter them into CPRS and work with the patient to schedule the follow up appointment. While some VAMC staff indicated that some of these practices are a result of providers' full, often overbooked schedules and the providers' desire to see patients instead of entering data into CPRS, system latency, bandwidth limitations, and a lack of mobile access appear to play a significant role here as well.

Yet in another example of a manual workaround, some specialty consult requests are sent to the specialty clinic's printer instead of an electronic notification. Once sent to the clinic's printer, the printouts have to be retrieved and processed by the specialty clinic clerk. This appears to be the only notification of a consult request; no system generated notification is sent to the specialty clinic clerk. A better system integration and improved CPRS functionality could help address this manual process.

- *Lack of system integration between VA and non-VA systems is limiting transparent care*

  Community Based Outpatient Clinics (CBOC) and other private sector providers make up a significant portion of VA's capacity to provide care to Veterans. These private sector providers use their own systems to schedule appointments and manage their patients' information. These non-VA systems are not readily integrated with VA's systems. Exceptions exists, such as Health Net's iDocs workflow management system (under contract with the Hampton VAMC) which scans patient documentation and makes it available to authorized VA personnel but in general, the process integration between the VAMCs and private sector providers relies heavily on telephone and fax communication and manual data entry. This creates challenges for VA scheduling clerks and other VA personnel in terms of additional workload and timely, accurate and complete access to patient information and the resulting lack of system-based visibility into the status of the Veteran's care.

- *Scheduling system lacks analytical capability to expedite and improve compliance audits*

  All supervisors of scheduling clerks are required to perform periodic audits of scheduling practices demonstrated by their direct reports and their compliance with prescribed policies, guidelines and rules. Based on several interviews with scheduling supervisors, the current process to perform the scheduling audits is highly manual, requiring the auditor to rely on cumbersome review of individual data elements in the system or hard copy reports. No analytical capability with built-in logic and business rules exists to assist the auditors to improve the efficiency and accuracy of these audits. Further, given its manual nature, the audit requirement represents an additional significant workload for each supervisor. Improving the system auditing utility by providing analytical capabilities to auditors could make a significant positive impact on the timeliness and accuracy of scheduling audits and dramatically increase the capacity to perform compliance audits.

c) *Challenges and issues created by currently deployed technology*

Current scheduling technology's ability to respond to, and meet changing user requirements is limited.

While the scheduling process is generally enabled by VA's information technology, significant opportunities exist in the areas of system integration, system usability and flexibility, and IT infrastructure.

- *Scheduling system's usability and flexibility limitations negatively impact schedulers' productivity*

  During our site visits, scheduling system users reported significant challenges with VistA/CPRS usability and flexibility. While CPRS provides a more modern GUI for VistA, many scheduling actions cannot be done in CPRS, requiring scheduling clerks to use the VistA "scroll-and-roll" user interface. This interface can be cumbersome and inefficient for users. For example, scheduling clerks reported the need to view scheduling grids for multiple providers to determine the next available appointment for a patient. However, VistA does not provide a consolidated view of multiple grids. As a result, schedulers have to launch each individual grid, assess provider's availability, and if no

open appointment slot is found, close the grid before launching another one. This process is time consuming, inefficient and frustrating for schedulers. Further, VistA allows schedulers to view providers' schedule grids only for each individual day. A more global view across multiple days is not available, further compounding scheduling inefficiencies created by the system. Finally, the scheduling grids created in the system do not cover extended hours (e.g. 12 hours per day). As a result, there are separate grids for morning, afternoon, and Saturday clinics in the system, creating multiple grids for each provider that require the scheduler to move screens several times.

- *The inability of users to customize View Alerts negatively impacts providers' productivity and morale*

  The VAMC personnel interviewed by the NVTC team uniformly reported their negative experience with View Alerts. View Alerts are notifications sent out to doctors every time a patient record is updated. In addition, many View Alerts are "pushed out" by VACO at the national level. Some View Alerts are informational only and some require action by the recipient. However, all View Alerts have to be processed by the user in the system, otherwise they will continue to appear for the user every time he or she encounters a menu prompt in the system. Some providers receive more than 200 alerts each day and they must go through every one of them to clear them in the system. The inability of providers to customize or filter View Alerts results in frustration and alert fatigue. Some VAMC personnel tied the high provider turnover experienced by VA directly to the number of View Alerts and the associated administrative burden.

- *Current IT infrastructure limits VAMC's capacity to provide care*

  In addition to inefficiencies related to scheduling software, VAMC personnel are experiencing capacity limitations related to IT infrastructure. Interviewed personnel reported consistent performance problems with remote VPN connectivity, compelling them to complete administrative work on site instead of a more convenient remote location.

While capacity constraints related to the number of providers and facility space at the VAMC were reported as a much bigger impediment to provision of care, addressing IT infrastructure limitations could result in improved efficiencies and increased numbers of patients seen by providers. Nurses and doctors currently cannot connect their laptops or tablets via a wireless network, making the use of multiple rooms for patient appointments per provider difficult. Significant delays associated with user logins at multiple desktop computers makes it impractical and inefficient for doctors and nurses to use them during patient appointments.

Finally, interviewed staff also reported the lack of some basic hardware equipment. In order to perform their jobs effectively, scheduling clerks need to run several applications simultaneously on their desktop computers. However, not all schedulers have dual computer monitors available to them. In the absence of dual monitors, schedulers have to toggle back and forth between various applications, which slows them down and creates opportunities for errors.

Most scheduling clerks, particularly those working at call centers, require functioning headphones to free up their hands when scheduling appointments for Veterans by telephone. Interviewed staff reported that not all clerks have access to headphones and even when headphones are available, timely replacement of broken headphones continues to be a problem.

3.3 People Perspective

The challenges and issues described in this subsection were discovered as part of the NVTC Team's review of the people supporting the VA's end-to-end scheduling processes, particularly with respect to processes applicable to the hiring, training, and managing of scheduling employees, and the people they interact with, to identify gaps, issues, and improvement opportunities.

VA Medical Centers are responsible for hiring, training and retaining staff involved in appointment scheduling. There are several Medical Center organizational locations where Veterans can make appointments and schedulers receive appointment calls. The following describes the different ways Veterans make appointments by interacting with scheduler staff.

a) *Appointments Scheduled by Different Organizations*

As addressed in the General Process section above, a Veteran has six options to schedule an appointment. They may contact: Primary or specialty care clinics, a call center, an private sector provider, Telehealth, or My HealtheVet. A short description of each appointment method is provided in context of the schedulers' workload and the varying types of positions they occupy.

- ### *Primary and Specialty Care Clinics*

   In primary and specialty care clinics, appointments are made by schedulers (Medical Support Assistant) within those clinics. In the primary care clinic, patients sign-up for new appointments or walk into the primary care clinic for appointments. Primary care schedulers have to distinguish between new or follow-on appointments due to the differing appoint time lengths. In specialty care clinics, schedulers receive consults in the CPRS system and in some cases on paper to set up the next appointment. In specialty care and for follow-on primary care appointments, the scheduler may make an appointment in two ways. The scheduler may contact the patient by phone to make an appointment. Alternatively the scheduler makes the appointment before the patient leaves the clinic if the Healthcare provider puts the request in the CPRS system before the patient departs. A patient also receives an appointment reminder letter generated by the scheduler. Some clinics also make "warm calls" to remind the patient. Should a patient miss the appointment, the scheduler calls them to determine the reason and reschedules if possible. If the scheduler cannot contact the patient, a letter is sent to the last known address. Should that not generate a call from the patient, the scheduler contacts the next of kin to try and locate the patient.

- ### *Call Centers*

   Call centers do not have a standard structure and support. Generally, the call center schedulers (Medical Support Assistant) call patients and schedule appointments or receive calls from patients trying to schedule an appointment. In some VAMCs, the call centers are co-locating schedulers from primary and specialty care. In other VAMCs, schedulers receiving calls are still located in the clinics where they receive calls and manage in person appointments at the reception desk. Call center schedulers either reach out to patients or receive calls to schedule

appointments. The appointment scheduling process is similar to that within the clinics.

- *Private Sector Provider*

  There are schedulers (Claims Clerks) who help obtain appointments outside of the VAMC. Private sector providers within the local community are used to expand a Center's capability and capacity by providing specialized services and absorbing patient loads.

  There are private sector providers who bill the VA and work independently and in recent months, the Health Net contract has been used to support private sector providers. When the scheduler receives information, either through a patient's phone call or through a CPRS consult, the scheduler either connects the patient with the private sector provider or faxes information to Health Net. Health Net then contacts and schedules the appointment for the patient. Once the appointment is booked, the scheduler inputs the appointment in VistA for tracking. After the patient has the appointment with the Health Net provider, Health Net is responsible for scanning documents (lab results, scans, appointment notes) into the system for VA retrieval. The scheduler then takes documents from the Health Net system and loads them into CPRS. Some VAMCs do not have enough private sector providers to cover all needed appointments.

- *Telehealth*

  There are schedulers (Clinical Technicians) who help set up Telehealth appointments and provide support to Telehealth services. Services include home health monitoring with VA provided equipment and videoconferencing where the Healthcare provider is located in a different location than the patient.

- *My HealtheVet*

  Veterans can request an appointment through the secure messaging function of My HealtheVet website. Information on the Veteran desiring an appointment is provided to a scheduler who calls the Veteran and sets up the appointment.

The NVTC team found that scheduling is performed in multiple VAMC organizations by employees with varying occupational series and grade levels.

There is no standard structure established for where scheduling assignments occur and the grade levels of the personnel performing the work. The following section establishes the broader scheduling personnel context

b) Grade Level and Occupational Series Differences

In the primary and specialty care clinics, scheduler positions are classified as Medical Support Assistant at the GS-5 level; however, a headquarters VA Human Resources Management Letter No. 05-14-07 was released on September 16, 2014, allowing for the noncompetitive increase to the GS-6 level.

In the call center, the scheduler positions are classified as Medical Support Assistant at the GS-5 level. Outside Healthcare provider scheduler positions are classified as Claims Assistant at the GS-5 level. The Telehealth schedulers are Clinical Technicians at the GS-7 level. The positions with a base of GS-5 have leads at the GS-7 level and supervisors at the GS-8 level.

The prior sections established the background on how scheduling is performed and the grade levels, occupational series and scheduling employee location. The subsequent sections describe scheduler recruitment and hiring, training and development, retention, and management

c) Recruitment and Hiring

Recruitment methods vary by VAMC location. The NVTC team was told that there is no problem finding candidates for open positions. The length of time scheduler vacancy announcements are open is set at different rates by each VAMC, it can vary from a few days to two weeks. Some VAMCs recruit the Medical Support Assistant GS-5 at only the full performance level. Others recruit at the GS-3/4/5 levels with the full performance level being achieved based on time in grade. In discussions on how employees are promoted, the NVTC team found that for 30% disabled Veterans who are new employees, they are promoted as soon as qualified.

VAMCs encounter several recruitment and hiring challenges impacting their ability to fill vacancies and provide full Veteran services.

- ### Long Vacancy Durations

At some VAMCs, scheduler positions are not filled when a position become vacant. This creates a vacancy backlog that tends to go unfilled for extended periods.

A best practice was identified where the VAMC supervisor selects more candidates than there are vacancies and request extension of the referral certificate for 90 days. This allows the supervisor to make selections over a longer period of time rather than having to re-advertise during that 90-day period.

- *High Scheduler and Healthcare Provider Turnover Rates*

  There is a significant scheduler turnover. This impacts a clinic's effectiveness and increases staff stress. Schedulers leave their positions to pursue higher graded positions. Turnover can occur within the first year of an appointment. Additionally, the high Healthcare provider turnover impacts the operation of clinics and greatly impacts the ability of a VAMC to provide service to Veterans.

- *Reviews Cause Delays in Filling Positions*

  Not all VAMCs have a standard approval process for filling vacancies. Some requests are routed through budget offices and some do not need that approval. Delays in filling scheduler positions occur when there are prolonged reviews by various offices before a position can be filled. VA has implemented an electronic approval process for filling vacancies that has changed but not removed these delays.

d) Training and Development

Scheduler training and development is key to their ability to independently perform their jobs. Training is provided in multiple ways. Most schedulers indicated that they learned best by observing the way the work should be performed.

- *Dedicated Training Program*

  Training and development varies by VAMC. The NVTC team was told that the Training Management System (TMS) contains 3 modules to help schedulers understand how to use the VistA and CPRS systems. The schedulers are provided the training during orientation. Some VAMCs require new employees to complete the TMS training before they can

join the schedulers at work. In some orientation classes, a few hours are dedicated to provide scheduling systems training. On-the-job training is the predominant training mechanism.

- *Scheduling System Aids and Standard Scheduling Procedures*

  On-the-job training comprises sitting side-by-side with either a senior scheduler or a lead and watching them perform the work and then performing the work with the senior employee watching them. The amount of time spent on this development method depends on how fast the new employee absorbs the information. One VAMC indicated they use structured training methods using standard operating procedures (SOPs) and job aids. Others do not. When there is no structured training, new employees memorize information and rely on their note taking capability.

  Schedulers in the primary care and specialty care clinics must learn how to use VistA and CPRS. Outside Healthcare provider schedulers must also learn the Health Net website and FVCS (linked to CPRS) to create the authorization to use an outside Healthcare provider. Telehealth schedulers must also learn the systems to support video conferencing and home health monitoring. Beyond learning various systems, new employees must also learn about the clinic they are working in and how to work with and communicate with the healthcare providers they support. Schedulers are considered proficient after 3 months on the job.

- *Knowledge Management*

  There is no mechanism for sharing scheduler tips and best practices for using the systems or to improve scheduling activities. Seasoned schedulers share their insight and lessons learned by word-of-mouth.

e) <u>Retention</u>

Significant time and effort is expended recruiting and training schedulers. Retaining staff is critical to ensuring Veterans receive good service.

- *Retention Plans*

  Schedulers are considered entry-level positions at the VAMCs. Tenure for GS-5 Level schedulers is typically no longer than one-year. Most schedulers begin looking for new positions soon after being hired.

Through informal information networks, they learn where GS-6 administrative positions are located and apply as soon as they are eligible. There are no scheduler retention plans.

- *Phones on Schedulers' Desks*

    When schedulers who work in reception areas have phones on their desks, they must be able to help both patients on the phones and at the reception desk. This double duty delays support for one or both parties. There is no standard practice for placing or removing phones from clinic areas. Each VAMC determines phone placement.

- *Scheduler Career Path*

    Schedulers have no career path. The positions are seen as "dead-end" entry-level positions and schedulers look to move on almost as soon as they begin their job. Schedulers become familiar with the grade levels and position choices independently. When no formal alternative is presented to them, they change positions when eligible. One VAMC indicated that they had an informal succession plan.

- *Schedulers, Healthcare Providers and Nurses Act as a Team*

    In primary and specialty care clinics work is performed independently without an overall understanding of what task each team member performs. Schedulers are not always included as team members and feel others consider them as simply receptionists. They want to be considered critical team members. Some VAMCs are working to form teams within clinics and at least work with schedulers to become a team among themselves.

f) **Management**

Managing the schedulers and their organizations is important to addressing VAMC scheduler challenges.

- *Staff Levels*

    The VAMCs have worked hard over the last few months to fill scheduler vacancies. However, even fully staffed the scheduler workload demand exceeds supply. Every manager interviewed indicated the need to increase scheduler staff levels. Stress on the job was a key reason many schedulers leave their positions. This stress is exacerbated by staff

vacancies.

- *Standard Organization Structure*

  The schedulers for primary and specialty care do not reside in the same organization at all VAMCs. Some reside in Health Administration Service (HAS) and others reside in Nursing Service, or other organizations. As a result they receive different direction and support.

- *Consistent CPRS Use*

  In practice, there is no standardized method for providing instructions to schedulers. There might be a procedure that stipulates how instructions and consults should be provided between healthcare provider and scheduler. However, not all healthcare providers use the CPRS system for writing consults or providing instructions to schedulers. Some healthcare providers use paper scraps and *Post-it* notes. This increases information loss and mistakes.

- *Single Computer Monitor on Scheduler Desks*

  There is no standard for outfitting schedulers with equipment to perform their jobs. In some VAMCs schedulers have one computer monitor to work the CPRS and VistA systems. They must toggle between the two which slows productivity. In other VAMCs two monitors are used. Limited desk space and inability to acquire additional computer equipment were cited as reasons for not having multiple monitors.

3.4 Performance Perspective

The challenges and issues described in this subsection were discovered as part of the NVTC Team's review of the performance measures being applied to determine the effectiveness of the VA's end-to-end scheduling processes. The NVTC Team also conducted some industry/best practice research analysis, particularly around scheduling and wait time performance measures that may be applicable to future VA benchmarking and the implementation of improvement recommendations.

General Observations

Measuring the timeliness of care may seem straightforward. One would simply measure the interval between a request for care (whether by the patient or the physician) and the receipt of that care. One would note, in an automated fashion,

the request date and the care receipt date, and simple calculations would inform whether the interval fell outside a desired range. Time intervals beyond the defined range would indicate an inappropriately long wait. However, a variety of factors may make such seemingly simple assessments more challenging. For instance, a number of tests may be required before the appointment, or the provider may suggest a timeframe for an appointment during which the patient is on vacation. The patient may initially accept an appointment, but then cancel or reschedule. Unless specially-designed measurement software is used to capture all these parameters, conducting such measurement on a large scale quickly becomes cumbersome, costly, and fraught with imprecision[14].

NVTC Team Observations:

Despite the difficulty of measuring actual wait times, VA has made a significant effort to confront these challenges, and has used patient wait time data to manage the timeliness of outpatient care and report on system-wide performance. VA has attempted to do this with scheduling software that was neither intended nor designed to be used as a measurement tool. Adapting the current, legacy scheduling software for the purpose of measuring, managing, and reporting on wait times requires significant "workarounds" that are labor intensive and costly.

VA and stakeholders that observe and monitor the performance of VA should recognize the limits of attempting to use actual patient wait times as indicators of system-wide performance. A number of inherent factors contribute to the inaccuracy of these measures. These limitations are exacerbated by the current scheduling software and the cumbersome human processes associated with it. Accordingly, these measurements should be presented as trend data and used to assess ranges of performance over time, rather than as absolute true value estimates of performance at given points in time. The breadth of such ranges are currently uncertain, but may be ascertained through audits and surveys that are more generalizable. Given the limitations of the current wait time measures they are more appropriate for use as management and improvement tools than indicators by which to judge system-wide performance.

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[14] Patient Scheduling and Waiting Times Measurement Improvement Study, July 2008; From the "vendor library," available on the Federal Business Opportunities (FedBizOps, to support VA's solicitation to procure a new medical appointment scheduling solution

3.5 Summary of Exam Scheduling Challenges and Issues

As indicated earlier in this Report, the NVTC Team's review of the VA's medical exam scheduling challenges and issues included the following actions:

- Interviewing staff with direct knowledge of patient scheduling practices and policies, including scheduling clerks, supervisors, patient care providers, and management staff
- Collecting and analyzing related documents provided by the VA
- Reviewing other documents and reports relevant to exam scheduling, available in the public domain

The Team's reviews at two VA medical facilities have provided meaningful insight into the current extent of the scheduling issues covered in this Report.

The Team's Section 3 findings, when initially reviewed, suggested that many of the medical exam scheduling challenges and issues are not unique to a particular perspective – i.e., process, technology, people, or performance – on VA's scheduling operations. Indeed, many of the scheduling issues appear to be cross-cutting, in that a given process-related challenge (for example) may be further compounded by people and technology issues – and perhaps also complicated by the manner in which certain performance measures are being applied in the VA today.

The Team proceeded to analyze the issues captured in this section of its Report with the aim of clarifying many of the cross-cutting in Section 4.

4 Key Issues and Recommendations

In this section of its Report, the NVTC Team reviews key issues – around which recommendations are made – based on its more refined analyses of the exam scheduling-related people, process, technology, and performance challenges and issues, captured in Section 3 of this Report.

4.1 Process Related Issues and Recommendations

Based on a deeper understanding of the exam challenges identified in Section 3.1 (above), the NVTC team identified the following recommendations to address opportunities to improve scheduling processes.

a) *Appointment Scheduling*

- *Issue: Scheduling New Patient Appointments*

  The need to identify two back-to-back 30-minute slots in order to accommodate a time slot for a new patient is cumbersome and time consuming for the scheduler and can contribute to delays in the scheduling the patient.

  Recommendation: Assure that the scheduling grid includes 60-minute time slots for new patients.

- *Issue: Patient Appointment without Consultation*

  The practice of arbitrarily scheduling a patient appointment without any communication with the patient leads to no shows and rework. Patient appointments should be scheduled in direct communication with the Veteran if at all possible.

  Recommendation: Discontinue the process of sending the patient an appointment by letter without directly talking with the patient

- *Issue: Schedule Patient Appointment After Healthcare Practitioner Visit*

  It is most effective to schedule the patient for a return visit at the point of time that the patient checks out from the clinic. Using paper notes instead of an order that has been entered into CPRS can lead to errors.

  Recommendation: Require that the physician order for the return visit or

consult is entered into CPRS prior to patient check out.

b) Appointment Metrics

- ### Issue: Date as Performance Metric

The concept of desired date is ambiguous and difficult to utilize in practice. In order for the metrics to have meaning, alternative measures should be investigated and the "date created" for the appointment should be one measure that can allow better comparisons across sites.

Recommendation: Discontinue the use of "desired date" as the metric to measure the length of time it takes for the patient to be seen and utilize "date created" instead.

c) Increase Patient Capacity

- ### Issue: Additional Exam Rooms

The underlying issue in seeing patients in a timely manner is the need for more healthcare providers to deliver the care. However, while VHA is in the ongoing process of recruiting physicians, VHA can increase healthcare provider productivity by providing two exam rooms for their use to eliminate time lost in getting patients in and out of rooms. This also requires mobile technology to eliminate lengthy computer sign-ons.

Recommendation: Develop plans to increase exam rooms so that healthcare providers have two exam rooms in operation.

d) Communications

- ### Issue: Increase Communications

Communication is critical to assuring patient care is coordinated across both the inpatient and outpatient arenas. However, the NVTC team did not find a standard approach to internal clinic and cross clinic communications which can lead to delays and miscommunications. .

Recommendation: Communication across schedulers and healthcare providers within and across clinics and facilities should be facilitated using electronic capabilities.

4.2 Technology Related Issues and Recommendations

Based on a greater appreciation of the exam challenges identified in Section 3.2 (above), the NVTC team developed the following recommendations to address the identified technology challenges and limitations.

a) *System Usability, Flexibility and User Enhancements*
- *Issue: User Preferences*

  While it's important to preserve the integrity of the VistA system architecture and limit the number of deployed instances and customizations, more focus should be placed on the ability of each user to better control what information is available to them and when and how it's presented. The user should have the ability to match user preferences in the system to the demands and requirements of their job.

  Recommendation: Improve system agility, usability and flexibility for individual users by dramatically enhancing the system's user interface/user experience capabilities.

- *Issue: User Feedback*

  Patient-facing VistA users are best equipped to develop meaningful requirements for system enhancement. They should be actively encouraged to participate in requirements gathering sessions and provide user feedback on how well the system meets their needs.

  Recommendation: Include local users in the development of requirements for the scheduling system modernization and enhancement

b) *System and Data Integration*
- *Issue: Manual Processes and Workarounds*

  The lack of system integration and data flow between VA and non-VA systems drives the need for several manual processes and workarounds which result in inefficiencies, delays, and additional workload for VA personnel. Building an integrated environment in which data is securely and efficiently shared between applications will result in significant productivity and capacity gains.

  Recommendation: Eliminate or reduce manual processes by integrating VA and non-VA information systems.

- *Issue: Analytical Capabilities*

  The current system lacks any meaningful analytical capabilities. VistA generates a set of standard reports which are typically printed out in a hard copy by scheduling staff and used as logs to work through manually. By enhancing analytical and reporting capabilities of the scheduling system, the scheduling process will gain operational efficiencies, schedulers' productivity will improve and managers will gain analytical insight into patient scheduling status and the associated schedulers' workloads. The ability to perform scheduling audits more quickly and accurately will also be significantly improved.

  Recommendation: Develop and implement analytical capabilities to enhance user productivity and management reporting.

c) *IT Infrastructure and Support*
   - *Issue: Computer Monitors and Headsets*

     VAMC personnel depends on several fundamental tools to perform their jobs well. Basic equipment such as headphones for call center schedulers and dual computer monitors for all schedulers should be readily available. In terms of IT infrastructure, VA's modernization efforts such as the wireless network and tablet pilots, are expected to have an immediate, positive impact on personnel productivity and should be fully implemented as soon as possible. Bandwidth issues should be resolved by increasing capacity and optimizing system performance.

     Recommendation: Make rapid progress with IT infrastructure modernization.

   - *Issue: Retention of Skilled IT Personnel*

     Due to the age of VistA and the underlying MUMPS platform, the lack of skilled IT personnel at VAMCs is becoming a critical issue. Skilled local resources are essential for ongoing modernization and enhancement of the system.

     Recommendation: Retain and build up local IT talent.

4.3 People Related Issues and Recommendations

Based on a deeper-dive review of the exam challenges identified in Section 3.3 (above), the NVTC Team provides the following recommendations for recruiting and hiring, training and development, and retention and management of personnel related to the scheduling process.

a) *Recruitment and Hiring*

- *Issue: Long Vacancy Durations*

  Vacancies constrain each VAMC's ability to provide prompt and efficient support. Addressing this challenge will significantly improve Veteran service.

  o *Recommendation 1: Review recruitment patterns and implement a plan to periodically (quarterly or semi-annually) announce scheduler positions so there is a relatively constant applicant pool.*
  o *Recommendation 2: Determine if one VAMC best practice works for other VAMCs. Consider making more selections than the VAMC has current vacancies from one referral certificate. Request a 90-day certificate extension. By doing this, over the period of next 90 days, they can continue to make selections for vacant positions.*

- *Issue: High Scheduler Turnover Rates*

  High turnover rates also impede efficiency and effectiveness as resources are diverted to recruiting and training. In reducing turnover greater consistency, stability, and Veteran service will result.

  o *Recommendation 1: Review scheduler quit rates and consider recruiting at 110% to ensure that the positions are 100% filled. VA can delay the entrance on duty date for some candidates. For example, five candidates can be hired, four brought onboard next week and the fifth delayed by two months when a vacancy is expected. This will reduce the stress on the remaining schedulers when there are so many vacant positions.*
  o *Recommendation 2: With the schedule grade level increasing to a GS-6, recruit vacant positions at the GS-5 level to provide for at least 2 years in a position before the schedulers look for new jobs. Since there are a limited number of GS-7 level positions, the schedulers may*

stay even longer in the position than has historically been true when the positions were at the GS-5 level.

- *Issue: Reviews Cause Delays in Filling Positions*

When filling a vacancy, timely approvals are essential to reducing time-to-hire. When a position is known to be mission critical and the vacancy occurs with the loss of an employee, establish automatic recruitment procedures to avoid repeated approval delays.

Recommendation: Review the process for filling scheduler vacancies and if possible remove requirements for approving all back-fill actions. Address this for schedulers of all occupational series and grades.

b) *Training and Development*

- *Issue: Dedicated Training Program*

Having the right training tools improves training effectiveness. New employees learn their responsibilities and operate independently more quickly when they have a complete training program.

- o *Recommendation 1: Develop a complete training program for each group of schedulers and implement throughout VA. Apply VA best practices.*
- o *Recommendation 2: Determine if one VAMC best practice works for them. One VAMC has developed a local training program that involves a combination of a video, the three TMS training modules, and two weeks of training with their leads. Reviewing the VAMC's training materials can provide an example for other VAMC.*

- *Issue: Scheduling System Aids and Undocumented Scheduling Procedures*

Standard Operating Procedures (SOP) and job aids are important documents to have in a process rich environment. Schedulers must master two different systems. With readily available SOPs and job aids, new employees can refer to the same processes to accomplish tasks.

- o *Recommendation 1: Develop Standard Operating Procedures (SOP), job aids and shortcuts for schedulers. This will reduce shadowing time. This should also reduce the errors made due to lack of understanding of codes, practices and short cuts.*

o *Recommendation 2: Where SOP best practices, job aids or other documents exist, they should be made available to other VAMCs. This will kick-start the SOP development process.*

- *Issue: Knowledge Management*

Sharing information is critically important for supervisors and managers experiencing similar challenges. Capturing and sharing lessons learned and best practices will reduce frustration and increase productivity.

o *Recommendation 1: Provide a method of sharing lessons learned and best practices. An approach similar to the Department of Health and Human Services' (HHS) intranet discussion site would be helpful. When system users find an issue or develop shortcuts and solutions this information can be posted to increase individual and clinic efficiency.*

o *Recommendation 2: Develop a mechanism for HAS supervisors (or supervisors who have schedulers within their organization) to communicate and share best practices privately between themselves.*

c) *Retention*

- *Issue: Retention Plans*

Staff retention reduces scheduler and supervisor stress and matures practices.

Recommendation: Assess retention issues and develop scheduler retention plans. The assessment should include all organizations where scheduling occurs.

- *Issue: Phones on Schedulers' Desks*

At some VAMCs schedulers working at a patient reception desk must also answer phones and make appointments. This results in both parties receiving less attention while increasing the scheduler's stress level. Other VAMCs route all appointment calls to the call center.

Recommendation: Assess, VA-wide, if appointment calls should be routed through a call center. Determine who should make calls to patients who have missed their appointments.

- *Issue: Schedulers, Healthcare Providers and Nurses Act as a Team*

Disconnects and mistakes impacting a Veteran's care increase when a team environment with mutually understood roles is not established. This is particularly important between nurses and schedulers.

Recommendation: Assess if this is a VA-wide issue. If so create team-building exercises that are available for VAMCs' use. Incorporate into training and SOP's.

- *Issue: Scheduler Career Path*

Providing career paths allows organizations to help guide employees to stay within the organization and continue to add value.

Recommendation: Provide scheduler career path information so that new employees know where they may pursue additional career opportunities. This career path information will be different for each hospital, and so the career path information should be developed locally.

d) Management

- *Issue: Staff Levels*

Maintaining scheduler staffing levels to meet workload demand is essential to providing Veterans access to VA services, increasing organizational efficiency, and reducing scheduler and healthcare provider stress levels.

Recommendation: Annually review the number of schedulers needed for clinics and what additional resources should be allocated to increase staff levels to meet workloads.

- *Issue: Standard Organization Structure*

Standard organizational structures are important when establishing and SOPs. This increases VAMC and clinic efficiency.

Recommendation: Across all VAMCs determine if schedulers should be placed within the same organization, be it HAS, Nursing Services, or other another entity.

- *Issue: CPRS Use*

Following policy to use CPRS to provide healthcare providers' instructions to schedulers keeps information available to all parties

accessing the system and ensure that patients receive the exact attention as requested by the healthcare provider.

Recommendation: Implement and enforce a process change requiring healthcare providers to use CPRS to write consults and provide instructions. Emphasize that informal tools such as paper scraps and Post-it notes are unacceptable.

- *Issue: Single Computer Monitor on Schedulers' Desks*

    Having the correct computer equipment for a scheduler to do their work is important to increasing productivity and decreasing stress and frustration.

    Recommendation: Assess with schedulers if one large split screen or two computer monitors is most efficient for using CPRS and VistA. Ensure all schedulers have the right tools to perform their jobs.

4.4 Performance Related Issues and Recommendations

Based on more comprehensive considerations of the VA's medical exam challenges identified in Section 3.4 (above), the NVTC Team derived a number of performance-related recommendations for improvement, which are documented here.

What can be measured can be managed; however, the quality of information can influence the ability to manage well. The current wait time measures are susceptible to multiple sources of inaccuracy, which is exacerbated by the current scheduling software. These measurements often do not appropriately account for Veteran preferences to be seen beyond the 30-day window, and do not, in an automated fashion, appropriately attribute delays to patient cancellations and no shows. Therefore, they do not accurately reflect how long Veterans wait to receive care. These measures provide the basis for calculating the Access List, which estimates the number of Veterans waiting more than 30 days for an appointment. VA is focused on reducing the number of Veterans on the Access List. However, because this list is based on faulty measurements, it is not an accurate representation of the number of Veterans waiting more than 30 days for care.

Given these inaccuracies, it is highly probable that a percentage of patients are inappropriately placed on the Access List, and that as the waiting backlog on the list is reduced, this percentage may increase. This suggests that, when using the current method of measurement, the target for individuals on the current list should not be zero. The appropriate target is uncertain but should be based on evidence drawn from appropriately designed audits and surveys.

The NVTC Team's most significant performance-related recommendations regarding future strategies to measure the timeliness of care, include these:

a) Patient Wait Times

- **Issue: Follow-up Wait Times**

  This measure is completely dependent on the desired date of an appointment, which is excessively ambiguous. Efforts to remedy the structural problems with this measure through improved training, compliance measures, or software are unlikely to be effective and will consume considerable resources.

  Recommendation: VA should discontinue the measurement of follow-up wait times for established patients.

- **Issue: Capturing "Desired Date" of Appointments**

  Rather than focusing on better capturing the desired date, efforts should be focused on more productive measures.

  Recommendation: Conduct targeted surveys of established patients to ascertain actual established patient wait times in cases where other indicators, such as patient satisfaction, suggest that certain facilities are not performing well.

- **Issue: Use of Wait Time Data for New Patients**

  While not as problematic as established patient wait times, these measures are also vulnerable to multiple sources of inaccuracy. This potential for inaccuracy makes these measures poorly suited to judge system-wide performance, but they can be used—in conjunction with other measures—to manage the timeliness of care. Indeed, they are particularly valuable measures when represented and used to monitor trends in performance over time, rather than estimates that purport to provide "true" assessments of performance at given points in time.

Recommendation: Continue to measure new primary care and new specialty/consult wait times, but use this data for management and process improvement rather than to report on and judge system-wide performance.

- ***Issue: Need for Wait Time Referential Data***

Given the inherent inaccuracies of the current wait time measures, VA should periodically conduct nationally representative surveys of Veterans to estimate how long they wait for appointments, with a particular focus on wait times for new patients. These survey approaches may also be used to ascertain the ranges of error around the current automated estimates of wait times.

Recommendation: Use other survey methods more aggressively, to ascertain how long Veterans wait for appointments.

- ***Issue: Veterans' Satisfaction with Timeliness of Care***

Most other provider systems use patient satisfaction with the timeliness of care as the primary measure of "system" performance. VA also uses patient satisfaction data to monitor system performance. However, Veteran satisfaction data has, in public discourse, largely been eclipsed by wait time measures.

Recommendation: Emphasize Veterans' satisfaction with timeliness of care, benchmarked against private sector performance, as the preferred measure by which system-wide performance is judged.

b) ***Improving the Use of Performance Management Data***
- ***Issue: Need to Use Performance Data More Consistently***

There is great variability regarding which reports are reviewed by whom and how often, and how variance is addressed. Role and job descriptions should include specific guidance on who should review which measures and reports, how often they should be reviewed, and how variance should be addressed.

Recommendation 1: VA should develop a more consistent approach to the use of performance management data by standardizing the use of its current and future data and performance reporting methods.

Recommendation 2: A well-defined approach should be established that is integrated with role and job descriptions.

Recommendation 3: Accountability for following established protocols must be better assured.

4.5   Synthesis of NVTC's 39 Total Recommendations

The NVTC Team derived a total of 39 recommendations from its multi-dimensional analyses of the VA's current medical exam scheduling operations. These 39 recommendations – each of which is identified in subsections 4.1 through 4.4 above (depending on whether it is process-, technology-, people-, or performance-related) – are associated with the following 13 groups of key issues:

- Appointment Scheduling (Process)
- Appointment Metrics (Process)
- Patient Capacity (Process)
- Communications (Process)
- System Usability (Technology)
- Systems/Data Integration (Technology)
- IT Infrastructure Support (Technology)
- Recruitment/Hiring (People)
- Training/Development (People)
- Staff Retention (People)
- Staff Management (People)
- Patient Wait Times (Performance)
- Management Data Usage (Performance)

More than half (i.e., 20) of the Team's 39 total recommendations were derived from the four people-related groups of key issues: Recruitment/Hiring, Training/Development, Staff Retention, and Staff Management.

The other 19 recommendations are fairly evenly distributed among the Process, Technology, and Performance dimensions of NVTC's Review:

- Process dimension = six recommendations
- Technology dimension = five recommendations
- Performance Dimension = eight recommendations

The fact that 51.3 percent of the Team's recommendations align with "people" issues should not be misinterpreted by readers of this Report. More to the point, it must not be seen as an adverse reflection on the schedulers, healthcare providers, and other VA staff members currently engaged in scheduling activities at VA's medical facilities, who work quite hard – indeed, much harder than should ever be necessary – in their creative efforts to compensate for all the issues driving the 19 other process-, technology-, and performance-related recommendations made by the NVTC Team.

Furthermore, when it comes to cross-cutting issues discovered as a result of this Review, the evidence suggests that virtually all of the 19 issues driving the process-, technology-, or performance-related recommendations in Section 4 of this Report demonstrably impact, either directly or indirectly, at least one of the people-related issues/recommendations.

Consider – for just one example – the issue identified as "Additional Exam Rooms" under the Patient Capacity group in subsection 4.1 above:

- The NVTC Team found that at least two exam rooms per provider are needed to allow rooming a patient while providing other team members (or providers) co-visiting opportunities. And, larger rooms would more readily permit efficient engagement of multiple team members in real time. Yet, it appears that only one exam room is provided in many situations observed at the medical centers visited by the NVTC Team during the course of this Review. This process-related issue, which resulted in a recommendation that additional exam rooms be provided, has a direct impact on one of the People-related issues identified in subsection 4.3 (above), having to do with schedulers and providers working together as a team (for the benefit of Veterans), It also impacts the productivity of healthcare providers at all VA

medical facilities. Most significantly, a search of related VA documents provided to the NVTC Team revealed that a short supply of exam space is a critical infrastructure challenge for many facilities. Many sites indicate that primary care and specialty providers almost never have two exam rooms during clinic sessions, and site leadership commonly noted that one of the most significant interventions they can make to improve the timeliness of care is to increase available exam space.

A synthesized recommendation that emerges from such a cross-cutting analysis of key issues is:

- **VA should take aggressive steps to use fixed infrastructure more efficiently. Facilities should use projection models to anticipate needs for increased exam space and plan more strategically regarding building and/or leasing additional space**. Facilities should use demand projection models to anticipate changing outpatient demand and should plan to increase space as necessary. Failure to use such approaches results in chronic undersupplies of space and human resources.

Another example of the cross-cutting effect of multidimensional issues is provided by IT, which – when optimally designed and deployed – is a critical enabler of human processes. However, IT that is not well-aligned to scheduling processes (as suggested by the System Usability group of key issues in subsection 4.2 above) causes costly, stressful human workarounds, and undermines system efficiency. The current scheduling software, which was first created in the time of paper records, has a non-intuitive "roll and scroll" interface that can be described as cumbersome, at best, to use. From a scheduling perspective, it is outdated; from a measurement perspective, it is inadequate—it was never intended to perform measurement functions. Nonetheless, the VA currently must rely on this tool to schedule tens of millions of Veterans' appointments each year. This leads to another synthesized recommendation:

- **VA should accelerate steps to improve the agility, usability and flexibility of scheduling-enabling technologies that also facilitate performance measurement and reporting functions.**

Other synthesized recommendations include the following:

- **VA should aggressively redesign the human resources and recruitment process**. From General Schedule (GS)-5 clerks to senior clinicians, the hiring of needed staff proceeds too slowly. The causes are complex, but much of the delay can be traced to redundant, inconsistent, and inefficient hiring processes. There should be a system-wide focus on improving these processes as soon as possible. Measures that capture performance from the customer perspective should be carefully monitored. Such measures may include the time from a request for a position to be filled to the time the hired candidate actually begins work.

- **VA should prioritize efforts to recruit, retain, and train clerical and support staff.** In many cases, clerical and support staff should be hired in anticipation of need rather than after vacancies are realized. Job stress, which contributes to turnover, should be reduced through careful study of workflow processes; for example, separating the call function from the frontline clerk function appears to be a prudent strategy. In many cases, "role creep" results in clerks performing functions that may be beyond their job descriptions and GS levels. An inventory of functions should be carefully mapped to appropriate GS levels so that individuals are properly positioned—and compensated. Better retention will improve the impact of training, which should be another area of focus. Training should be based on a more standardized and frequently updated curriculum, and placed within a more clearly defined management infrastructure to support professional growth. A multi-modality approach to training should include case-based distance learning that leverages a learning management system and permits monitoring both at the facility and individual level. Overall, these measures

will help to ensure that each physician has adequate support from clerical staff, which will help to maximize provider productivity.

- **VA should minimize the process of screening specialty consults so that specialty appointments can be made before patients leave their primary care clinics.** This will reduce waiting times and improving the accuracy of wait time measurement.

- **VA should centralize the calling and scheduling functions in facility-based call centers with extended hours of operation.** This will increase efficiency of communication with Veterans and reduce stress on frontline clerks in clinics.

- **VA should develop a comprehensive human capital strategy that, based on projected needs, addresses impending provider shortages.** In addition to the current shortage of nurses, shortages of nurse practitioners, primary care providers, and specialty physicians are projected or already realized. VA needs to undertake an aggressive strategy that includes increasing provider efficiency (e.g., more support staff and exam rooms), using alternate types of providers (e.g., family practitioners, doctors of nursing practice, care coordinators, coaches), and developing its own aggressive recruitment pipeline (e.g., starting the recruitment process in high school, providing aggressive tuition forgiveness). Mid-level practitioners, especially nurse practitioners, have proven particularly valuable in providing or augmenting scarce specialty resources. There should be an immediate focus on recruiting, training, and retaining mid-level practitioners. Finally, there should be a deliberative effort within this human capital strategy to support team medicine, further enabling non-physicians to partner with physicians to directly accommodate patient needs.

- **VA should create a stronger financial incentive structure.** This is especially critical for a location like Hampton, VA – where the VA must compete head-on with DoD in the healthcare provider marketplace. VA should explore the use of more aggressive incentive structures in compensation packages, especially for providers. VA should develop supply

and demand projection models so that future staff needs—particularly for specialty physicians—can be anticipated. Recruitment cycles for physicians are often very long. Waiting until demand has exceeded supply will inevitably lead to chronic delays in care. Staffing needs, especially for specialty physicians, should be anticipated based on an understanding of how much supply is required to meet changing patient demand, and appropriate supply models should be created and used across the enterprise.

- **VA should invest in more current and usable telephone systems and provide adequate space for call center functions.** Although most facilities have call systems that can track hold times, call abandonment, and other key measures, a number of questions were raised about these systems. Given the importance of efficient phone communications, a standard for functionality should be established and all facilities should be required to meet that standard. Centralized call centers improve the efficiency of communications significantly. In addition to enhanced technology, call centers should be provided adequate space and resources. Robust multi-modal communications infrastructures are important to support the frequency of contact essential to PACT's concept of continuous healing relationships.

- **VA should take aggressive measures to alleviate parking congestion because it appears to have some impact on the timeliness of care.** While less important than exam space, parking space was found to be in short supply at many VA facilities. Obstacles to parking may discourage Veterans from keeping their appointments and cause Veterans to be late for their appointments. Late arrivals can disrupt clinic flow for the rest of the session.

- **VA should engage frontline staff in the process of change.** Successful process redesign requires behavior change. To sustain such change, those who do the work must be engaged in redesigning the processes that influence their work and behaviors. This is the critical, and often weakest, link between people and processes, and if it is not made, process improvement will not be optimized or sustained. A culture of innovation must be created in which everyone sees improving his or her job, and the

processes associated with it, as part of his or her job. Success requires a critical nexus between leadership, culture, process redesign techniques, and employee engagement.

- **VA should embrace a system-wide approach to process redesign because this is the means by which many other recommendations may be successfully executed.** Processes, the intermediate steps by which goals are achieved, often determine whether goals are achieved efficiently, or at all. To be successful in improving the many complex and interrelated processes that influence the timeliness of care, sound systematic approaches must be used. An integral dimension of success will be to engage Veterans in process redesign. Even when conducted in a rigorous fashion, process redesign is not always successful. The most common sources of failure are related to poor staff acceptance, failure to actually change behaviors, and inadequate leadership. VA faces unique challenges in scaling change across an enterprise of its size, which stands alone in U.S. healthcare. As mentioned earlier, one of the key elements of success will be engaging frontline staff in the redesign and change process, which will increase the probability that processes will be properly redesigned and the likelihood that frontline staff will modify their behaviors.

4.6 Conclusion

NVTC hopes that VA will adopt all of the recommendations included in this section of its Final Report, in a holistic manner that will have the effect of accelerating VA's efforts to transform Veterans' care. By providing more patient-driven, proactive, personalized, team-based care that leads to wellness and disease prevention, VA should also realize steady increases in Veterans' satisfaction with the quality of the Department's continuously-enhanced healthcare delivery services.

5 Appendices

Other important matters are addressed in this section of NVTC's Report, which consists of the following ten Appendices.

5.1 Appendix A: Methodology

NVTC conducted this review from September 15 to October 29, 2014 to consist with generally accepted government auditing standards (GAGUS), which require that the review be planned and performed to obtain sufficient, appropriate evidence to provide a reasonable basis for the findings and conclusions, based on the review objectives.

An overview of the Methodology applied by the NVTC Team as this Review was conducted, is provided in Figure 5-1.

Figure 5-1. Review Methodology Applied by the NVTC Team

NVTC's Review of VA's "scheduling processes and systems" most closely aligns with, what GAGUS[15] characterizes as a "performance review," even though the

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[15] GAO-12-331G Government Auditing Standards. Though NVTC's Review of VA's scheduling processes and systems does not rise to the level of an audit, and NVTC is performing a "third-party" review of VA's scheduling practices, GAGAS contains much guidance that assists reviewers in objectively acquiring and evaluating sufficient, appropriate evidence and accurately reporting the results. When reviewers perform their work in this manner, while

NVTC Team looked at performance, in this instance, from multiple dimensions (process, technology, people, and the effectiveness of performance measures themselves). Such performance reviews provide objective analysis to assist management and those charged with governance and oversight in using the information to improve performance and operations, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.

The NVTC Team observed the following best-practices to better assure sound and defensible results:

- The staff assigned to conduct the review should collectively possess adequate professional proficiency for the tasks required

- In all matters relating to the review work, the individual reviewers should be free from personal and external impairments to independence, should be organizationally independent, and should maintain an independent attitude and appearance

- Due professional care should be used in conducting the review and in preparing related reports

- Up-front collaboration with VA's designated points of contact – This practice assured that the Team integrated with the Government at both the strategic and tactical levels, where information was exchanged "early" in the cycle. This integration helped to ensure matching expectations and encouraged efficiency of action.

- Diverse team of highly-qualified experts – NVTC has learned that it can draw upon its member companies to produce a wealth of diverse subject matter expertise[16].

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also striving to remain consistent with GAGAS in reporting the results, their objectivity is more likely to lead to improved government management, better decision making and oversight, effective and efficient operations, and greater accountability and transparency for and results.

[16] NVTC, the membership and trade association for the technology community in Northern Virginia, is the largest technology council in the nation, serving about 1,000 companies from all sectors of the technology industry, as well as service providers, universities, foreign embassies, nonprofit organizations and governmental agencies. Through its member companies, NVTC represents about 300,000 employees in the region. NVTC is recognized as the nation's leader in providing its technology community with networking and educational events; specialized services and benefits; public policy advocacy; branding of its region as a major global technology center; initiatives in targeted business sectors and in the international, entrepreneurship, workforce and education arenas; the NVTC Foundation, a 501(c)(3) nonprofit charity that supports the NVTC Veterans Employment Initiative and other

- Early (and oft-held) discussions on work activities and products – This concept required early discussion on activities, work products, and deliverables so all parties remained in agreement before proceeding with the remaining work activities.

- Sharing of drafts for feedback – Submitting in progress work products, rather than waiting for the final review process, provided early insight and feedback on the NVTC Team's work

NVTC has reviewed the Team's report and concluded that the evidence provides a reasonable basis for the Team's findings and conclusions based on its review objective – to deliver evidence-based recommendations for improvements to VA, i.e., meaningful and useful improvements that VA's leaders will recognize as opportunities to significantly improve the experience of America's Veterans, whenever and wherever any Veteran needs one or more medical exams.

5.2 Appendix B: VA's Exam Scheduling Processes

Six years ago, the VHA scheduling processes were captured using Business Process Modeling Notation (BPMN) models. The document[17] containing these models was delivered to the NVTC Team in response to the Team's request to obtain a copy of VA's medical exam scheduling processes. It appears that these business processes models have changed very little over time, and so the NVTC Team assumed that they closely reflect scheduling practices being used today – an assumption that was largely validated by information gathered by the Team during two site visits performed during NVTC's Review. The following subset of those processes, which most closely correlate to the facts discovered on the ground by NVTC, are considered a sufficient baseline that has been treated as a key reference framework[18] for structuring the NVTC's key findings and recommendations:

- Manage Appointment for New Patient – Primary Care
- Make Appointment for New Patient – Primary Care
- Manage Appointment for Specialty Care
- Make Appointment for Specialty Care
- Notify Patient of Scheduled Appointment
- Make Appointment for Follow-Up
- Reschedule Appointment by Clinic Request
- Reschedule Appointment Due to No Show
- Reschedule Appointment by Patient Request
- Manage Ancillary Test Orders
- Contact Patient
- Manage Recall Reminder
- Bundle Appointments

What follows are exact replications of the (selected) VA-provided business process models, captured back in 2008, accompanied by a brief (lightly paraphrased) summary of the original narrative that described each model.

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[17] "As-Is" Scheduling Process Model Summary Report, November 7, 2008.

[18] The terms "baseline" and "reference framework" are used in this context to indicate that the NVTC Team acknowledges these artifacts as the best available representation of these exam scheduling processes, around which the Team could launch its fact-finding and analysis. Indeed, no one interviewed during the two site visits could identify, when asked, a documented set of scheduling processes that guided their day-to-day scheduling activities.

Manage Appointment for New Patient

A new patient requests to receive medical service at the primary care clinic. The Enrollment Clerk receives the request and determines if the patient requires urgent care. If the patient does require urgent care and is present at the facility, the patient is sent for Triage. Based on the diagnosis, (1) the patient is sent for immediate treatment because the care need is urgent, (2) the patient is sent back to the enrollment department to make an appointment because the care needed is not urgent, or (3) patient is released because care is not needed.
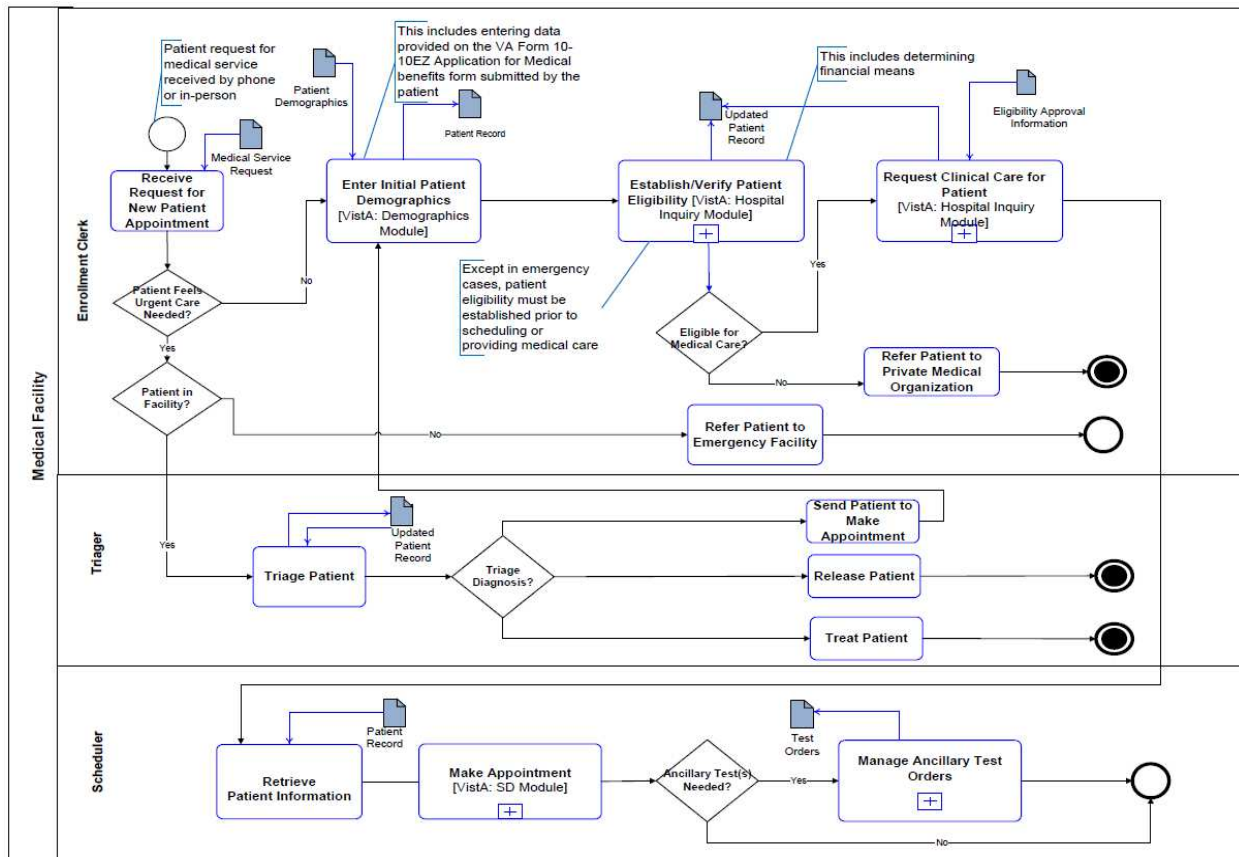
If the patient on the telephone sounds in need of urgent care, the scheduler directs the patient to go to the nearest medical facility for care. If the patient does not require an urgent care, the Enrollment Clerk, which at some facilities also may be the scheduler, enters the patient's initial demographic information and verifies the eligibility of medical care for the patient. If the patient is ineligible to receive medical care at the VA facility, the Enrollment Clerk refers the patient to a private medical organization where he/she can receive medical treatment.

If the patient is eligible to receive medical care at the VA facility, the Enrollment Clerk requests clinical care for the patient. The scheduler, then, retrieves the patient's information and makes appointment. After an appointment is scheduled, the scheduler determines if any ancillary tests are needed prior to the actual appointment. If so, the scheduler proceeds to schedule necessary ancillary tests for the patient. If no ancillary tests are required, the scheduler ends the process.

Make Appointment

For a specific clinic, the scheduler checks the providers' calendars for availability and capacity in an effort to schedule an appointment within a specified time frame. If a slot is available within the required time frame, the scheduler, then, proceeds to contact the patient and coordinates with the patient concerning their preferences regarding travel and appointment time. If the patient agrees to the identified appointment, their information is entered into the appropriate time slot. Then, the patient is notified of their scheduled appointment.
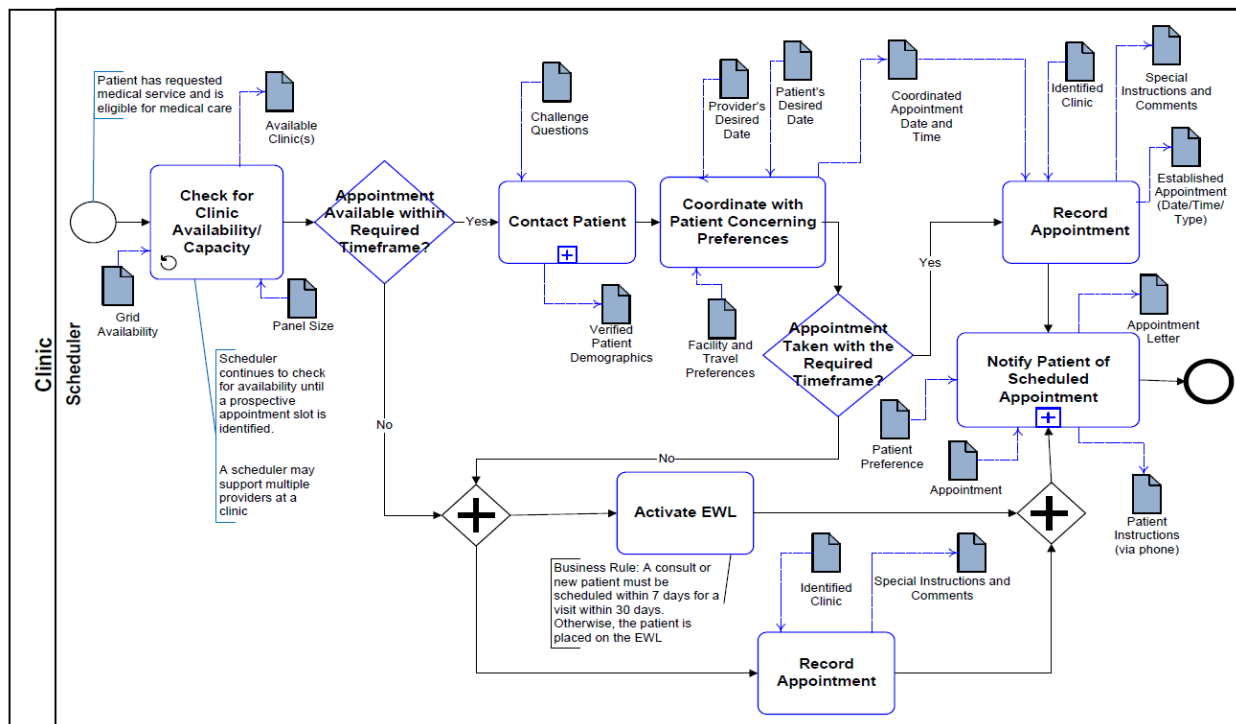
If there is no time slot available within the desired timeframe, the patient is added to the Electronic Wait List (EWL) and their information is entered into the best available time slot. Then, the patient is notified of their appointment information.

Information needed to make an appointment, such as provider's desired date, patient's desired date, special instructions, as well as an established appointment date and time, is collected, managed or stored during this process.

Manage Appointment for Specialty Care

After the Primary Care Provider (PCP) has seen the patient and provided treatment, based on the evaluation of the patient, the PCP may develop a consult report that describes the patient's possible need for specialty care. The PCP submits the consult to the Specialty Care Provider. The Specialty Care Provider reviews the consult report, asks questions and provides feedback to the PCP. When the Specialty Care Provider approves the consult, the scheduler proceeds to make a specialty care appointment. In some instances, an appointment is made through verbal communication when an emergent or urgent need exists. Information needed to manage a specialty care appointment, such as primary care provider evaluation and specialty care consult, is collected, managed or stored during this process.
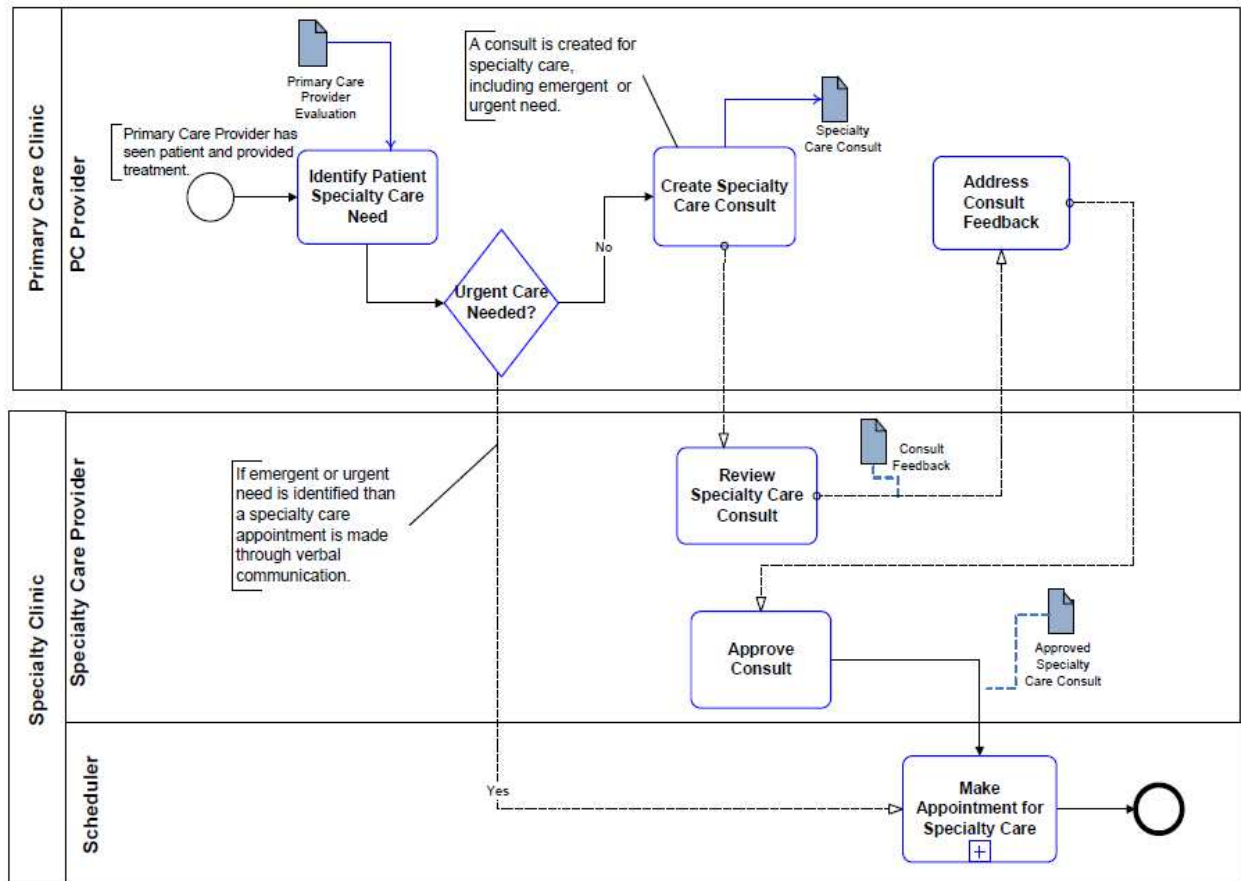
Make Appointment for Specialty Care

Once the scheduler receives an approved specialty care consult and the patient's desired date, the scheduler checks the providers' calendars for a specific clinic, to determine if there is adequate availability and capacity to schedule an appointment. If there is adequate availability and capacity, the scheduler contacts the patient and coordinates with the patient concerning their preferences regarding travel and appointment time. If the patient takes the appointment, their information is entered into the appropriate time slot in order to record the appointment. The patient, then, is notified of their scheduled appointment.
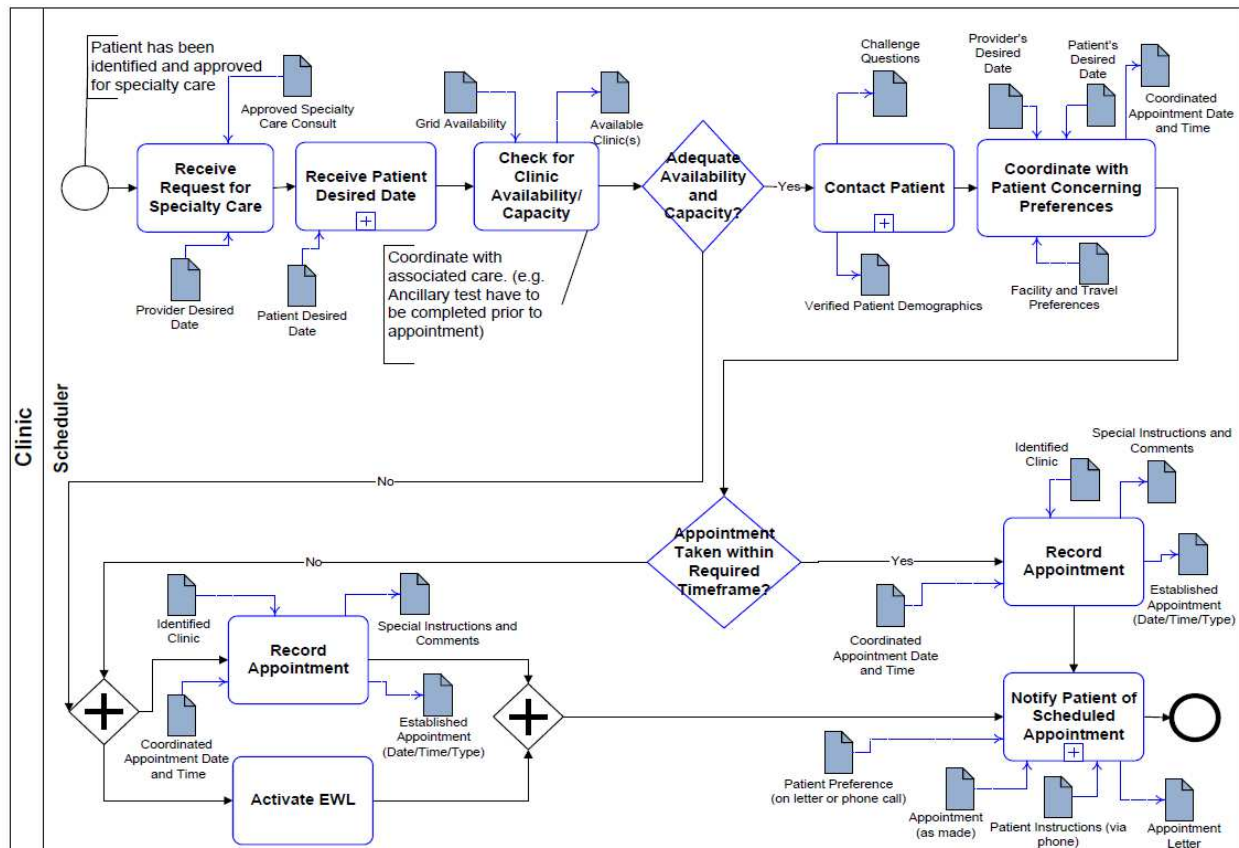
If there is no adequate clinic availability and capacity, the patient is added to the EWL and also, the scheduler records an appointment into the best available time slot. The patient, then, is notified of their appointment. Information needed to make a specialty care appointment, such as an approved specialty care consult, grid availability, provider's desired date, patient's desired date and an established appointment date and time, is collected, managed or stored during this process.

Notify Patient of Scheduled Appointment

After an appointment is made, the scheduler notifies the patient of the scheduled appointment. Prior to the start of the notification process, the scheduler decides the method to use in order to notify the patient. The scheduler sends the Appointment Notification Letter, calls the patient, or does both activities to inform the patients of their scheduled appointments. Then, approximately 2-3 weeks (facility dependent) prior to the actual appointment, the scheduler sends the Appointment Reminder Letter to the patient. Information collected, managed or stored during this process includes a notification letter, appointment details and an appointment reminder letter.
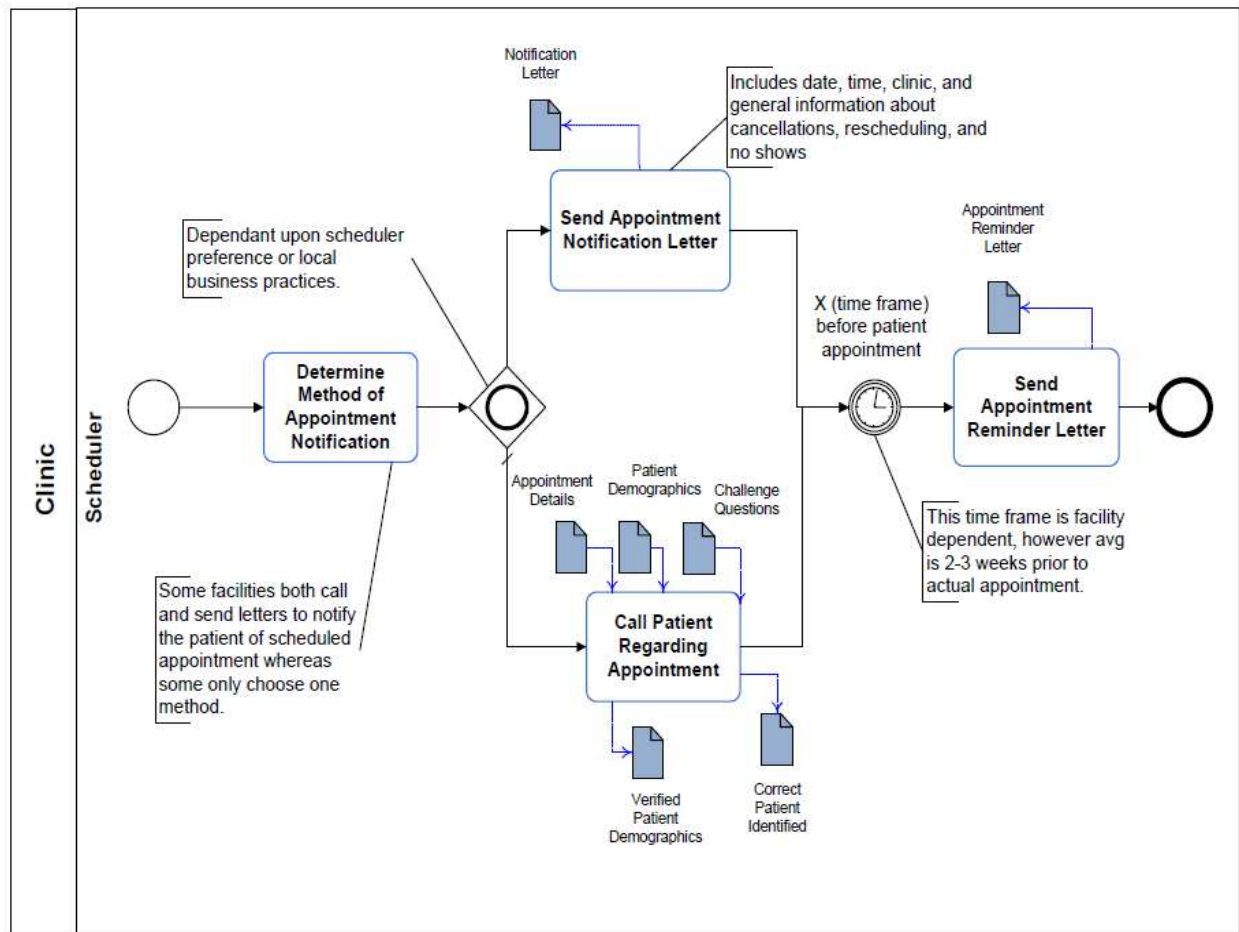
Make Appointment for Follow-Up

The provider may request that a follow-up appointment be made for a patient. The scheduler receives the request and obtains the patient's desired date. If the patient's desired date is within the required timeframe (provider's desired date), then the scheduler proceeds to make the appointment.

If the patient's desired date is outside of the required timeframe (provider's desired date), a request for approval is made to the provider for the patient to be seen beyond the date specified. If the provider approves the request, the scheduler proceeds to make an appointment. If the request is declined, the scheduler negotiates with the patient to agree on a date within the timeframe given by the provider. The scheduler then, proceeds to make the appointment. Information collected, managed or stored during this process includes a patient evaluation, patient's desired date, and provider's desired date.
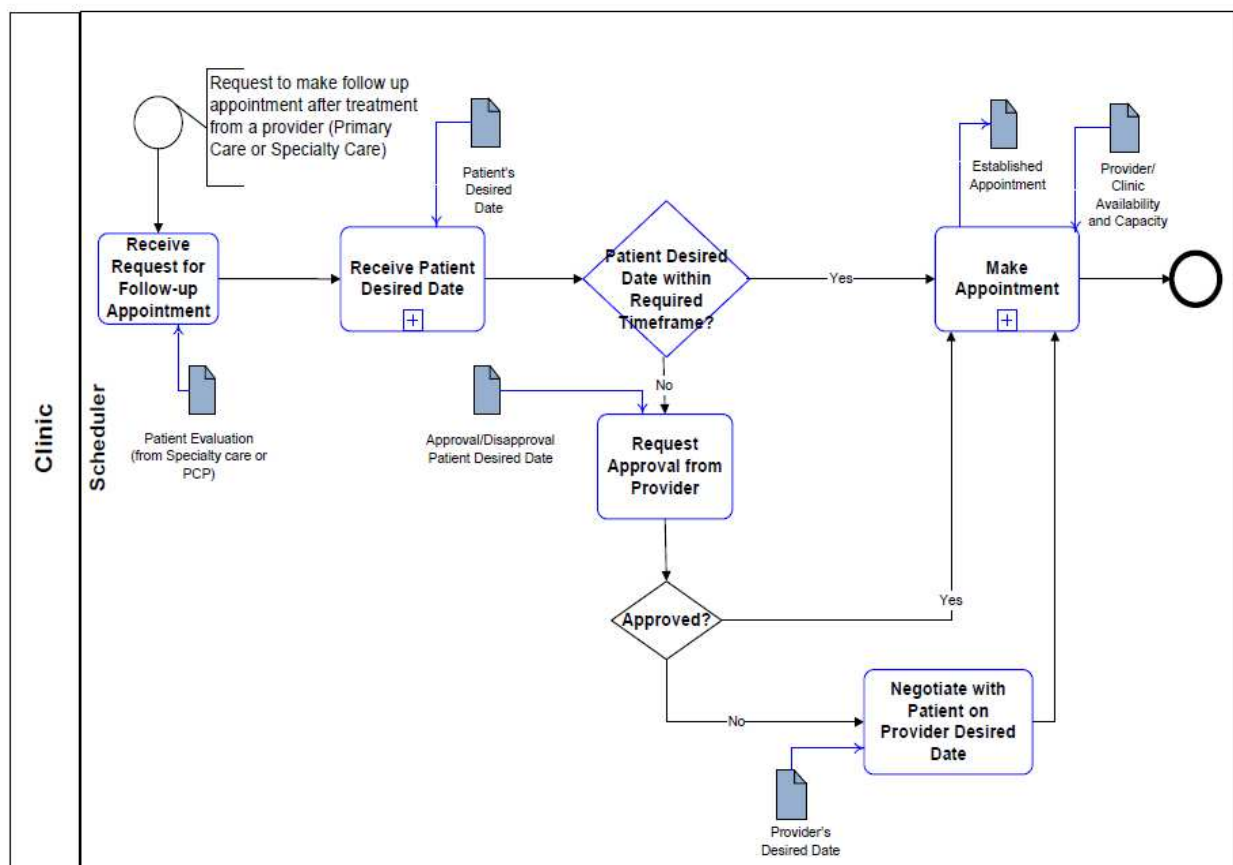
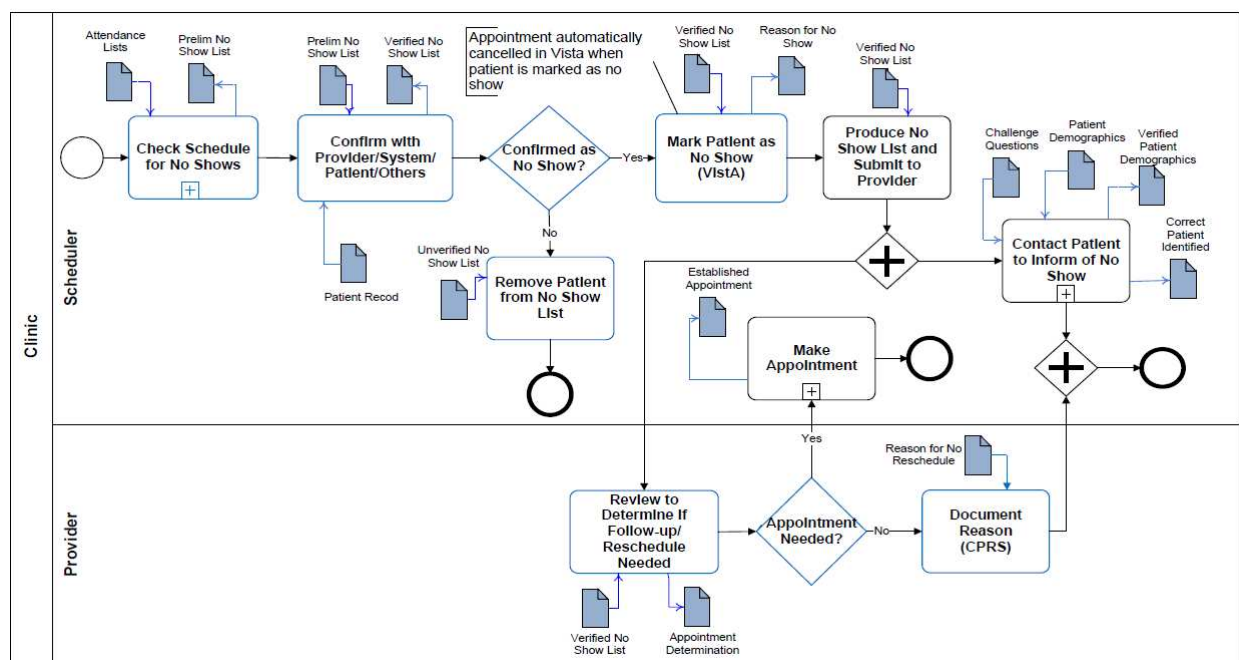## Reschedule Appointment by Clinic Request

The scheduler may need to reschedule appointments by clinic request due to many reasons including: the inability of the provider to see patients within a given timeframe, over-booked appointments, weather conditions, or emergent care causes. The process is initiated when the scheduler receives a notice from the provider that specifies the reason for the request. The provider reviews the records of the patients who were scheduled during the time of cancellation for any restrictions (e.g. mental illness). Each patient's appointment is canceled and the reason for cancellation is documented. The scheduler, then, proceeds to make an appointment. Information collected, managed or stored during this process includes a notification to reschedule, cancellation reason and provider and patient availability.
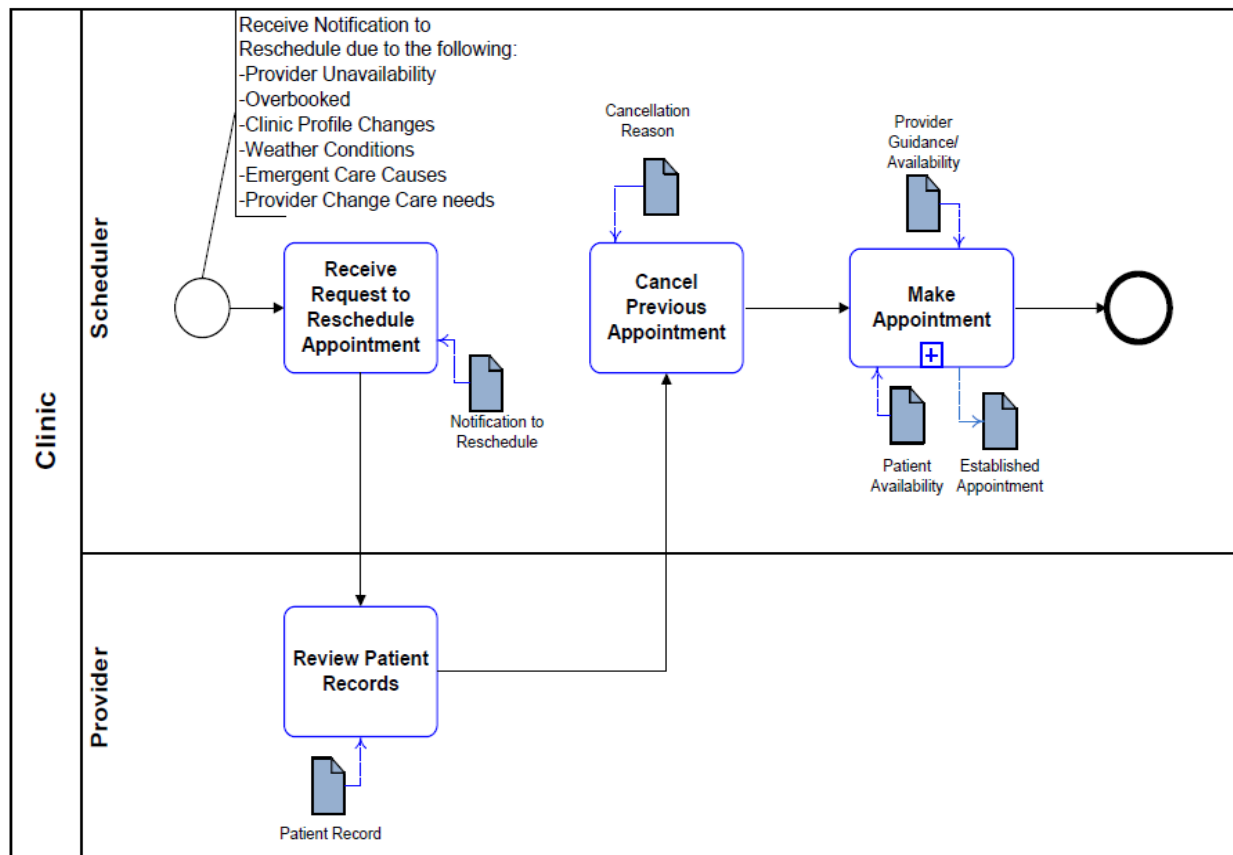
## Reschedule Appointment Due to No Show

Daily, the scheduler reviews and compiles a list of patients that may not have shown up for their appointments. The list is reviewed, confirmed and finalized. Those patients that did attend their scheduled appointments are removed from the no show list. Patients deemed as a "No Show" are marked in the system and the patient's appointment is automatically canceled. Then, the scheduler submits the "No Show" list to the provider. Patients on the list are contacted by the scheduler to inform them of their "No Show" status.

In addition, the provider reviews the list of patients to determine if a follow-up appointment is needed and if the appointment needs to be rescheduled. If the patient still requires an appointment, the scheduler proceeds to make an appointment. If the appointment is no longer necessary, the provider documents the reason in CPRS. Information collected, managed or stored during this process includes: a no show list and the reason for the no show.

Reschedule Appointment by Patient Request

Occasionally, the scheduler will need to reschedule an appointment due to the patient's inability to maintain the appointment. The process is initiated when the scheduler receives a request from the patient to reschedule an appointment. The scheduler reviews the patient record to retrieve any previous desired date or other necessary information for reschedule. If there is no provider desired date or limitations, the patient decides is the appointment is still needed. If the appointment is not needed, the scheduler cancels the appointment. If the appointment is needed, the patient is asked to provide a desired date. In the case where the patient has a desired date, the scheduler proceeds to make an appointment. When the patient has no desired date, the patient is asked to call back with their desired date and they are placed on the Recall List. This is done to help the scheduler keep track of those patients that still need an appointment. Lastly, the previous appointment is canceled.
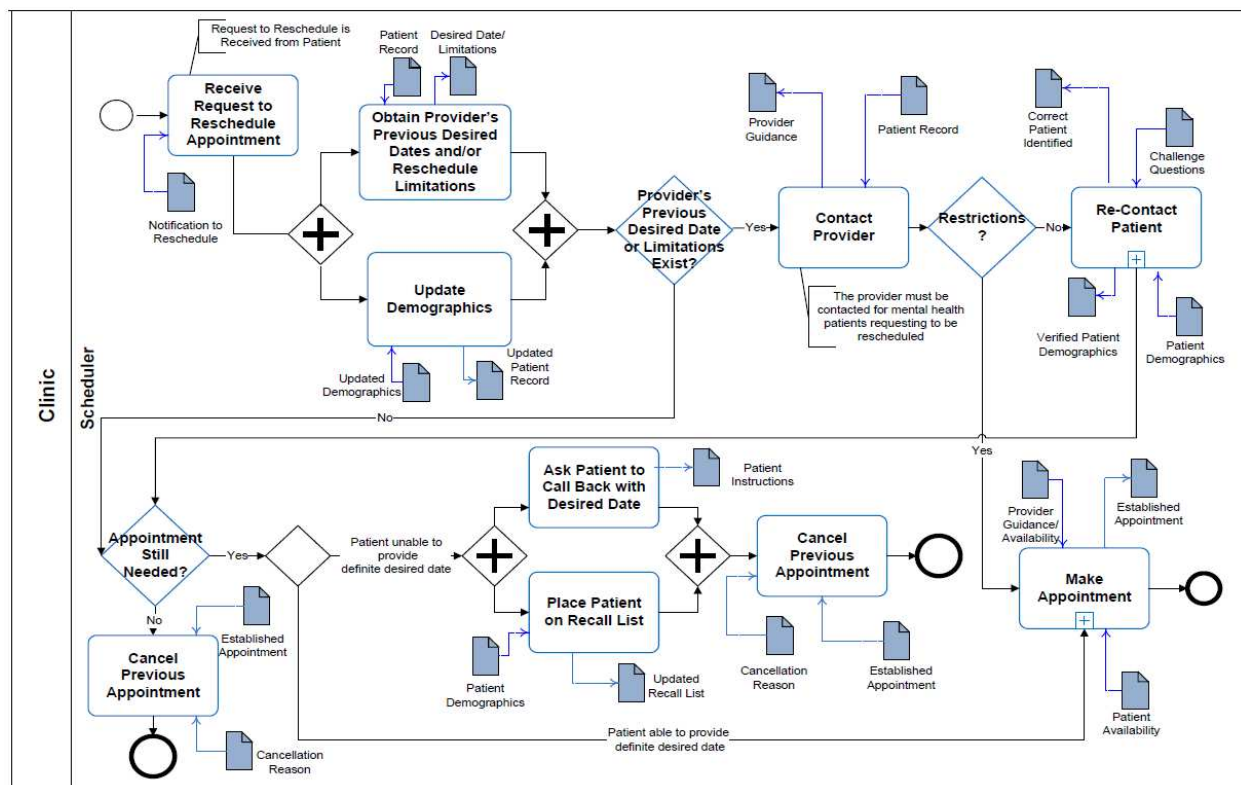
If desired dates or limitations exist, the provider is contacted to determine the impacts of the information identified for the rescheduling of the patient's

appointment. If the provider deems that existing restrictions should be maintained, especially for patient safety concerns, the scheduler then proceeds to make an appointment. If the information does not impact the reschedule, a determination is made by the patient as to whether the appointment is still needed. The process, then, follows the same path as when no limitations or restrictions are identified by the scheduler.

Information collected, managed or stored during this process includes a patient notification to reschedule and cancellation reasons.

Manage Ancillary Test Orders

Ancillary test orders can only be placed by a provider. Once a provider places an ancillary test order through CPRS, the scheduler can either retrieve the test order from a central printer or view alerts for ancillary test orders within CPRS. Because there is no standardized process, each facility has a different method of retrieving and managing ancillary test orders. Upon receipt of an order, the scheduler analyzes and prioritizes the provider orders so that the upcoming patient appointment receives sufficient testing notification prior to their scheduled appointment. Each facility determines how early in advance the notification letter, which identifies the ancillary testing and scheduled appointment, is sent to the patient.

After the orders are reviewed and prioritized, the scheduler records the ancillary testing notification. No actual lab appointment is made in this process, but instead, ancillary testing information is added to the notification letter that will be sent out to the patient. If needed, the scheduler may notify the patient of any necessary pre-test preparation activities (e.g. fasting, medication suppression, etc.). Information collected, managed or stored during this process includes test orders and ancillary testing notification details.
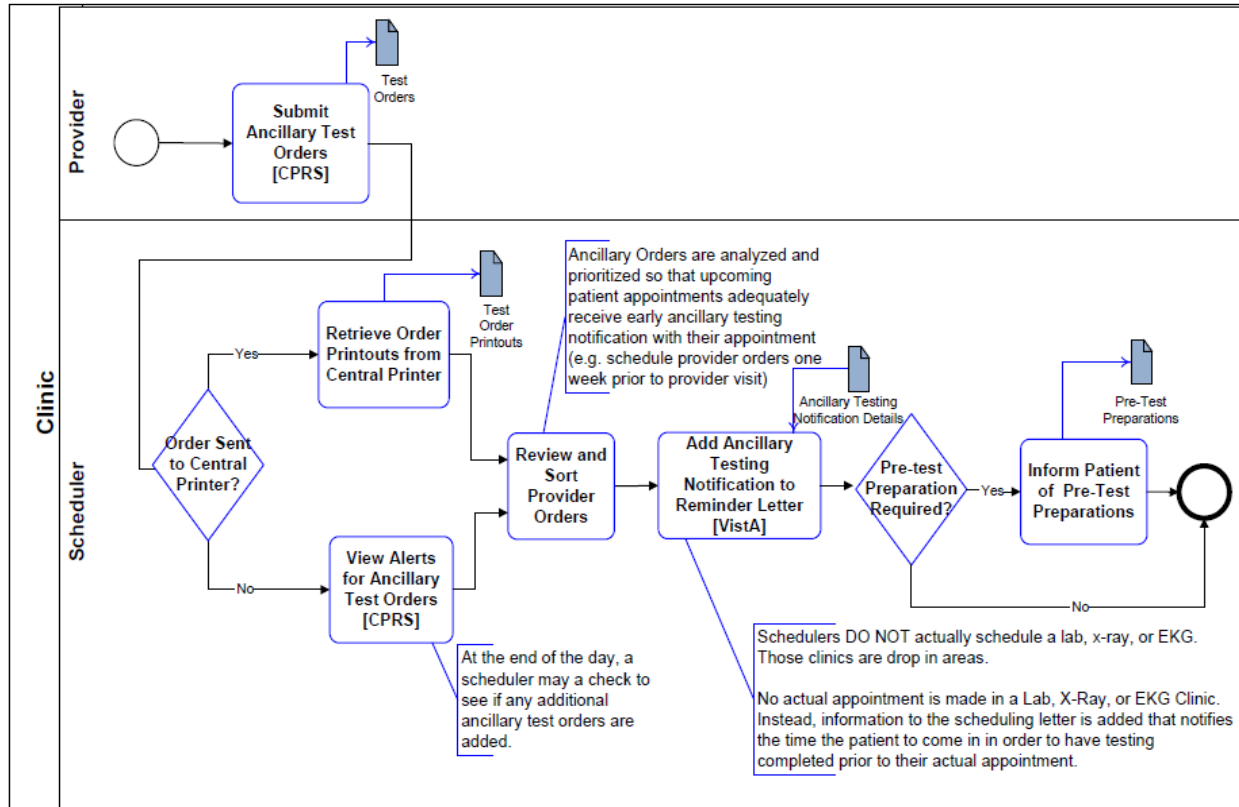
Contact Patient

When a patient is not present at the facility, the scheduler needs to contact the patient in order to schedule the appointment. A scheduler must determine how they will contact a patient. When contacting the patient for an appointment, the scheduler decides to either call the patient or send a "Call for an Appointment" letter to the patient.

If a scheduler calls a patient and successfully reaches the patient, the scheduler updates the patient's demographic information and discusses the need for an appointment. However, if the scheduler is unable to reach the patient, they leave a "Call for an Appointment" message for the patient. The scheduler repeats this process for a number of times until the patient is reached or responds to the phone message. The number of times that the scheduler calls the patient varies among facilities and is based on their local policies. If the patient calls back for an appointment after the phone message, the scheduler updates the patient's demographic information and discusses the need for an appointment. However, if the patient fails to respond to the phone message after a designated number of attempts, the scheduler decides whether or not to send a follow-up letter.

The scheduler must decide if the follow-up letter needs to be sent to the patient. If so, the scheduler sends the "Call for an Appointment" letter to the patient. If the patient responds to the follow-up letter, the scheduler updates the patient's demographic information and discusses the need for an appointment. However, if the patient does not respond to the follow-up letter or if a follow-up letter is not needed, the process ends.
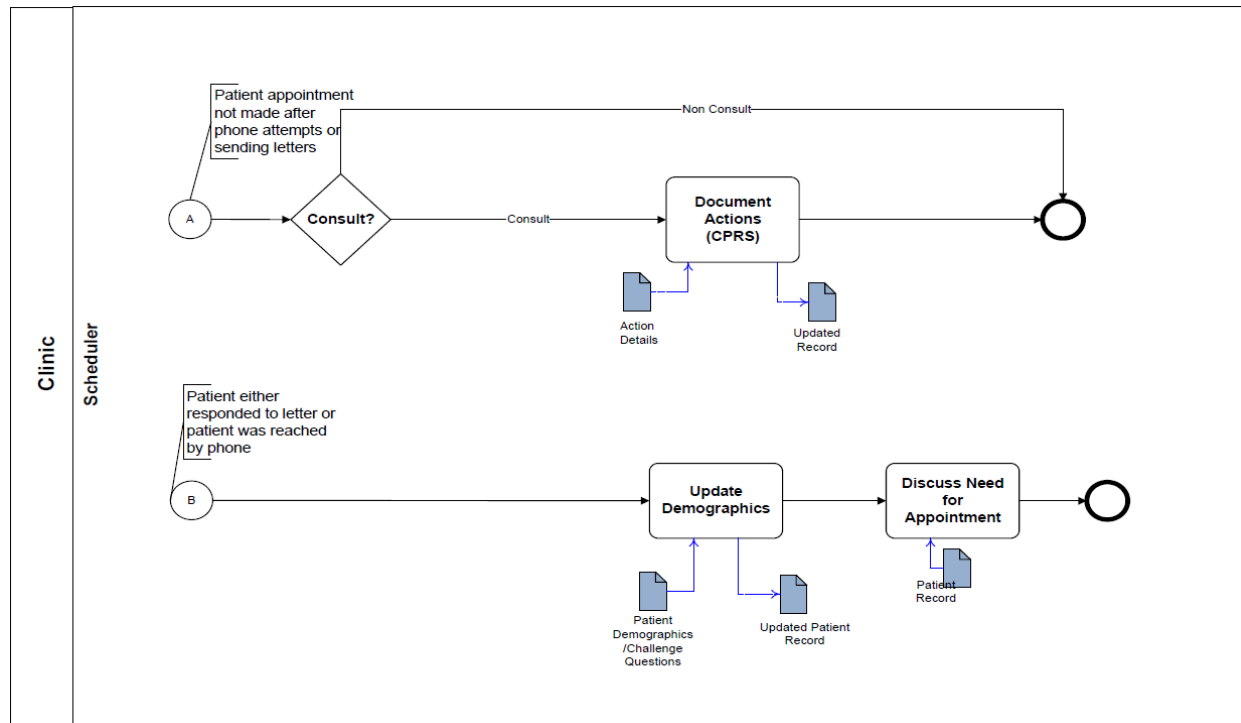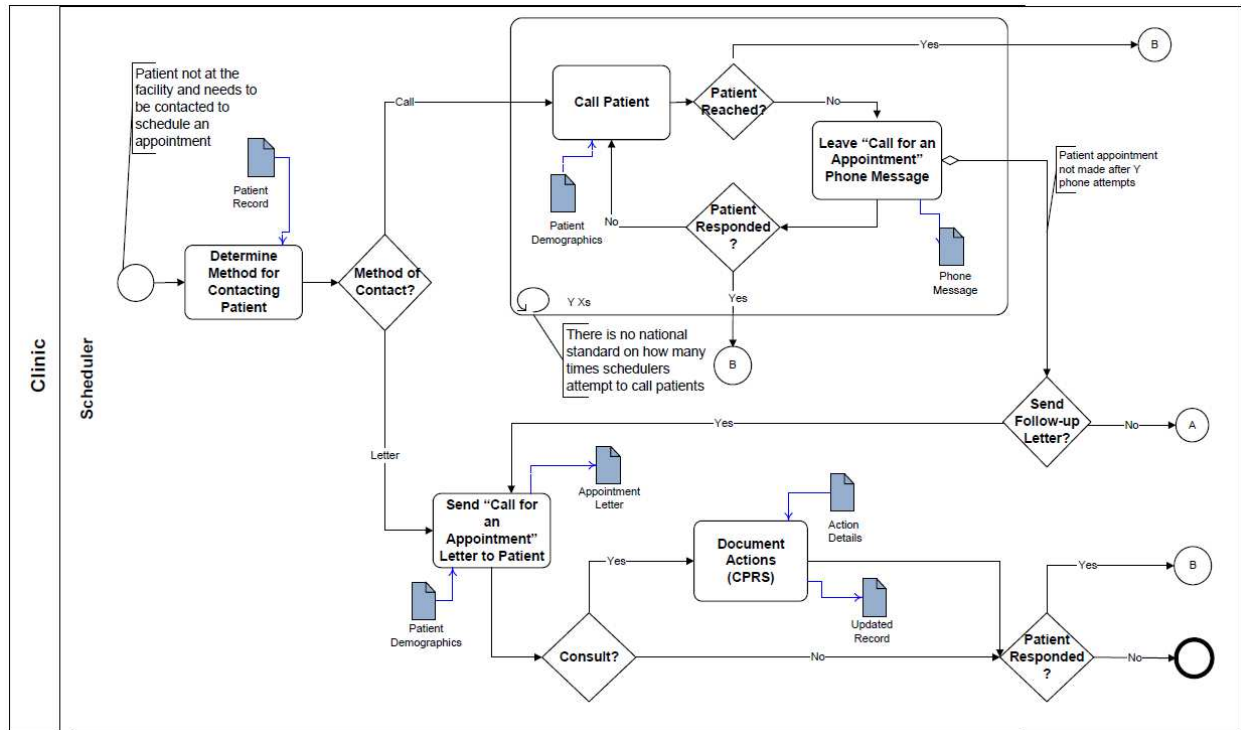
Manage Recall Reminder

The Recall Reminder system is primarily used by a scheduler after a provider's order recommends for a patient to return to the clinic for follow-up care after three months or more. Note that the Recall Reminder system may also be used to facilitate the tracking of patients that need to be contacted.

The scheduler enters the patient's data in the system, including the recall date and other relevant information (e.g. appointment length, provider's name and desired date, etc.). A Recall Reminder letter is printed and sent to the patient near the recall date, asking them to call the scheduler to make an appointment. When the patient contacts the scheduler, they proceed to make an appointment.

As the patient leaves their medical visit, the scheduler updates the Recall Reminder list by either adding the patient to the list so that a reminder letter will be sent to them or deleting the patient from the list if a reminder letter should not be sent. Periodically, the list is reviewed to check for any patients who have not been seen by a provider, but are past the recommended follow-up appointment date. If these patients still need an appointment, the scheduler attempts to contact them in order to schedule an appointment. Information collected, managed or stored during this process includes the recall reminder letter and the recall reminder list.
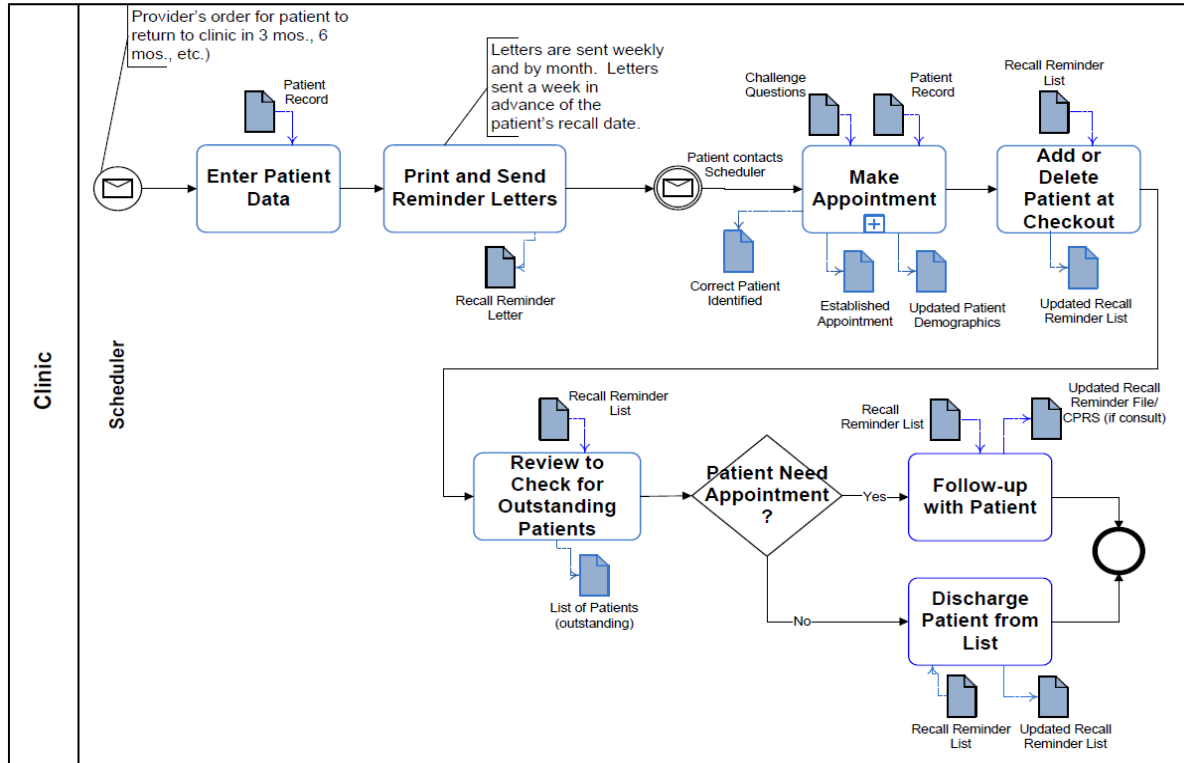
Bundle Appointments

The patient may request to bundle their existing appointments. The scheduler receives the request and reviews the existing appointments to see whether the appointments are within one clinic or across multiple clinics. If the appointments are within one clinic, the scheduler calls the patient to coordinate their preferences. If the appointments are across multiple clinics and requires the scheduler to access clinic grids that are outside of his/her authorization, the scheduler coordinates with a supervisor to receive access to the necessary clinic grids. After receiving access to required grids, the scheduler calls the patient to coordinate their preferences.

If the appointment is made within the desired timeframe, which incorporates the patient and provider's desired date, the scheduler cancels any previous appointments and records the new appointment details. Once the new set of bundled appointments are recorded, the scheduler proceeds to inform the patient of each newly established appointment.

If the set of appointments are not made within the desired timeframe, the scheduler cancels the previous appointments and records the new appointment details outside of the required timeframe. Concurrently, the scheduler, also, adds the patient to the EWL, so that the patient may be able to obtain their desired appointment, if the slot becomes available. After the new appointment is recorded, and the patient is added on the EWL, scheduler proceeds to notify the patient to inform the patient of each newly established appointment.
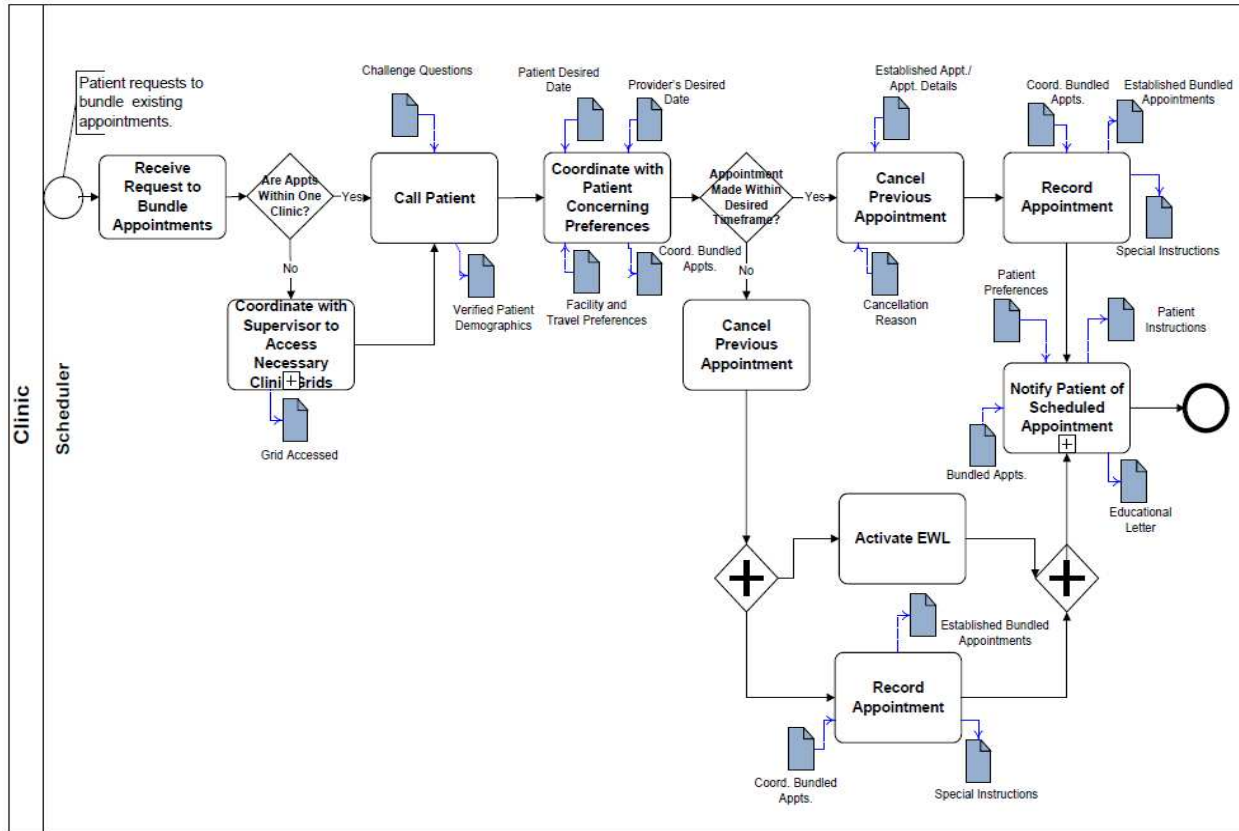
5.3   Appendix C: Related GAO and OIG Reports

In February 1998, the GAO issued a report entitled *VA Healthcare Status of Efforts to Improve Efficiency and Access* (Report No. GAO/HEHS-98-48)[19]. In this report, GAO noted VA's unprecedented changes to its healthcare system. Introducing practices inspired by managed care, VA was shifting the emphasis of its medical care delivery system from extensive inpatient services to outpatient care. Implementing these changes was intended to improve the efficiency of their operations, while improving Veterans' access to their services.

In April 1998, the GAO issued a report entitled *VA Hospitals – Issues and Challenges for the Future* (Report No. GAO/HEHS-98-32)[20]. The main focus of the report was to provide Congress and the administration with sufficient information for properly assessing the potential effects of VA's healthcare system changes on all stakeholders. Specifically, those related to decreased use of VA services due to medical advances, declining numbers of Veterans, and the potential for improved healthcare options available to Veterans through Medicare and other insurance at the time of this report. Upon review, the GAO stated that one of the most crucial decisions facing the Congress and the administration as they planned for the future of the Veterans' healthcare system is the extent of effort that should be spent to preserve VA's direct delivery infrastructure and the process that should be followed to effect change.

In May 2000, the GAO issued a report to the Ranking Democratic Member, Committee on Veterans Affairs, House of Representatives entitled *VA Needs Better Data on Extent and Causes of Waiting Times* (Report HEHS-00-90)[21]. Although the VA had initiated two separate efforts for gathering comprehensive outpatient waiting time data from its facilities with plans to spend additional monies to make improvements in the timeliness of service and access to clinical information, it still lacked reliable national waiting time data to assess whether its proposed expenditures would reduce waiting times. The GAO recommended that VA take actions to identify the extent and causes of waiting time problems.

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[19] GAO Report, *VA Healthcare Status of Efforts to Improve Efficiency and Access* (Report No. GAO/HEHS-98-48), http://www.gao.gov/archive/1998/he98048.pdf
[20] GAO Report, *VA Hospitals – Issues and Challenges for the Future* (Report No. GAO/HEHS-98-32), http://www.gao.gov/archive/1998/he98032.pdf
[21] GAO Report (HEHS-00-90) to the Ranking Democratic Member, Committee on Veterans Affairs, House of Representatives, Veterans Healthcare, *VA Needs Better Data on Extent and Causes of Waiting Times*, May 1, 2000 http://www.gao.gov/archive/2000/he00090.pdf

In January 2001, the GAO issued *Major Management Challenges and Program Risks – Department of Veterans Affairs* (Report No. GAO-01-255)[22] in its Performance and Accountability Series. This analysis addressed the major performance and accountability challenges facing the VA. It includes a summary of actions that VA has taken and that are under way to address these challenges and outlines further actions that VA believes are needed.

In July 2005, the GAO issued *Audit of the Veterans Health Administration's Outpatient Scheduling Procedures* (Report No. 04-02887)[23] and concluded that schedulers were not following outpatient scheduling procedures, resulting in inaccurate waiting times and incomplete waiting lists.

As a follow-up to the 2005 GAO report, the GAO issued *Audit of the Veterans Health Administration's Outpatient Waiting Times* (Report No. 07-00616-199)[24] in September 2007. Again, the conclusion was that schedulers were not following established procedures for making outpatient appointments, causing VHA's reported performance on waiting times and waiting lists to be unreliable for Congressional and VA decision making.

In December 2008, VA's OIG issued *Audit of Veterans Health Administration's Efforts to Reduce Unused Outpatient Appointments* (Report No. 08-00870-36)[25]. The objectives were to determine if VHA has an effective method to accurately track and report unused outpatient appointments, whether VA medical facilities implemented effective processes for reducing the number of patient no-shows, and whether unused appointments could be used for patients who are waiting for care. VHA failed to meet any of these objectives and OIG recommended the Under Secretary of Health establish procedures and measures to remedy these deficiencies.

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[22] GAO Report, *Major Management Challenges and Program Risks – Department of Veterans Affairs* (Report No. GAO-01-255), http://www.gao.gov/pas/2001/d01255.pdf
[23] GAO Report, *Audit of the Veterans Health Administration's Outpatient Scheduling Procedures* (Report No. 04-02887), http://www.va.gov/oig/52/reports/2005/VAOIG-04-02887-169.pdf
[24] GAO Report, *Audit of the Veterans Health Administration's Outpatient Waiting Times* (Report No. 07-00616-199), http://www.va.gov/oig/52/reports/2007/vaoig-07-00616-199.pdf

[25] VA OIG, *Audit of Veterans Health Administration's Efforts to Reduce Unused Outpatient Appointments* (Report No. 08-00879-36), http://www.va.gov/oig/52/reports/2009/VAOIG-08-00879-36.pdf

5.4 Appendix D: Health Net: A Private Sector Provider Used by VA

Health Net's implementation and administration to date of the new non-VA care initiative, the Patient-Centered Community Care (PC3) program:

- Health Net is one of the largest and longest serving healthcare administrators of government and military healthcare programs for DoD and VA[26].

- Health Net's health plans and government contracts provide health benefits to more than five million eligible individuals across the country through group, individual, Medicare, Medicaid, TRICARE, and VA programs.

- For over 25 years, in partnership with DoD, Health Net has served as a Managed Care Support Contractor in the TRICARE Program. Currently, as the TRICARE North Region contractor, Health Net provides healthcare and administrative support services for three million active duty family members, military retirees and their dependents in 23 states. Health Net also delivers customized behavioral health and wellness services to military service members and their families, including Guardsmen and reservists. These services include the worldwide Military and Family Life Counseling (MFLC) program providing non-medical, short-term, problem solving counseling, rapid-response counseling to deploying units, victim advocacy services, and reintegration counseling.

- As an established partner of VA, Health Net has collaborated in supporting Veterans' physical and behavioral healthcare needs through Community Based Outpatient Clinics (CBOCs) and the Rural Mental Health Program. Health Net also supports VA by applying sound business practices to achieve greater efficiency in claims auditing and recovery, and previously through claims re-pricing. It is from this long-standing commitment to supporting service members, Veterans, and their families that Health Net supports PC3 and the role it plays as an important component toward improving Veterans' timely access to care, supporting coordination of care, and ensuring quality of non-VA care. PC3, ultimately, supports greater integration of non-VA care services with the care provided to Veterans at a VA Medical Center (VAMC) or CBOC.

- In developing approaches to ensure Veterans have access to quality, coordinated care, VA has previously implemented pilot programs, such as

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[26] From the testimony of RADM Thomas Carrato, USPHS (Ret.), President of Health Net Federal Services, before the Committee on Veterans Affairs in the U.S. House of Representatives, June 18, 2014

Healthcare Effectiveness through Resource Optimization (HERO) in 2008, VA Rural Mental Health Program in 2010, and Project Access to Care Received Closer to Home (ARCH) in 2011. PC3 grew out of these pilot programs and was designed based on lessons learned from them, as well as input from and collaboration with Veteran Service Organizations (VSOs).

- PC3 has been designed as an integrated solution that ensures a clinical quality baseline, supports care coordination, and provides timely access to care for Veterans. PC3 contracts have been constructed to enhance VA care delivery by augmenting VA's ability to provide inpatient and outpatient specialty care and behavioral healthcare for enrolled Veterans when the local VA Medical Center (VAMC): (1) lacks available specialists; (2) has a long wait time; or, (3) is an extraordinary distance from the Veteran's home.

- The purpose of PC3 is to augment VA capacity and capabilities, not to replace them. To this end, specialty care can be provided on either an inpatient or outpatient basis and includes mental health.

- The most important goal of PC3 is to ensure Veterans have timely access to high quality, coordinated care. Health Net's PC3 appointment schedulers work collaboratively with Veterans to schedule appointments that meet their schedules and follow PC3 standards and industry best practices. Health Net conducts follow-up with providers to ensure that Veterans complete their appointments. When there is an issue with an appointment, Health Net finds out why, and attempt to reschedule. Health Net's PC3 staff collects and returns completed medical documentation to VA, which ensures VA has timely and complete patient care information to include in the Veterans' computerized patient record within VistA (Veterans Health Information Systems and Technology Architecture). The result of this process is delivery of integrated healthcare services in a manner that is convenient for Veterans.

- PC3 contracts deliver significant benefits to Veterans and VA through:
  - Enhanced Access to Care: Veterans are seen quickly and within required commute times.
  - Convenience to Veterans: Upon receipt of an authorization from a VAMC, appointment schedulers reach out to Veterans and work with them to schedule appointments that best meet their needs.
  - Improved Care Coordination: Medical documentation is returned to the VA in a secure and timely manner.
  - Quality Care: Health Net's provider network is URAC accredited and all providers comply with PC3 clinical quality requirements.

- o Improved Efficiency and Accountability: PC3 contracts help VAMCs manage high volumes of care. They consolidate the complex, diverse work of managing many providers into a single contract.
- Following a competitive bidding process, Health Net Federal Services was awarded a contract for three of the six PC3 regions (see Figure X). The regions supported by Health Net contain all or part of 37 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. Within the three regions are 13 of VA's 21 Veterans Integrated Service Networks (VISNs) and 91 Veterans Affairs Medical Centers (VAMCs). Implementation started shortly after the contract was awarded on September 23, 2013. The first VAMCs in Health Net regions went live on January 6, 2014. Implementation of the remaining VAMCs was completed on April 1, 2014.
- From program inception through June 9, 2014, VA has provided Health Net with approximately 28,000 authorizations for care in 71 specialty areas. The top five areas of specialty care authorized include: optometry, physical therapy, gastroenterology (to include colonoscopy), audiology, and podiatry.
- PC3 is not a mandatory program, thus, utilization across the 91 VAMCs and 13 VISNs has varied significantly. For example, as of June 9, 2014, three VISNs provided almost 60 percent of total authorizations to Health Net.
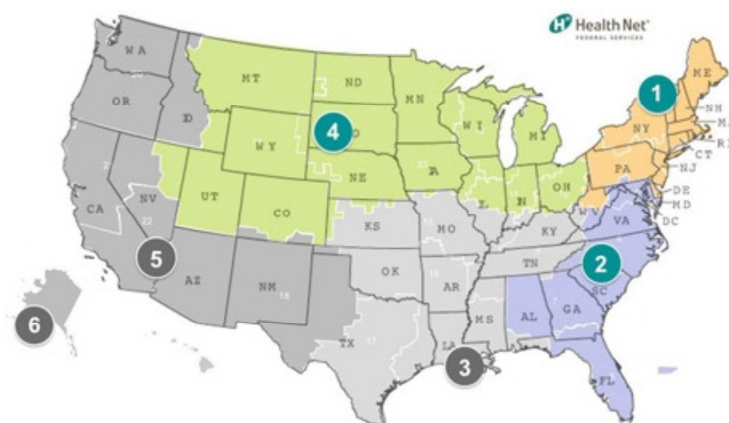
Region 1: VISNs 1, 2, 3, 4; Region 2: VISNs 5, 6, 7, 8; Region 4: VISNs 10, 11, 12, 19, 23

- PC3 includes strict timelines to make sure that appointments are scheduled and executed quickly. These requirements help reduce wait-times and ensure that Veterans are able to see a physician in a timely manner – for routine

appointments, within five days of receiving an authorization and scheduling care to occur within 30 days. Urgent authorizations have an even higher standard: appointments are made within 48 hours of receiving an authorization.

- PC3 appointment schedulers always attempt to contact Veterans in order to collaboratively find appointment times that are convenient for Veterans. Distance as well as travel time are considered when offering the Veteran an appointment with providers within VA-defined distance standards. Veterans are called to schedule the appointment and the provider is contacted after the appointment to make sure the Veteran attended the appointment. If the Veteran did not attend the appointment, Health Net ensures the Veteran is contacted to reschedule the appointment.

- The PC3 program achieves care coordination by requiring that medical documentation is returned to VA. In PC3, documentation is collected from the provider, imaged into in a workflow management system (iDocs), and transferred electronically to VA (within 14 days for outpatient care and 30 days for inpatient care) -- for inclusion in the Veteran's electronic health record. In collaboration with DOMA Technologies, a Veteran Owned Small Business, iDocs has been tailored for PC3 to provide transparency and ready access to information by VA. The iDocs system provides VA users with secure, role based access to key information and provides transparent access to information. The same system is accessed by both VA and Health Net users. VA users can track the authorization as it progresses through a seven step process that includes appointing and delivery of complete medical documentation.

- Ensuring quality is an important component of PC3. Network providers must meet strict, VA-mandated clinical quality requirements to be accepted into the PC3 network which includes the Medicare Conditions of Participation (CoP) and Conditions for Coverage (CfC). In addition, Health Net's network is URAC accredited. URAC accreditation is a symbol of excellence and provides key quality benchmarks in the healthcare industry. Health Net meets URAC's nationally recognized standards of quality and operational integrity for network management, provider credentialing, quality management and improvement, and consumer protection. Over 60,000 providers are in the PC3 network across all three regions, and those numbers continue to grow based on the needs of each VAMC.

- Primary care is not available through PC3, so all of the network providers are specialty providers

Congressional Interest

Section 101 of the Choice Act[27] requires the VA to offer an authorization to receive care via a non-VA provider to any Veteran who is: enrolled in the VA healthcare system as of August 1, 2014, or who is a newly discharged combat Veteran if such Veteran is unable to secure an appointment at a VA medical facility within 30 days (or a future published goal established by the Secretary) or resides more than 40 miles from the nearest VA medical facility, with certain exceptions.

Section 104 of the same Act extends the current Project Access Received Closer to Home (ARCH) pilot program for two years in Veterans Integrated Service Networks (VISNs) 1, 6, 15, 18 and 19 with the purpose of improving access to healthcare for rural Veterans. In doing so, it would also require VA to make use of existing contracts or, in lieu of extending current contracts, authorize VA to enter into new contracts.

Section 105 of the Act provides that it is the sense of Congress that VA comply with section 1315 of title 5, United States Code of Federal Regulations, (commonly known as the "prompt payment rule"), in paying for healthcare pursuant to contracts with non-VA providers. It would also require the Government Accountability Office (GAO) to conduct a report, not later than one year after enactment, on the timeliness of payments by VA to non-VA providers for care and services provided to Veterans.

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[27] Veterans' Access to Care through Choice, Accountability, and Transparency Act, Section 204; enacted August 2014.

5.5 Appendix E: My HealtheVet

My HealtheVet is a web portal that allows Veterans to access and update their personal health record, refill prescriptions, and schedule appointments. This also allows Veterans to port their health records to institutions outside the VA health system or keep a personal copy of their health records, a Personal Health Record (PHR). It was designed for Veterans, active duty Service members, their dependents and caregivers.

My HealtheVet helps a Veteran partner with his or her healthcare team. It provides opportunities and tools that enable Veterans to make informed decisions and better manage their healthcare.

"Among the newest features available to Veterans with a Premium Account include VA Notes. These are clinical notes that your healthcare team records during your appointments or hospital stays. Also available are your VA Immunization records, more detailed lab reports and a list of your current medical issues. These features are in addition to prescription refills, VA Appointments and Secure Messaging – all very popular with Veterans![28]"

Veterans are encouraged to take advantage of the free PHR services offered by the federal government. With a self-reported option and VA health record option available, patients will have a detailed overview of their medical history. The service allows Veterans to communicate their non-urgent health needs to caregivers and family members.

Veterans can get started using the many features of My HealtheVet by first going through an authentication process found at their local VA healthcare facility. Once upgraded from a self-reporting account, Veterans can enjoy several perks including secure messaging with doctors online.

My HealtheVet Features:

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[28] From the public web site of Carver County, Minnesota:
http://www.co.carver.mn.us/departments/admin/myhealthevet.asp

Specific features in My HealtheVet are available to Veterans based on their account type. All users who have a Basic account can view their self-entered information. VA patients can upgrade their accounts to gain access to more features of the service.

- **Comprehensive Summaries** – Patients can store a complete medical history on My HealtheVet. The entered data can include the patient's medical history, current and past prescriptions and a summary of surgeries and lab work performed. A VA patient can also view copies of military service records through the patient portal.

- **Blue Button Feature** – The My HealtheVet Blue Button is utilized to make it easier for patients to share their health information with others. By selecting the button within the PHR portal, patients can choose to view, download or print a copy of the health record they have previously created.

- **Manage VA Appointments** – Veterans can view any upcoming VA appointments on My HealtheVet. They will also be able to view a copy of doctor's notes and receive wellness reminders to assist them with staying on top of their healthcare needs.

- **Vitals Tracking** – Under the Track Health section of the My HealtheVet platform, users can record and analyze their vital statistics. Commonly tracked items include blood cholesterol levels, blood sugar amounts, heart rate, body weight and blood pressure.

- **Prescription Refill Requests** – Registered patients can communicate securely with VA doctors and nurses. Refill requests can be sent via My HealtheVet directly to caregivers.

- **Wellness Reminders** – Personalized reminders are created in the My HealtheVet portal to remind Veterans the importance of continuing care. Health reminders can be sent to individuals with known medical risks. A Wellness Reminders tab summarizes what patients should be doing at that point in time to stay healthy.

- **Specific Search Queries** – Patients can sometimes feel overwhelmed when trying to search through their lengthy medical history. In My HealtheVet users can search by date range and category to quickly find the information they need for their doctors.

- **VA Reporting** – An admission and discharge report is automatically created for VA patients. They can also view reports of their pathology results and read radiology reports after undergoing imaging scans. Immunization records and EKG results are additional categories available through My HealtheVet.

5.6   Appendix F: New VetLink Kiosks

VA is striving to improve Veterans' healthcare experience. To achieve this, over the past year self-service kiosks have been installed in many of its Medical Centers and clinics to help streamline appointment check-in times. Similar to check-in systems used in airport terminals, the Vetlink kiosks provide an alternative (and secure) means of checking-in for exam appointments. VetLink kiosks have touch-screen technology that will give Veterans easy access to make changes to their health information. On VetLink, a Veteran can[29]:

- Check-in for a previously scheduled medical appointment

- Update contact information

- Update demographic information

- Update and validate insurance information

- View account balance

- Print an appointment itinerary slip

VetLink is an initiative of the VA Point of Service (VPS) Program. VPS serves VA medical centers by providing forward-thinking technology to streamline business processes. VPS delivers devices with hardware and software that can meet medical center needs. The software has separate but integrated capabilities that can be enabled or disabled to accommodate clinic workflows. In the future, VPS will continuously improve software capabilities to better serve Veterans and their families. The VPS Program Management Office will continually upgrade VetLink software and hardware to enhance services available to Veterans. Some of the future services to be offered to Veterans includes scheduling and viewing future medical appointments; completing payment transactions; signing and completing various VA documents; updating medication information; and refilling prescriptions[30].

At one of the facilities visited by the NVTC Team, VetLink kiosks are located in reception areas for both Primary Care and Specialty Care, and they appeared to be
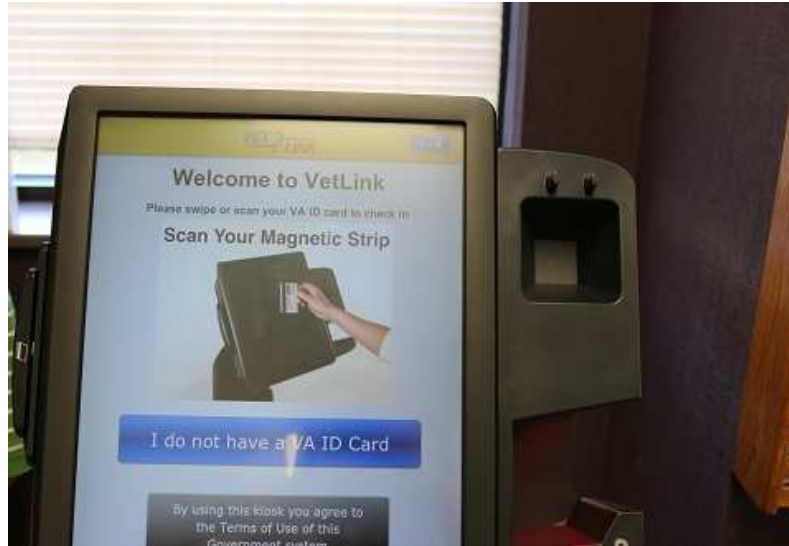
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[29] From the public web site of the Veterans Healthcare System of the Ozarks:
http://www.fayettevillear.va.gov/features/VetLink_Kiosk.asp#
[30] From the public web site of the Bay Pines VA Healthcare System
http://www.baypines.va.gov/BAYPINES/pressreleases/20140813.asp

having the desired effect of reducing the number of people standing in line to meet with schedulers.

Close-up of the Welcome Screen on VetLink Kiosks

Instructions for Using the VetLink Kiosk

1. Select Check In for Appointments.

2. You can swipe or scan your Veterans Health Identification Card (VHIC) or enter your full social security number.

3. You'll be asked to enter your date of birth and then verify your identity.

4. Update your address, phone number, and personal information on the touchscreen keypad.

5. Indicate if your health insurance information is accurate or not. If you have additional insurance, we'd like to keep that information up-to-date too.

6. Confirm your appointment. If queuing is enabled, the system automatically checks you in and provides a queue number.

7. Access additional kiosk options by selecting, "I Want to Do More."

If you need any help, a VetLink Navigator will be nearby to provide assistance, and you can always visit a clerk to check in. Visually impaired Veterans can also use VetLink by inserting their ear buds into the audio jack located at the bottom right of the kiosk.

5.7   Appendix G: VistA and CPRS

VA has developed and continues to maintain a robust EHR known as VistA - the Veterans Health Information Systems and Technology Architecture. This system was designed and developed to support a high-quality medical care environment for the military Veterans in the United States. The VistA system is in production today at hundreds of VA medical centers and outpatient clinics across the country.

VistA has a track record of supporting a large variety of clinical settings and medical care delivery systems. Facilities range from small clinics that provide solely outpatient care to large medical centers with significant inpatient populations and their associated specialties, such as surgical care or dermatology. These systems focus on clinically relevant record keeping that improves patient care by improving clinical and administrative decision-making. Versions of this system are in active use in the U.S. Department of Defense Military Health System, the U.S. Department of Health and Human Services Indian Health Service, and internationally as well, e.g., Mexico - Instituto Mexicano del Seguro Social, and National Cancer Institute of Cairo University in Egypt[31].

The costs associated with the acquisition and support of an EHR can be a barrier to improving the quality of healthcare provided by limiting the availability of timely and accurate access to electronic patient information. Part of the solution is to lower the cost of acquiring an EHR by using a software stack consisting of open-source, free software such as VistA.

VA has had automated data processing systems, including extensive clinical and administrative capabilities, within its medical facilities since before 1985[32]. Initially called the Decentralized Hospital Computer Program (DHCP) information system, DHCP was enshrined as a recipient of the Computerworld Smithsonian Award for best use of Information Technology in Medicine in 1995.

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[31] From the WorldVistA web site: http://worldvista.org/AboutVistA

[32] Brown, Stephen H. (2003). "VistA, U.S. Department of Veterans Affairs national scale HIS", International Journal of Medical Informatics 69 (2–3): 135

VistA supports both ambulatory and inpatient care, and includes several significant enhancements to the original DHCP system. The most significant is a graphical user interface for clinicians known as the Computerized Patient Record System (CPRS), which was released in 1997. In addition, VistA includes computerized order entry, bar code medication administration, electronic prescribing, and clinical guidelines.

CPRS provides a client–server interface that allows healthcare providers to review and update a patient's electronic medical record. This includes the ability to place orders, including those for medications, special procedures, X-rays, nursing interventions, diets, and laboratory tests. CPRS provides flexibility in a wide variety of settings so that a consistent, event-driven, Windows-style interface is presented to a broad spectrum of healthcare workers.

VistA Modules:

- **Database backend –** VistA was developed using the M or MUMPS language/database. The VA currently runs a majority of VistA systems on the proprietary InterSystems Caché version of MUMPS, but an open source MUMPS database engine, called GT.M, for Linux and Unix computers has also been developed. Although initially separate releases, publicly available VistA distributions are now often bundled with the GT.M database in an integrated package. This has considerably eased installation. The free, open source nature of GT.M allows redundant and cost-effective failsafe database implementations, increasing reliability for complex installations of VistA.
- **Database projections --** An open source project called EsiObjects has also allowed the (ANSI- Standard) MUMPS language and database technology to evolve into a modern object-oriented language (and persistent-object store) that can be integrated into mainstream, state-of-the-art technologies. For the Caché MUMPS database, a similar object-oriented extension to MUMPS called Caché ObjectScript has been developed. Both of these have allowed development of the MUMPS database environment (by programmers) using modern object-oriented tools. M2Web is an open source web gateway to MUMPS for use with VistA.

- A free open source module from M/Gateway called MGWSI has been developed to act as a gateway between GT.M, Cache, or M21 MUMPS databases and programming tools such as PHP, ASP.NET, or Java, in order to create a web-based interface.
- **Patient Web Portal** – My HealtheVet is a web portal that allows Veterans to access and update their personal health record, refill prescriptions, and schedule appointments. This also allows Veterans to port their health records to institutions outside the VA health system or keep a personal copy of their health records, a Personal Health Record (PHR).
- **VistA Imaging** – VA has also developed VistA Imaging, a coordinated system for communicating with PACS (radiology imaging) systems and for integrating others types of image-based information, such as EKGs, pathology slides, and scanned documents, into the VistA electronic medical records system. This type of integration of information into a medical record is critical to efficient utilization[33]. VistA Imaging can be used independently or integrated into the VistA electronic health record system (as is done in VA health facilities).

VistA Deployments:

The VistA electronic healthcare record has been credited for reforming the VA healthcare system, improving safety and efficiency. The results have spurred a national impetus to adopt electronic medical records similar to VistA nationwide. VistA Web collectively describes a set of protocols that in 2007 was being developed and used by the VHA to transfer data (from VistA) between hospitals and clinics within that pilot project.

Bidirectional Health Information Exchange (BHIE) enables real-time sharing of electronic health information between DoD and VA for shared patients of allergy, outpatient pharmacy, demographic, laboratory, and radiology data. This became a priority during the Second Iraq War, when a concern for the transition of

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[33] "PACS Lessons Learned at the Baltimore VA," Imaging Economics, Skokie, IL, December 2002

healthcare for soldiers as they transferred from active military status to Veteran status became a national focus of attention[34].

A Clinical Data Repository/Health Data Repository (CHDR) allows interoperability between the DoD's Clinical Data Repository (CDR) and the VA's Health Data Repository (HDR). Bidirectional real time exchange of computable pharmacy, allergy, demographic and laboratory data first occurred in 2007.

The combination of VistA and the interoperable projects listed above in the VA/DoD systems will continue to expand to meet the objectives that all patients will have an electronic record by 2015.

Because of the success of these programs, a national move to standardize healthcare data transmission across the country was started. Text based information exchange is standardized using a protocol called HL7 (Health Level 7), which is approved by the American National Standards Institute. DICOM is an international image communications protocol standard. VistA is compliant with both. VistA has been interfaced with commercial off-the-shelf products, as well. Standards and protocols used by VA are consistent with current industry standards and include HL7, DICOM, and other protocols.

 Tools for CCR/CCD support have been developed for VistA, allowing VistA to communicate with other EHRs using these standardized information exchange protocols.[19] This includes the Mirth open source cross platform HL7 interface and NHIN Connect, the open source health information exchange adaptor.

 In 2009, a project was undertaken to facilitate EHR communication between the VA (using VistA) and Kaiser Permanente (using Epic) using NHIN Connect.[20] (Both VistA and the commercial EHR Epic use a derivative of the MUMPS database, thereby facilitating data exchange.) When completed, two of the largest medical record systems in the US will be able to exchange health data. Public-domain VistA derivatives are also expected to be able to use NHIN Connect.

The VistA EHR has also been used by the VA in combination with Telemedicine to provide surgical care to rural areas[35].

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[34] Mosquera, Mary, "Full VA/DOD e-health sharing several years off". Government Health IT, Falls Church, VA, May 9, 2007.

5.8 Appendix H: VA's Telehealth Services

There's a quiet revolution going on in healthcare that has big implications for the future of medicine[36]. At the federal level of government in the United States, VA has embraced telemedicine[37], though it uses the broader term Telehealth, which allows patients to receive medical examinations from primary care physicians, consult with specialists, participate in one-on-one psychotherapy or counseling, and share diagnostic information using videoconferencing and other electronic communications tools. Telehealth mainly been used to reach those who live in rural areas, but its influence is spreading.

VA Telehealth Services use health informatics, disease management and Telehealth technologies to target care and case management to improve access to care, improving the health of Veterans. Telehealth changes the location where healthcare services are routinely provided[38].

Though much of the technology underlying Telehealth is not particularly advanced, a confluence of circumstances is conspiring to take telemedicine into the realm of everyday programs. For instance, consumer devices such as the networked pedometer Fitbit[39] are showing the public how monitoring and data-collection tools can be used to enhance health and fitness.

At a deeper level, changes in the law and a new emphasis on preventive care and disease management are combining to take telemedicine into the mainstream.

The VA has been leading the way in deploying telemedicine on a large scale. In fiscal 2013, more than 600,000 Veterans accessed VA care using Telehealth programs – for a total of more than 1.7 million episodes of care –, and the reach of those services is growing by about 22 percent a year[40].

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[35] "VA Telemedicine Program Expands Access to Bariatric Surgery". General Surgery News Vol. 36, Number 12 p.40 (December 2009).

[36] "How VA is Driving Telemedicine," Adam Mazmanian, FCW, February 13, 2014

[37] "Stuck in the Waiting Room," The Economist, October 11, 2014

[38] "What Is Telehealth?" – from the VA web site: http://www.Telehealth.va.gov/

[39] Fitbit products continuously sync a patient's stats to his or her computer and smartphone, to provide real-time access to progress and reminders throughout the day without having to plug in. http://www.fitbit.com/story

[40] "How VA is Driving Telemedicine," Adam Mazmanian, FCW, February 13, 2014

This year, the Department has been conducting a pilot program that allows Veterans to enter vital information into an online tool that is accessible via mobile phones, tablets or desktop PCs to help their caregivers manage chronic conditions. VA has launched service that allows larger, better-resourced hospitals to connect with smaller facilities to provide remote support for intensive care.

Although VA has a network of 152 hospitals and more than 1,100 other caregiving facilities, it still faces the problem of having to cover a lot of territory in terms of reaching Veterans. Additionally, officials found that 45 percent of those requiring treatment resided in counties classified as rural by the U.S. Census Bureau.

Beginning in 2003, VA began a deliberate policy of building a national telemedicine initiative to expand its reach, reduce travel costs, and increase the levels of care available to Veterans.

Today, VA runs three basic types of telemedicine programs:

- Clinical video is designed to replicate face-to-face interactions between caregivers and patients using videoconferencing
- Home monitoring allows doctors to keep tabs on patients with chronic conditions such as diabetes
- The teleradiology service on VA's My HealtheVet website allows clinicians to share imaging information on individual cases for help in diagnostics and care.

Increasingly, Veterans of the wars in Iraq and Afghanistan are accessing telemedicine for mental health services, including treatment of post-traumatic stress disorder. Last year, VA tested a program that allows Veterans to access those services from their homes via a secure video connection. It reached nearly 2,300 Veterans in the pilot phase, and anticipates reaching 7,000 this year as the program is expanded.

This rapid expansion of secure video connections poses some challenges from a network management perspective, because it requires a lot of bandwidth. It also means that the VA needs to employ sufficient management and monitoring tools to ensure the quality of service that doesn't diminish the quality of those video sessions.

It also requires the VA's clinical and IT people to work closely together for a variety of reasons. Clinicians must be trained to work not just with their clinical model, but also with the supporting telecommunications and video technologies. Adequate help-desk support for both patients and clinicians must be made available at all the right times to provide such mission critical healthcare.

Synchronous vs. Asynchronous Telehealth[41]

Synchronous, real-time or Clinical Video Telehealth requires the presence of both parties at the same time and a communication link between them that allows a real-time interaction to take place. Video-conferencing equipment is one of the most common forms of technologies used in synchronous Telehealth. There are also peripheral devices that can be attached to computers or the video-conferencing equipment which can aid in an interactive examination.

Asynchronous, or Store-and-Forward Telehealth, involves acquiring medical data (like medical images, bio-signals, voice recordings, etc.) and then transmitting this data to a doctor or medical specialist at a convenient time for assessment offline. It does not require the presence of both parties at the same time.

For technology to work it must work for the people it is meant to help – patients and the professionals providing care. Telehealth in VA helps ensure Veteran patients get the right care in the right place at the right time and aims to make one's home the preferred place of care, whenever possible[42].

Interoperability Challenges

The growing telemedicine industry is still working toward standardization and interoperability. VA, for instance, has the ability to videoconference at facilities linked across its wide-area network, but outside organizations sometimes have different standards and security requirements, which can make it difficult to operate on the same platform.

Increased standardization and interoperability would pave the way toward the integration of telemedicine with electronic health records (EHRs). For very remote populations, Telehealth may be the only means of delivering healthcare.

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[41] "What Is Telehealth?" – from the VA web site: http://www.Telehealth.va.gov/
[42] Ibid.

Community health aides provide telemedicine services for communicating with general practitioners, and acute cases are sent to regional facilities a larger medical center.

EHRs that have some degree of interoperability with regard to patient records and communication among care providers will push industry in the direction of creating telemedicine standards across the board.

The value VA derives from Telehealth is not in implementing technologies alone, but how VA uses health informatics, disease management and Telehealth technologies to target care/case management thereby facilitating access to care and improving the health of Veterans.

Despite a range of technological and industry issues, the biggest impediments to Telehealth are regulatory. State licensing requirements restrict treatment by out-of-state doctors even via telemedicine. One big reason VA has such an outsized influence on the development of Telehealth is because its network of physicians are able to treat Veterans throughout the system without regard to state licensing rules.

Congressional Interest

The recently enacted Choice Act requires VA to improve access to telemedicine and other healthcare services by standardizing requirements for the operation of mobile vet centers and mobile medical centers. It would also require the Secretary, one year after enactment, to submit an annual report to Congress to outline recommended improvements for access to telemedicine and healthcare services through mobile vet centers and mobile medical centers[43].

The Affordable Care Act (ACA) has also established a number of key markers for the study of telemedicine as a care model, with the goal of evaluating effectiveness of treatment, cost savings, reduction in hospital readmissions and other factors.

In addition, the latest National Defense Authorization Act (NDAA) includes a provision that grants those leaving the military service and transitioning into civilian life an additional 180 days of telemedicine services on top of the 180 days

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[43] Veterans' Access to Care through Choice, Accountability, and Transparency Act, Section 204; enacted August 2014.

of health coverage already issued under the Transitional Assistance Management Program (TAMP).

5.9 Appendix I: Patient Aligned Care Teams (and Academic PACTs)

In 2010, transformation of VA primary care into PACT teams emerged as a top VA priority[44]. VA leaders consider Patient Aligned Care Teams (PACTs) to be the "cornerstone of the New Models of Care transformation initiative intended to transform the way Veterans receive their care."[45] It assists VHA in transforming Veterans' care by providing patient-driven, proactive, personalized, team-based care oriented toward wellness and disease prevention resulting in improvements in Veteran satisfaction, improved healthcare outcomes and costs. The PACT model is built on the well-known concept of the patient centered medical home[46] staffed by high-functioning teams.

A Patient Aligned Care Team (PACT) involves each Veteran working together with healthcare professionals to plan for the whole-person care and life-long health and wellness. PACTs focus on:

- **Partnerships** with Veterans – Partnering together to plan and make decisions that focus on whole-person care is the first step towards life-long health and wellness. This is personalized care to meet the Veteran's individual healthcare goals. It is comprehensive, as it looks at all aspects of health. It is positive, as it focuses on health as opposed to disease. It is proactive, as it emphasizes wellness, prevention, and health promotion. It is not just a reaction to acute care needs or episodic care-based illnesses. PACT uses the most up-to-date, evidenced-based information to guide patient care. Working in partnership with Veterans to meet their healthcare goals, PACT provides tools for delivering patient-centered care. These tools include early detection screenings, preventive or wellness care services, educational materials, and lifestyle coaching.

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[44] "Applying the Inter-professional Patient Aligned Care Team in the Department of Veterans Affairs: Transforming Primary Care," American Psychologist, May-June 2013, p.399.
[45] From the VA's PACT web site: http://www.va.gov/health/services/primarycare/pact/index.asp
[46] PACT represents VA's implementation of the Patient Centered Medical Home. The patient-centered medical home has been proposed in the private sector as a model for transforming primary care and improving efficiency and effectiveness in the healthcare system. The broad "change concepts" include: engaged leadership; a quality improvement strategy; empanelment or linking patients with specific providers to ensure the continuity of the patient–provider relationship; continuous and team-based healing relationships, including cross-training staff to allow team members to play various roles; organized, evidence-based care, including the use of decision support systems; patient-centered interactions to increase patients' involvement in their own care; enhanced access to ensure patients have access to care and their clinical information after office hours; and care coordination to reduce duplication of services and increased anxiety for patients and their families.

- **Access to care** using diverse methods – Access to telephone care 24 hours a day, 7 days a week (24/7) is a VHA Healthcare Service Standard. VHA has provided a telephone care policy since 1994, setting goals and standards for telephone care in an effort to continuously improve the service it provides. National efforts have been underway to provide a more satisfying and high quality experience for Veterans. My HealtheVet provides another advantage. Veterans who are registered users can create and maintain their own web-based personal health record, which they can choose to view, print, or download through the new VA Blue Button to share with their healthcare PACT professionals or trusted caregivers.

- **Coordinated care** among team members – This is done through collaboration. Each member of the team has a clearly defined role and knows how to relate to others on the team. The key is open and frequent communication. Team members meet often to talk with Veterans and each other about the patient's healthcare goals and the progress toward achieving them. They coordinate all aspects of the Veteran's healthcare within the PACT and with other care teams outside the primary care system if needed. PACT members oversee the transitions from the primary care team to specialists, and to other healthcare professionals who are part of the Veteran's healthcare plan. Also, if needed, they coordinate the transitions if there is need for an emergency room services, inpatient stays, or dual care with non-VA clinicians. In addition, they work with the Veteran on private sector referrals and to arrange for community resources when needed. This is accomplished within VA and the PACT by using tools such as VA's Computerized Patient Record System (CPRS) and in some locations with the Nationwide Health Information Network; VA's vast Electronic Health Record readily facilitates PACT processes and coordination of care.

- **Team-based care** with Veterans as the center of their PACT – Veterans are at the center of their PACT, which also includes their families and caregivers. Healthcare professionals on the team include the Veteran's primary care provider, a nurse who serves as the care manager, a clinical associate, and an administrative clerk. When additional services are needed to meet the Veteran's goals and needs, another care team may be called in. These may include social workers, dietitians, pharmacists, mental health practitioners, specialists, and other non-VA healthcare professionals. All of these team members work with the Veteran to coordinate a wide variety of healthcare resources.

There are many advantages to this team-based approach. By working together with the same healthcare team members, the Veterans form relationships where they get to know team members as individuals. This bonding can result in more open communication and better cooperation between all the members of the healthcare team. Working together with the PACT, Veterans can develop their healthcare goals and use all the resources of the team to find ways to achieve them.

Because Veterans are the center of the team, they are active participants in their healthcare management. This ensures that their wants, needs, and preferences are respected and the whole team is engaged in meeting their healthcare goals. Other members of the team provide information and ideas, the benefits of their knowledge and experience, plus counsel and support. However, each PACT is patient-centric and Veterans have a say and take ownership of their healthcare.

Technology is another valuable tool used by PACT. It is essential for gaining access to information and communication. It is also used to measure the quality of care and the level of patient satisfaction.

How Does a PACT Function?

A PACT is a partnership between a Veteran and his or her healthcare team to make sure whole-person care is received. This is personalized care to meet each Veteran's individual healthcare goals. The PACT looks at all aspects of a Veteran's health, with emphasis is on prevention and health promotion.

A PACT offers many ways to access healthcare. In addition to personal visits with a Veteran's primary healthcare provider, visits may be scheduled with other members of a Veteran's PACT. Veterans may have also access to group clinics and educational seminars, plus a wealth of information on the Internet through My HealtheVet. Veterans can communicate with members of his or her PACT by telephone or through Secure Messaging via My HealtheVet.

A PACT achieves coordinated care through collaboration. All members of each PACT have clearly defined roles. They meet often to talk with the Veteran and each other about progress toward achieving your health goals. The focus is on forging trusted, personal relationships, and the result is coordination of all aspects of needed healthcare.

A PACT uses a team-based approach. The Veteran is the center of the care team that also includes family members, caregivers, and your healthcare professionals – i.e., primary care provider, nurse care manager, clinical associate, and administrative clerk. When other services are needed to meet a Veteran's goals and needs, another care team may be called in.

Improvement Opportunities

Appointment scheduling is currently performed primarily via telephone, in person, or mail. The intervention of a VA employee is currently required to make appointments. VA needs to enable Veterans to schedule their own appointments electronically via online and mobile devices.

VA also needs to schedule and coordinate care across internal and external administrative, or system, boundaries. As examples:

- Veterans may choose to live in different states at different times of the year and need to make appointments to receive care where they live when they need it.

- A clinician who can provide needed care for a Veteran may be located at a different hospital, in different VISN or at an external academic affiliate or contract medical group.

- A physician who will be examining a Veteran to determine nature and extent of a service-related disability may also be located at a different hospital, VISN, or be delivering examination services under contract.

- Telehealth technologies can be expanded to support care delivery by a clinician who is physically located at a different hospital or even in a different VISN than the physical location where the Veteran will receive the care.

- PACTs need to coordinate care with non-VA community providers when Veterans choose to receive care both inside and outside the VA system.

- Support services such as non-VA transportation services must be coordinated.

VA currently relies on the MSP to perform non-scheduling functions including workload data capture and a broad range of workload and other management report.

Academic PACTs

For those VA medical centers – such as the Richmond VAMC – with health professions education programs and therefore responsibility for achieving VA's statutory educational mission, this transformation offers the additional challenge of integrating clinical trainees into an Academic PACT environment.

An "Academic PACT" is defined as a primary care clinical practice that includes educating health professions trainees as an integral component of its mission. Academic PACTs must fulfill the dual missions of delivering patient-centered, team-based, high quality care and providing education that prepares health professions graduates for patient-centered care practice. An Academic PACT can be distinguished from other PACT's through the incorporation of meaningful roles in delivering care for trainees from medicine, mental health, undergraduate nursing, advanced practice nursing, pharmacy, and other health professions.

To fulfill these dual missions, stakeholders at all levels inside and outside of the VHA should understand and address the unique challenges of Academic PACT implementation. With this goal in mind, the Academic PACT Work Group provided the following recommendations for leadership consideration:[47].

- *Recommendation #1: Develop Academic PACTs as ideal learning environments fully capable of addressing the inseparable missions of delivering quality patient care and educating the next generation of healthcare practitioners.* Academic PACTs will only reach their full potential in clinical environments explicitly organized so that education is aligned with patient care. Under these circumstances, Academic PACTs will improve the quality of Veterans' care experiences by enhancing workplace learning for *all* team members – patient, clinicians, staff and trainees alike. As integral members of Academic PACT teams, trainees will also be far better prepared to enter the clinical workforce than their non-PACT counterparts. Front line clinicians and educators are ideally situated to inform the optimal learning environment and the metrics that support continuous performance improvement. They must be seen as exemplary role models in high performing primary care teams striving to achieve desired patient-driven care outcomes in the most efficient way possible. Medical center leadership is well situated to promote the utility of Academic PACTs

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[47] Submitted on behalf of VA Offices of Primary Care and Academic Affiliations -- Academic PACT Work Group July 29, 2013.

in aligning primary care with the goals of the VHA strategic plan. VHA and affiliate leadership must be jointly committed to the success of Academic PACTs by jointly ensuring the development, deployment and resourcing of the model. In many locations, Academic PACT transformation is underway. To support those currently engaged in PACT redesign in academic settings, VA should develop a forum and mechanism for these leaders to share challenges, solutions, and best practices across different training models and accelerate learning that benefits primary care and education across the VA.

- Recommendation #2: Expand the definition and support of Academic PACT teaching faculty. To address the inseparable missions of quality patient care and education, *all* members of the Academic PACT team must be recognized as having the potential of influencing learning, and staff must be developed and supported as teaching faculty. All PACT team members must accept personal responsibility for their teaching roles and be willing to be guided by assessment measures that monitor both individual and team performance. Fulfilling responsibilities for simultaneous patient care and teaching roles requires time and considerable skill development. All members of the Academic PACT team must have opportunities to improve their skills both as clinicians *and* as teachers. Skill development areas include supervision of trainees, mentoring, assessing trainees' performance and completing evaluations, providing feedback to trainees about performance, and teamwork performance. VA medical center and health profession school leaders must provide the time and opportunity for this training, making overall workload adjustments that optimize both missions. In Academic PACTs clinical faculty from one profession interact with trainees from other professions. Academic affiliates and professional bodies with program oversight authority will have to revise faculty appointment and accreditation policies. Joint appointments for core faculty (e.g., nurse practitioners and physicians) in Academic PACTs may be an optimal solution. VA trainee supervision standards will have to be reconsidered as well.

- *Recommendation #3: Prioritize continuity of patient care and learning in Academic PACTs.* Academic PACTs must include a robust platform to foster team development and cohesion. Longitudinal relationships between patients and the team and between trainees and supervisors and other team members

are essential. Primary care and academic program leadership must work collaboratively to prioritize continuity in ways that support both missions:

o *Continuity of care*. Continuity of care in a teaching practice requires fastidious attention to relationships between the patient and trainees, faculty supervisors, and other team members. Clinical systems must be designed for coverage and hand-offs that minimize the number of primary providers while ensuring the full availability of the team's expertise. Trainees must be held accountable for their patients' care including participation in huddles and team meetings to facilitate communication and care planning and for seamless transfer of responsibilities when they are not available. Performance evaluations should reflect these expectations. Faculty supervisors must be made readily available to ensure trainee supervision and patient access in the trainee's absence. To avoid fragmentation of supervision and promote continuity of patient care Academic PACTs should determine a minimum clinical effort per clinician-supervisor that best supports both missions.

o *Continuity of learning*. Continuity of learning includes trainee-patient, trainee faculty supervisor, and trainee-team relationships. Peer relationships amongst trainees are also important, including relationships within and across professions. Team stability supports the professional development of trainees and bolsters continuity for patients when trainee providers are assigned to other activities. To the extent possible, Academic PACT team members should not be used as a staffing resource to backfill other primary care teams.

• *Recommendation #4: Prioritize proactive, patient-centered, population-based team care delivery as the organizing principle for Academic PACTs.* Irrespective of their specific design features, all Academic PACTs must be organized around service and quality of care for their patients. The effective and efficient management of a defined patient panel is the center of team-based caring and learning in the same way that individual patients are the center of patient-centered care delivery. This organizing principle has several notable consequences:

o *Performance Improvement*. All members of Academic PACTs, including health professions-trainees, must develop proficiency in quality improvement methods applied to the continuous improvement of both care delivery and education. Improvement activities should be designed

to leverage the oftentimes complementary expertise of each team member.

o *Alternative Visits.* Many patients favor remote access to their electronic health record (e.g. MyHealtheVet) and alternative appointment types. All members of Academic PACTs must become proficient with delivering care using both face-to-face and alternative visit modes. Curricula should include opportunities for trainees to deliver care using the telephone, secure messaging, group visits or shared medical appointments, and Telehealth modalities.

o *Data Management and Technical Support Systems.* Continuous performance improvement requires ready access to patient, program and system data. VA's electronic health record must have full population and panel management functionality and clinical trainees must be formally recognized as providers. Remote access for trainees, faculty, and other team members must be available to facilitate timely communication. Academic PACT supervisors and trainees must adhere to team and facility expectations to respond to alerts and participate in care decisions when working remote to the practice.

o *Space.* Academic PACTs require space to optimize both missions. At least two exam rooms per provider (trainee or staff) allow rooming the patient only a single time while providing other team members co-visiting opportunities. Larger rooms more readily permit trainees to efficiently engage multiple team members quickly and easily in real time. Adjacent teaching rooms allow team meetings that promote team and trainee case discussions and inter-professional socialization. Clinical practice space should be designed with input from clinicians *and* educators, and space should be assigned with both missions in mind.

- *Recommendation #5: Develop and implement metrics that support education as well as quality patient care and system performance.* To incentivize and monitor quality patient care *and* education, existing PACT metrics must be revised to take the needs of trainees and their education programs into account while still ensuring quality outcomes for patients. Continuity solely measured at individual patient or trainee levels inevitably discourages primary care sites from developing Academic PACTs. Metrics that demonstrate team performance and inter-professional education are also required and must recognize that all trainees and some supervising faculty

are not immersed in Academic PACT for the entirety of their effort. Metrics that reflect the priorities and desired outcomes of VHA and national educational and clinical workforce goals should be adopted as well.

- *Recommendation #6: Educate trainees from different professions together.* To meet its statutory education mission, Academic PACTs must incorporate trainees from as many of the health professions already engaged in PACT practice as possible. PACT transformational efforts have invested in preparing staff practitioners organized in teams for new ways of working together to deliver high quality, patient driven care. The Academic PACT is the ideal platform for educating trainees from medicine, mental health, undergraduate nursing, advanced practice nursing, pharmacy, rehabilitation, and others *together* to best prepare them for future primary care practice.

Recommendation #7: Develop collaborative leadership models for primary care delivery and educational programs. Developing Academic PACTs requires collaborative working relationships between clinical and educational leaders at all levels in VHA. At the practice level, traditional reporting structures for physician and nurse clinician-educators (and other members of the team) impedes the development of shared goals, shared investment in collaborative care model re-design, and shared engagement in care delivery and teaching. At the medical center and affiliate levels, educational activities must be designed collaboratively between academic leaders and primary care leaders to ensure optimization of both missions. At the VHA and academic national leadership levels, better understanding of the inseparability of education and clinical practice should translate into consistent policy and procedures informed by both missions. Traditional educational cultures and accreditation requirements serve as barriers to inter-professional education. Ultimately, both within- and across-profession engagement in Academic PACT will require changes in national accreditation and other professional bodies. Education accreditation bodies will need to address supervision requirements that promote separate rather than cross-profession supervision (e.g., nurse practitioner supervision of physician trainees). VHA leadership should advocate for such changes at the national level and while fostering culture change at the local level.

5.10 NVTC Participants

To comply with the terms of the MoA reached between VA and NVTC, governing the conduct of this Review, this Appendix lists both the individuals and the specific members of the Technology Organization (i.e., NVTC) that participated in this effort:

- Booz Allen Hamilton – Kevin Vigilante, Beth Neiley, Jennifer Morrison

- HP – Laura Miller

- IBM – Zbynek Krobot

- MITRE – Ken Mullins, Jeanne Vasterling, Gabe Galvan

- SAIC – Ginger Groeber, Shane Gellenthien

- MAXIMUS – Anna Sever

- Qlarion – Jake Bittner

- Providge Consulting – Tara Teaford

5.11 Appendix K: Acronyms and Abbreviations

ACA – The Affordable Care Act

ANSI – American National Standards Institute

ARCH – Access to Care Received Closer to Home

BHIE – Bidirectional Health Information Exchange

BPMN – Business Process Modeling Notation

CBOC – Community-Based Outpatient Clinic

CCHT – Care Coordination/Home Telehealth services

CDR – Clinical Data Repository

CfC – Conditions for Coverage

CHDR – Clinical Data Repository/Health Data Repository

Choice Act – Veterans' Access to Care through Choice, Accountability, and Transparency Act

CoP – Conditions of Participation

CPRS – Computerized Patient Record System

DHCP – Decentralized Hospital Computer Program

DICOM – Digital Imaging and Communications in Medicine; DICOM is a standard for handling, storing, printing, and transmitting information in medical imaging

DoD – Department of Defense

DOMA – DOMA Technologies, a Veteran Owned Small Business

EHPCM – Enrollee Health Care Projection Model

EHR – Electronic Health Record

EWL - Electronic Wait List

FedBizOps - Federal Business Opportunities

GAGAS – Generally Accepted Government Auditing Standards

GAO - Government Accountability Office

GT.M – Greystone Technology M, an application development platform and a compiler for the ISO standard M language, also known as MUMPS.

GUI – Graphical User Interface

HAS - Health Administration Service

HDR – Health Data Repository

HERO – Healthcare Effectiveness through Resource Optimization

HSRD – Health Services Research and Development

iDocs – a standard interface (computing) for data transfer

IT – Information Technology

MoA - Memorandum of Agreement

MFLC – Military and Family Life Counseling

MGWSI – A free open source module from M/Gateway, which has been developed to act as a gateway between GT.M, Cache, or M21 MUMPS databases and programming tools such as PHP, ASP.NET, or Java, in order to create a web-based interface

MSP – Medical Scheduling Package

MUMPS – Massachusetts General Hospital Utility Multi-programming System; it is widely used in financial and clinical applications and remains the basis of VA's VistA, the largest of its kind in the world.

NDAA – National Defense Authorization Act

NEAR - New Enrollee Appointment Request

NHIN – Nationwide Health Information Network

NVTC – The Northern Virginia Technology Council

OIG – Office of the Inspector General

PACT – Patient Aligned Care Team

PC3 – Patient-Centered Community Care

PCMH – Patient-Centered Medical Homes

PTSD – Post-traumatic Stress Disorder

RADM – Rear Admiral (USPHS)

TAMP – Transitional Assistance Management Program

TRICARE – formerly known as the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), TRICARE is a healthcare program of the United States Department of Defense Military Health System

UI – User Interface

UX – User Experience

URAC – formerly known as the Utilization Review Accreditation Commission, URAC is a nonprofit organization that aims to promote healthcare quality by accrediting healthcare organizations.

USPHS – U.S. Public Health Service

VA - Department of Veterans Affairs

VAMC – VA Medical Center

VHA - Veterans Health Administration

VHIC – Veterans Health Identification Card

VISN – Veterans Integrated Service Network

VistA - Veterans Health Information Systems and Technology Architecture

VSO – Veterans Service Organization

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