VA Office of Inspector General

OFFICE OF AUDITS AND EVALUATIONS

Department of Veterans Affairs

Audit of the Pharmacy Reengineering Software Development Project

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ACRONYMS AND ABBREVIATIONS

CIO	Chief Information Officer
iEHR	Integrated Electronic Health Record
IOC	Initial Operating Capability
IT	Information Technology
MOCHA	Medication Order Checking Health Care Application
OIG	Office of Inspector General
OIT	Office of Information and Technology
OMB	Office of Management and Budget
PECS	Pharmacy Enterprise Customization System
PMAS	Project Management Accountability System
PRE	Pharmacy Reengineering
VA	Veterans Affairs

Report Highlights: Audit of VA's Pharmacy Reengineering Software Development Project

Why We Did This Audit

In October 2009, the Office of Information and Technology (OIT) restarted the Pharmacy Reengineering (PRE) project under the Project Management Accountability System (PMAS). PRE is critically needed to help address patient safety issues associated with adverse drug events. Accordingly, we evaluated the effectiveness of OIT's management of the PRE project.

What We Found

Although some progress has been made, OIT has not been effective in keeping the PRE project on target in terms of schedule and cost, as well as the functionality delivered. Deployed PRE functionality has improved patient safety. However, project managers have struggled to deploy PRE increments in a timely manner. Project managers were also unable to provide reliable costs at the increment level. OIT restarted PRE at a time when PMAS had not evolved to provide the oversight needed to ensure project success.

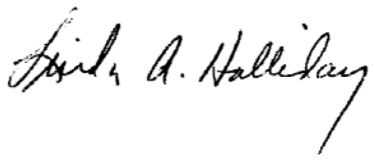
As such, PRE management was challenged in keeping the project on track. Consequently, OIT is at an increased risk of not completing PRE on time and within budget. Moreover, the future of Pharmacy Reengineering is uncertain due to potential plans to transfer funding and remaining development to the Integrated Electronic Health Record (iEHR) project in FY 2014. Stronger accountability over cost, schedule, and scope for the remaining development is needed prior to such a transfer so that iEHR is not compromised by the same challenges.

What We Recommended

We recommended the Executive in Charge and Chief Information Officer (CIO) ensure all of the time used, including the time on the initial operating capability phase, to complete each remaining PRE increment is reported and monitored; ensure adequate oversight and controls, including the planning guidance, staffing, and cost and schedule tracking needed to deliver functionality on time and within budget; and establish a plan for future funding of PRE until iEHR is decided.

Agency Comments

The CIO agreed with our recommendations and provided an acceptable corrective action plan. We will assess OIT's corrective actions in the future.



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INTRODUCTION

Objective

We conducted this audit to determine whether the Office of Information and Technology (OIT) has effectively managed the Pharmacy Reengineering (PRE) software development project to provide pharmacy stakeholders with agreed-upon functionality while meeting cost and schedule goals.

History of PRE

VA initially launched PRE in March 2003 with scheduled completion by September 2008 at an estimated cost of approximately $144 million. PRE would replace VA's suite of obsolete pharmacy applications with an improved system designed to meet VA's current and future business needs. Initial PRE increments would address patient safety issues by providing clinical decision support tools to reduce medication errors and adverse drug events. In subsequent increments, PRE would address items such as pharmaceutical inventory management, dispensing, and clinical monitoring.

In FY 2009, VA found a significant number of its information technology (IT) development projects were behind schedule or over budget. VA temporarily halted 45 IT development projects, including PRE, for not meeting cost and schedule goals. In June 2009, the Secretary of Veterans Affairs announced that VA would implement the Project Management Accountability System (PMAS) to improve management of its IT development projects and stop the succession of project failures. PRE could not resume development until managers created a project restart plan that met PMAS requirements.

In October 2009, the then Assistant Secretary for Information and Technology approved the restart of PRE. The project completion date was scheduled for 2019. According to VA's Exhibit 300 submitted to the Office of Management and Budget in September 2009, the total cost of PRE had risen to approximately $164 million. An Exhibit 300 describes the justification, planning, and implementation of an individual IT capital asset included in an agency's IT investment portfolio. It also provides information on resources, timelines, activities, risks, and performance of the investment or IT development project.

Other Information

The following appendixes provide additional information.

- Appendix A provides pertinent background information.
- Appendix B provides details on our scope and methodology.
- Appendix C provides a status of the increments included in PRE.
- Appendix D provides VA management comments on a draft of this report.

RESULTS AND RECOMMENDATIONS

Finding

Progress Made, But Challenges Remain in Pharmacy Reengineering Management

OIT has not been effective in managing the restarted PRE project to meet mission needs. OIT has deployed limited PRE functionality to date, including automated alerts for clinicians to verify prescriptions before ordering them to help improve patient safety. However, project managers have struggled to deploy PRE functionality to VA's medical facilities in a timely manner. For example, three of the initial PRE increments took from approximately 19 months to 46 months to achieve national deployment and one increment deployment remains incomplete. In addition, project managers have been unable to provide reliable cost information at an increment level for the PRE increments delivered to date.

OIT restarted PRE at a time when PMAS had not evolved to a point where it could provide the oversight needed to ensure project success. PRE project management was challenged by a lack of guidance, planning, staffing, schedule tracking, and project status reviews. Because of these project management challenges, OIT is at an increased risk of not completing PRE and providing the agreed-upon patient safety functionality on time and within budget by 2019 as planned. Moreover, the future of overall Pharmacy Reengineering remains uncertain due to potential plans to transfer funding and development of all remaining functionality to the Integrated Electronic Health Record (iEHR) project in FY 2014.

The PMAS Concept

PRE development and deployment was restarted under PMAS, which was created in June 2009 to stop VA's succession of IT development failures. PMAS represented a major shift from the way VA historically planned and managed IT development projects. The focus under PMAS for IT development projects shifted to incremental development.

Some PRE Functionality Delivered

Under PMAS, the PRE management team made progress developing and implementing some of the planned PRE functionality. For example, the team has deployed the following functionality throughout VA's medical facilities:

- Non-dosing medication order checks
- Drug monographs
- Customized medication order checks

In spite of this progress, a great deal of functionality remains to be deployed.

Non-Dosing Medication Order Checks

VA's clinicians and pharmacists have been receiving PRE alerts on potential harmful drug interactions and duplicate therapies since the first increment of the Medication Order Checking Health Care Application (MOCHA) was deployed in March 2012. Medication order checks are system-generated alerts intended to safeguard patients by providing relevant drug-related information for medical personnel to consider before they place orders for patients.

Drug interaction alerts help medical personnel identify and prevent harmful interactions between the medications they are ordering and other medications their patients are using. Similarly, duplicate therapy alerts help medical personnel prevent unintentional drug duplication. These alerts warn medical personnel when a patient is already receiving the same exact medication or a different drug in the same therapeutic category.

Drug Monographs

VA clinicians and pharmacists have had access to PRE drug monographs since the first increment of MOCHA was deployed in March 2012. The monographs provide drug information pertaining to drug interactions, including descriptions of the interactions, severity levels, potential clinical effects, and recommendations for monitoring and managing the interactions. The monographs serve as additional tools to aid medical personnel in protecting patient safety as they place medication orders for patients.

Customized Medication Order Checks

Since May 2011 when the first increment of the Pharmacy Enterprise Customization System (PECS) was deployed, personnel from the Pharmacy Benefits Management Services have been able to customize the drug information maintained by First Databank, a commercial off–the–shelf database to improve medication order checks. First Databank maintains clinical information on drugs approved by the Food and Drug Administration. PECS allows VA pharmacists to tailor the information to better fit the profiles of veterans receiving healthcare at VA medical facilities.

For example, the commercial database currently generates a level 2 alert for the concurrent use of capecitabine and warfarin. The alert states that patients older than 60 are predisposed to this drug interaction, which could cause internal bleeding. Because VA treats a significant number of older patients, Pharmacy Benefits Management Services personnel are in the process of changing this alert from a level 2 to a more severe level 1 alert.

Improved Patient Safety

With this functionality, PRE has helped VA improve patient safety, which has been a primary focus of the software development project. The total number of adverse drug events reported by VA declined from FY 2010 to FY 2012.

The table below compares statistics for FY 2010 and FY 2012.

Table 1

Summary Statistics of VA's Adverse Drug Events		
Adverse Drug Events	**FY 2010**	**FY 2012**
Requiring Hospitalizations	144	85
Requiring Interventions To Prevent Impairments or Disabilities	61	49
Threatening Lives	27	27
Resulting in Disabilities	3	0
Resulting in Death	4	3
Total	**239**	**164**

Source: VA OIG based on data from the VA Adverse Drug Event Reporting System

In addition, project plans call for additional medication order checks, such as maximum single dosage checks and daily dosage range checks, to be deployed in future incremental deliveries of PRE functionality. Pharmacy Benefits Management Services personnel expect these dosing medication order checks to further improve patient safety.

Deployment Delays Pose Schedule Challenges

Project managers have not deployed incremental PRE functionality to all VA's medical facilities in a timely manner. According to the *PMAS Guide* published by OIT in March 2010, IT projects were required to deliver complete and "deployable" new functionality in cycles of 6 months or less. However, this version of the *PMAS Guide* was silent concerning how long IT projects could take to actually fully deploy new functionality to all planned sites. Consequently, PRE project managers were only required to deliver deployable functionality to one site within 6 months.

Although PRE project managers were able to deliver incremental functionality at one site within 6 months, they have struggled to deploy the incremental functionality to all VA medical facilities. For example:

- The project team started working on the first increment of PECS in October 2009. The team completed deployment of this increment in May 2011 (approximately 19 months later).
- The project team started working on the first increment of MOCHA in October 2009. The team completed deployment of this increment in March 2012 (approximately 29 months later).
- The project team started working on the second increment of MOCHA in December 2009. The team anticipates completing deployment of this

increment in February 2014 (more than 4 years after the increment was started).

In November 2012, OIT published a new *PMAS Guide*. The revised guidance now requires all active IT projects to include two increment types: development and implementation. The development increment covers the time needed to produce the software solution. The implementation increment encompasses the time to fully deploy the new capability nationwide. Each of the two increments has a duration of 6 months or less, which essentially allows one year to develop and deploy new incremental functionality.

Because three PRE increments took far more than a year to be deployed, they would not have met the new requirements even if they had been in place at the time the increments were underway. Although PRE has delivered functionality resulting in improved patient safety, a great deal of functionality remains to be delivered. As of May 31, 2013, the project team had completed only 20 (30 percent) of 66 total PRE increments. Five other increments were in progress. Given the slow deployment progress to date, PRE faces the risk of not being able to deliver all agreed-upon functionality by the planned project completion date in 2019.

Unreliable Expenditure Tracking Risks Cost Overruns

PRE project managers could not provide accurate information at the increment level on PRE expenditures to date. According to the *PMAS Guide*, project managers are required to manage their financial resources by increment. However, the PRE Program Manager told us that it is not currently possible to accurately budget and track costs by increment. The Program Manager can only estimate incremental costs because the PRE contracts awarded several years ago were not increment-based; rather, they were written at a program level. The Program Manager further explained that actual costs are not entered into the PMAS Dashboard until they are reconciled to invoices, which could take up to 2 years because the invoices are not associated with specific increments.

According to the Program Manager, PRE officials are working to convert the PRE contracts to make them increment-based contracts. However, the conversions are not expected to be complete until February 2014. By not capturing accurate budget and expenditure data, the PRE project management team could not accurately report planned versus actual incremental expenditures to allow VA and OIT leaders to assess PRE's progress.

The PRE Program Manager estimated that as of May 31, 2013, OIT had spent approximately $47 of the total $53 million budgeted for PRE through 2014. Although the limited PRE functionality deployed to date has helped improve patient safety, the project will have spent 100 percent of the funding available for development by the end of calendar year 2013. Resources to

accomplish development and deployment of the remaining 46 of the total 66 PRE increments remain in question.

Inadequate Project Oversight Structure

PRE development and deployment was restarted at a time when PMAS was still too immature to ensure the oversight and accountability needed for project success. Due to inadequate guidance, planning, staffing, schedule tracking, and independent reviews, OIT management has been ineffective in keeping the PRE project on target in terms of schedule and cost, as well as the functionality delivered.

Guidance Lacking

The project management team was required to manage PRE under PMAS before OIT had developed any detailed guidance on PMAS processes, deliverables, management controls, and roles and responsibilities.[*] When the Secretary of Veterans Affairs announced the implementation of PMAS on June 19, 2009, it was in the preliminary stages of development. At that time, PMAS was primarily the Assistant Secretary for Information and Technology's vision rather than a fully developed methodology for managing IT development projects. As such, OIT launched PMAS before it was well defined, and before it had developed the processes and management controls needed to institute the new methodology.

On July 9, 2009, OIT published *PMAS Instructions for Project Managers*. The intent of this document was to inform project managers of the steps they needed to take to manage paused projects, along with the actions needed to gain approval to restart their projects under PMAS. However, the document fell short in several areas. For example, it did not provide a description of PMAS and did not include information on PMAS processes because OIT had not developed them. It also did not explain how to manage a project under PMAS, how OIT would monitor projects, or the roles and responsibilities of personnel responsible for managing and monitoring projects.

The Assistant Secretary for Information and Technology approved the restart of the PRE program in October 2009. However, OIT did not publish the *PMAS Guide* until March 2010 after the project was already well underway. The *PMAS Guide* provided an overview of PMAS, described the PMAS processes, and defined critical terms such as incremental deliverables. It identified management controls for monitoring performance and ensuring that PMAS procedures were followed. It also explained project management and oversight roles and responsibilities.

Inadequate Planning Contributed to Delays

Partly due to the lack of guidance, the project management team did not adequately re-plan PRE to fit PMAS prior to the restart of the project. According to the Program Manager, PRE had been in development for several years prior to the inception of PMAS. PRE project managers

[*] *Audit of VA's Project Management Accountability System Implementation*, Report No.10-03162-262, August 29, 2011.

subsequently tried to deliver the capability that had been in development for several years in the first few PRE increments. Consequently, the increments were too big to deliver in a timely manner. This resulted in the project team spending a substantial amount of time on testing and resolving defects, which led to significant delays in initial operating capability (IOC) testing, and ultimately delayed the start of national deployment.

For example, the Test Evaluation Summary for the first increment of MOCHA indicated that Software Quality Assurance personnel tested 465 (98 percent) of 474 functional requirements from February 2009 (testing started before the restart) to March 2011. PRE personnel and users submitted a total of 503 remedy tickets for defects during testing of the MOCHA application. A defect is a flaw in a component or a system that can cause a failure to perform a required function. Test analysts categorized the defects according to severity. The analysts categorized 45 of the 503 tickets as critical defects and 150 as major defects. Resolution of 289 (57 percent) of the 503 tickets required modifications, such as revised software code, database, or system configuration.

In addition, project managers did not provide enough details to OIT leaders in their restart plan to provide reasonable assurance that the incremental delivery dates could be met. The plan stated that one of the re-planning objectives was to support delivery of initial operating capability of PRE components in manageable increments not to exceed 6 months. It also provided the planned start and initial operating capability dates for the six increments in the restart plan. However, it did not include important details such as how many functional requirements needed to be tested in each increment or dates when each increment would be nationally deployed. Without such details, OIT leaders could not adequately assess whether the plan was reasonable and achievable.

Insufficient Staffing Affected Progress

Project management staffing was insufficient for considerable periods of time throughout the life of the PRE project. The *PMAS Guide* states that delivery success depends on resources being available before a project starts each increment. It also states that increments will not start or maintain execution unless they have the required resources.

Nevertheless, PRE's component projects went through significant periods of time without having a project manager to lead the projects. For example, the PECS Project Manager position was vacant for 20 months between October 2009 and May 2013. Similarly, the MOCHA Project Manager position was vacant for 14 months during that same period. These two projects also experienced significant project manager turnover. PECS has had four different project managers since PRE was restarted while MOCHA has had three. The PRE Program Manager stated that the vacancies and lack of leadership continuity negatively affected the PRE project. For example, vacancies such as these make it more difficult to accomplish tasks such as

delivering expected outcomes on time and within budget, resolving risks and issues that could affect project success, and reporting project status data for the PMAS Dashboard.

The vacancies and turnover increased the likelihood that the projects would not achieve incremental delivery success. In addition, the Program Manager stated that he relied on contractor personnel to help him manage the projects when the project manager positions were vacant. This type of reliance places the Government at risk of using contractor personnel to perform inherently governmental functions.

Inadequate Schedule Tracking

PRE project managers reported incomplete schedule information on the PMAS Dashboard. According to OIT officials, at this point in time, project managers were only required to report how long it took to develop the new functionality and enter into the initial operating capability phase for each increment. Thus, project managers were meeting PMAS Dashboard reporting requirements by reporting incomplete information because initially OIT was not concerned with tracking how long it took to move from initial operating capability to national deployment.

The PMAS Dashboard was designed to provide VA and OIT senior leaders with real-time visibility of current project status information needed for making timely and informed decisions on IT development projects. Each month, project managers are required to enter updated information on the status of their projects into the PMAS Dashboard.

Further, Office of Management and Budget (OMB) Circular A-11, Part 7, Section 300, *Planning, Budgeting, Acquisition, and Management of Capital Assets*, provides guidance and reporting requirements for major IT development projects. It requires Federal agencies to institute performance measures and management processes for monitoring and comparing planned results against actual performance. OMB expects agencies to achieve, on average, 90 percent of cost, schedule, and performance goals. An agency must review all projects not achieving 90 percent of its goals to determine whether it still needs the projects and what corrective actions, including possible termination, should be taken. In addition, OMB's *Information Technology Investment Baseline Management Policy* (M-10-27), issued June 28, 2010, requires agencies to measure performance against both the current approved baseline and the original baseline.

Despite these requirements, the schedule information maintained on the PMAS Dashboard did not accurately reflect program status because project managers only reported partial schedule information. For example:

- The PRE Program Manager reported that PRE started the first increment of PECS in October 2009 and successfully completed delivery of the required functionality at one site in March 2010. The project team

completed national deployment of this version of PECS in May 2011. However, the Program Manager did not report the approximately 14 months that it took to complete testing, address defects, and fully deploy this application. As a result, although the Dashboard omitted a major portion of the PECS software development project, it consistently indicated that PRE successfully delivered the first increment of PECS even though it had not yet been deployed.

- Similarly, the PRE Program Manager reported that PRE started the first increment of MOCHA in October 2009 and successfully completed delivery of the required functionality at one site in June 2010. The project team completed national deployment of this version of MOCHA in March 2012. Once again, the Program Manager did not report the approximately 21 months that it took to complete testing, address defects, and fully deploy this application. Thus, the PMAS Dashboard also did not capture a significant portion of the MOCHA software development project, but continuously reported that PRE successfully delivered the first increment of MOCHA even though it had not been deployed.

When the project management team realized that PRE would not be able to deliver incremental functionality in a timely manner, the team convinced OIT leadership to allow them to divide the PRE increments into sub-increments that would be included in the PMAS Dashboard. OIT approved this change in November 2010. Accordingly, the team divided PRE increments into user functional test increments and operational readiness increments. In addition, the PRE Program Manager started reporting the status of these increments on the PMAS Dashboard. As a result, PRE evolved to being composed of 48 increments.

This change, however, still did not capture a significant amount of time for each increment—that is, the time to progress from testing to full deployment. User functional testing captures the time it takes to complete development and testing with the customer in a test environment. Operational readiness captures the time needed to complete testing at six test sites using test accounts. After these tests are completed, PRE officials test the functionality at the same six test sites using production data in production accounts to complete and exit IOC. After an increment exits IOC, PRE officials deploy the software application to all 128 VA medical facilities. Consequently, the PRE project management team did not account on the PMAS Dashboard for the time needed to move from the end of operational readiness to IOC and then to full deployment.

In November 2012, OIT published a new *PMAS Guide* in part to address this issue. The guide states that projects in the active state include two increment types: development and implementation. Each increment has a duration of 6 months or less. Development includes both software development and achievement of IOC. Implementation includes full delivery of the new

capability in a national deployment. To comply with the new guidance, the PRE Program Manager added national deployment increments to the PMAS Dashboard, which brought the total number of PRE increments accounted for on the PMAS Dashboard to 66. The PRE Program Manager was still not reporting the time it took to move PRE increments from IOC to full deployment on the PMAS Dashboard because policies and procedures at the time of our audit did not require reporting for the IOC period.

Project Status Reviews Not Performed

PRE did not undergo periodic independent oversight reviews that could have helped the project stay on track. Although required by the *PMAS Guide*, OIT did not perform a PMAS compliance review of the PRE project until May 2011. It performed two additional compliance reviews in 2012. To determine whether PRE complied with PMAS, the reviews mainly focused on the completeness of required documentation, such as the project charter and the project management plan. The reviews also noted, among other things, that PRE did not have adequate resources for project management and contracts associated with PRE were not negotiated to complement the Agile development methodology. However, the compliance reviews did not address whether the project was on track regarding cost, schedule, and performance.

OIT also has not performed independent reviews of the data reported by the PRE Program Manager on the PMAS Dashboard to ensure the data are reliable and complete. In our August 2011 audit report on PMAS, we indicated that the data maintained in the PMAS Dashboard were not reliable. We concluded that OIT would not be able to realize the intended benefits of the PMAS Dashboard until it establishes the procedures and controls needed to ensure the data that project managers report in the PMAS Dashboard are reliable and provide a complete picture of each project's status. We recommended OIT designate personnel and provide them with detailed written procedures for performing periodic independent reviews of the PMAS Dashboard to ensure data reliability and completeness.

The then Assistant Secretary for Information and Technology periodically required project managers to provide status briefings to support his review of selected IT development projects. In addition, the Assistant Secretary held red and yellow flag meetings to resolve risks and issues negatively impacting the PRE project. Nonetheless, these types of reviews do not diminish the necessity of performing the periodic independent oversight reviews required by the *PMAS Guide*.

In May 2013, OIT reported that it had taken the following corrective actions to address this issue. The PMAS Business Office has started conducting reviews of the PMAS Dashboard, primarily looking for inaccuracies in PMAS schedule-related data. In addition, OIT has revised the standard operating procedures for conducting PMAS compliance reviews. Specifically, it added procedures for compliance reviews to evaluate project

budget and expenditure information compared with percentage of project completion, beginning with the third quarter of FY 2013.

Conclusion

OIT's second attempt to develop and deploy PRE has not been effective. Deployed PRE functionality has helped improve patient safety, which is a step forward. However, project managers have not deployed planned functionality to VA's medical facilities in a timely manner. As of May 31, 2013, the project team had completed only 20 (30 percent) of 66 total PRE increments.

Further, project managers have been unable to provide reliable cost information at the increment level for the PRE increments completed to date. The PRE Program Manager estimated that as of May 31, 2013, OIT had spent approximately $47 of the total $53 million budgeted for PRE through 2014. At this spending rate, the project will expend 100 percent of the funding available for development by the end of calendar year 2013.

PRE was restarted under PMAS, a project management discipline created in June 2009 to stop VA's succession of IT development failures. However, OIT restarted PRE at a time when PMAS had not evolved to a point where it could provide the oversight needed to ensure project success. As such, PRE project management was challenged by a lack of guidance, planning, staffing, schedule tracking, and project status reviews. Because of these challenges, OIT is at an increased risk of not completing PRE and providing the agreed-upon functionality on schedule and within budget by 2019 as planned. Thus, future advances in patient safety are susceptible to being behind schedule, which could adversely affect veterans who are prescribed medications.

PRE Future Uncertain Due to iEHR Plans

Going forward, plans for a shared VA and Department of Defense system could eliminate entirely a future need for the PRE project. VA's Exhibit 300 submission for FY 2014 has proposed decreasing total project costs to approximately $53 million by transferring the development of all future pharmacy management functionality to the Integrated Electronic Health Record (iEHR) project starting in FY 2014. The decision to transfer funding and development of all remaining Pharmacy Reengineering functionality to iEHR raises concerns, especially in light of the uncertainty surrounding the interagency project. A lack of commitment to developing the joint iEHR system has delayed progress.

In March 2011, the Secretaries of VA and Defense first announced they would work together to develop the integrated system, with a goal of implementing it throughout both departments by 2017. Pharmacy operations would be included as one major component of iEHR. However, in February 2013, the Secretaries announced their Departments were moving away from developing a single integrated electronic health record and would focus instead on modernizing their existing systems. The revised strategy

was to achieve interoperability between their separate systems as a means of achieving cost savings and meeting needs more quickly.

Ultimately, in April 2013, the Defense Secretary announced that his Department was well behind VA in progress. As such, the Defense Secretary halted all Defense efforts toward an iEHR to allow time to gain a better understanding of where his Department was with regard to the initiative. As Defense deliberates, VA continues with efforts to modernize the Veterans Health Information Systems and Technology Architecture—its "core" system for the iEHR initiative. Until a final decision is made and a path forward is established for interagency cooperation on iEHR, successful completion of the PRE initiative will continue to hang in the balance. Moreover, stronger accountability, particularly over the PRE cost, schedule, and scope for providing the remaining functionality, is needed prior to such a transfer so that iEHR is not compromised from the outset by the same challenges as PRE.

Recommendations

1. We recommended the Executive in Charge and Chief Information Officer, Office of Information and Technology, ensure all of the time needed to develop and deploy each remaining Pharmacy Reengineering increment, to include the initial operating capability phase, is reported and monitored on the Project Management Accountability System Dashboard.

2. We recommended the Executive in Charge and Chief Information Officer, Office of Information and Technology, develop guidance and a reliable methodology for capturing and reporting planned and actual project costs at the increment level on the Project Management Accountability System Dashboard for the remaining increments of Pharmacy Reengineering software development.

3. We recommended the Executive in Charge and Chief Information Officer, Office of Information and Technology, establish guidance on replanning software development projects that have been paused in sufficient detail to demonstrate that increments of the projects are well thought out and achievable.

4. We recommended the Executive in Charge and Chief Information Officer, Office of Information and Technology, establish controls to ensure information technology projects have sufficient leadership and staff assigned throughout the project life cycle.

5. We recommended the Executive in Charge and Chief Information Officer, Office of Information and Technology, establish plans on how future Pharmacy Reengineering development will be funded until a

decision is made regarding transferring this effort to the Integrated Electronic Health Record project.

Management Comments and OIG Response

The CIO concurred with our recommendations and provided a corrective action plan. We consider OIT's corrective actions acceptable and will assess their effectiveness during our PMAS follow-up audit. The CIO provided technical comments for our consideration. Following is a summary of our response to areas where we disagreed with the positions taken by the CIO.

Management Comment: The CIO asserted that many of our findings do not recognize the difference between the time period covered by a PMAS increment and the time period covered by a full software development cycle. He also asserted that some of our measurements and analyses incorrectly attribute time to increments that, in fact, belong to time periods between increments, such as the time from IOC Entry to IOC Exit. Further, the CIO's position is that PRE has been very effective at completing deployment of increments in less than 6 months. The challenges are occurring in the period of IOC, which is before the deployment increment starts. Because current policies and procedures do not include reporting for the IOC period, this time period is not tracked on the PMAS Dashboard.

OIG Response: The OIG's analysis in the report reflects the difference between a PMAS increment and a full software development cycle. Regardless, this initiative began in 2003 and was restarted in 2009. In spite of development over the past 4 years, planned functionality has not been fully deployed and cost information by increment is unreliable. We state that OIT took approximately 19 and 29 months to deploy 2 of the initial PRE increments. Moreover, OIT will take more than 4 years to deploy another increment that it started in December 2009, assuming it meets a February 2014 deployment deadline. Current PMAS guidance requires development and deployment to be completed in 1 year, with each increment having a duration of 6 months or less.

Given that it took OIT more than a year to achieve IOC, the CIO presents an inaccurate project status in asserting that PRE was effective in completing deployment increments within 6 months. IT projects should account for all of the time required to develop and deploy an increment of functionality. The time period to accomplish IOC was not recorded on the PMAS Dashboard. According to the CIO, OIT policies and procedures in existence at the time of our audit did not require reporting the IOC period on the PMAS Dashboard.

In our view, it is misleading for OIT and senior VA leadership to review a PMAS Dashboard that omits the IOC phase and indicates a project increment is on track because it delivered functionality to one site, although the increment ultimately took several years to complete national deployment. This was the case for two of the PRE increments we reviewed during our

audit. The issue is not whether OIT was in compliance with the policies and procedures current at the time of our audit. Rather, the issue is whether OIT's practices in managing PRE increments were sound. In our view, those project management practices were not effective.

Management Comment: The CIO maintains that our findings do not take into account deployment variances caused by the highly customized business processes within the Veterans Health Administration. He also stated that the PMAS definition of success is functionality delivered into the production environment. The CIO said that project increments intentionally do not account for IOC time, as this time varies significantly among increments, depending on the given clinical environment.

OIG Response: We recognize and appreciate the complexities associated with deploying incremental functionality within the Veterans Health Administration's varying clinical environments. However, we also believe that if healthcare IT project increments are suitably scoped, OIT should be able to complete development and deployment within the time frames required by PMAS. The *PMAS Guide* does not make exceptions for Veterans Health Administration initiatives based on their complexity. The CIO stated in the response to our first recommendation that OIT has modified PMAS Dashboard requirements, making it mandatory to track all periods of time within a project including deployment, testing, and IOC. The functionality for the PMAS Dashboard to track all periods of time within a project will be available after implementation in February 2014. We believe these corrective actions are steps in the right direction.

Management Comment: The CIO asserted that our findings did not take into account that PMAS is an evolving set of policies, practices, and methodologies, which have progressed through lessons learned and best practices over the last 4 years. He stated that many of the OIG findings reflect lapses in data collection and reporting, which were present in previous iterations of PMAS.

OIG Response: We agree with the CIO's position that PMAS has evolved considerably over the last 4 years. Our goal was to present a fair and unbiased assessment of PRE at the time of the audit. We objectively took into account changes in PMAS policies, practices, and methodologies over time. In our report we identified problems, but we also pointed out how OIT has taken positive steps to improve PMAS from its inception to its state at the time we completed our audit. There is still room for PMAS improvement and a need for VA to ensure PMAS controls are adequate to oversee VA's development of IT investments, budgeted at $570 million for FY 2012 and $519 million for FY 2013.

Management Comment: Regarding PRE funding, the CIO asserted that our report does not take into account factors in place to prioritize IT development projects based on governance processes established across VA.

OIG Response: We do not believe that the funding prioritization process is relevant to our report findings regarding PRE. At the time of our audit, VA had made a decision to transfer funding and all remaining Pharmacy Reengineering development to the iEHR project starting in FY 2014. Our concern was that this was not a prudent decision in light of the uncertainty surrounding the iEHR project at that time. The CIO's response to our last recommendation, outlining plans to move PRE forward as an independent project instead of as part of iEHR, seems to be in line with our concern and may resolve the issue.

Appendix A Background

Overview of PMAS

PMAS was designed as a project management discipline that provided incremental delivery of IT system functionality—tested and accepted by customers—within established schedule and cost criteria. The PMAS concept requires projects to deliver functional business capability in increments of 6 months or less.

Customers certify incremental delivery of functionality on a customer acceptance form. The Assistant Secretary for Information and Technology can pause a project when it fails to deliver functionality as scheduled three times. Once a project has been paused, no further development can occur until it has been evaluated, re-planned, and approved to restart by the Assistant Secretary for Information and Technology.

In an effort to make project managers and projects more successful, PMAS relies on a number of organizations and tools such as the PMAS Business Office, integrated project teams, risk management reporting, and the PMAS Dashboard. The PMAS Business Office develops and maintains policy and guidance, monitors the progress of all VA IT projects in PMAS, and oversees PMAS Dashboard reporting. Integrated project teams are a group of multi-disciplinary representatives working collaboratively to plan, manage, and execute all activities required to deliver a project to the field. Members of the team include representatives from organizations, disciplines, and functions that have a stake or responsibility for the success of the project.

To help manage risks, anyone associated with a project can raise a yellow flag to identify project environment changes that have the potential to affect project cost, schedule, quality, or scope significantly. Similarly, personnel can raise a red flag to resolve issues or risks that will prevent projects from moving forward and to require senior leadership intervention for resolution to prevent a missed increment deliverable. The PMAS Dashboard was intended for project managers to give senior leaders the visibility they need into project status.

Overview of PRE

VA planned for PRE to replace all legacy pharmacy applications with a system designed to meet VA's current and future business needs. VA's suite of pharmacy applications—created in the 1980s using dated technology—had become obsolete and expensive to maintain and enhance. VA expected PRE to provide improved pharmacy operations, efficiencies in workflow and processes for clinicians, and an increased ability to respond to patient safety issues.

When VA launched PRE in March 2003, its plans called for initial PRE increments to address critical patient safety issues by providing clinical decision support tools to reduce medication errors and adverse drug events.

VA expected the use of these tools to result in lower health care costs and improved care for veterans. Subsequent PRE increments would address items such as pharmaceutical inventory management, order dispensing, and clinical monitoring.

In June 2009, the Secretary of Veterans Affairs announced that VA would implement PMAS to improve management of VA's IT development projects and to stop the succession of project failures. VA also temporarily halted PRE because it was not meeting cost and schedule goals. The Assistant Secretary for Information and Technology approved the restart of PRE in October 2009 after the PRE project management team created a new project plan to meet PMAS requirements. VA expected to complete PRE in 2019 at a total cost of approximately $164 million.

In FY 2013, VA proposed transferring the development of all remaining pharmacy functionality to iEHR beginning in FY 2014, which could decrease total project costs by $111 million to approximately $53 million. Under this proposal, starting in FY 2014, the development of all remaining Pharmacy Reengineering functionality, such as inventory management as well as any remaining patient safety functionality, would be funded and developed under iEHR.

Key Components

PRE is composed of the following components:

- **Pharmacy Enterprise Customization System—**a system that allows VA pharmacists to improve order checks as a result of customizing drug information maintained by First Databank, a commercial off–the–shelf database.

- **Medication Order Checking Healthcare Application—**an application that cross-checks drugs and dosing against the drug database for industry updates. Among other things, it improves drug interaction, duplicate therapy, maximum single dosage, and daily dosage order checks.

- **Pharmacy Product System—National and Local—**drug database management components that replace VA's legacy National Drug File Management System, which used a cumbersome, manual 30- to 60-day process to find and add new drug information. The new system uses automation to find, capture, and store drug information in a national repository.

These components of PRE work together to provide VA's clinicians and pharmacists access to accurate and up-to-date medication order checks with the ultimate goal of reducing adverse drug events and improving patient safety.

Appendix B Scope and Methodology

Scope and Methodology

We conducted our audit work from October 2012 through December 2013. We focused our efforts on evaluating the actions OIT has taken to plan and manage the active PRE increments—PECS, MOCHA, and Pharmacy Product System–National—from October 2009 when PRE was restarted through April 2013.

We reviewed Federal laws and regulations related to effective management and oversight of IT development projects. We also reviewed OIT's guidance on IT project management to provide additional criteria for our audit. We interviewed senior OIT officials, program and project managers, and stakeholders to discuss planning, execution, accomplishments, obstacles encountered, and concerns. We evaluated whether OIT was providing incremental deliveries of functionality while staying within cost and schedule goals by analyzing project documentation and the information reported on the PMAS Dashboard. To determine whether PRE was improving patient safety related to drug prescriptions, we obtained and analyzed historical data on adverse drug event incidents and outcomes. Finally, we analyzed OIT's actions to provide effective oversight of the PRE software development effort.

Data Reliability

To test the reliability of computer-processed data, we compared the information provided on the PMAS Dashboard with information included in supporting project documentation. We reviewed the data on the Dashboard to determine whether they provided a valid and reliable representation of project status. We concluded the data were not sufficiently reliable to determine the actual performance of the PRE software development project. As a result, we developed recommendations for improving the reliability of data included in the PMAS Dashboard.

Government Standards

Our assessment of internal controls focused on those controls relating to our audit objectives. We conducted this performance audit in accordance with generally accepted government auditing standards. These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Appendix C Status of PRE Increments

Table 2 provides the status of the PRE increments as of May 31, 2013.

PECS Pharmacy Enterprise Customization System
MOCHA Medication Order Checking Healthcare Application
PPS-N Pharmacy Product System–National
PPS-L Pharmacy Product System–Local

Table 2. Status of Increments Listed Under the PRE Project

Increments	Complete and Deployed	Complete	In Progress	Not Started
PRE Foundation	X			
PECS v 1.0	X			
PECS 2.0 User Functional Test	X			
PECS 2.1 User Functional Test	X			
PECS 2.1 Operational Readiness	X			
MOCHA v 1.0	X			
MOCHA1 Enhancement1 User Functional Test	X			
MOCHA1 Enhancement1 Operational Readiness	X			
MOCHA1 Enhancement1 National Deployment	X			
PPS-N Data Migration 1.0 User Functional Test	X			
PPS-N 1.0 User Functional Test 1	X			
PPS-N 1.0 User Functional Test 2	X			
PPS-N Operational Readiness	X			
PPS-N 1.0 National Deployment	X			
MOCHA v 2.0		X		
MOCHA1 Enhancement 2 User Functional Test		X		

Increments	Complete and Deployed	Complete	In Progress	Not Started
PECS 2.2 Operational Readiness		X		
PECS 2.2 User Functional Test		X		
PECS 3.0 User Functional Test		X		
PECS 3.0 Operational Readiness		X		
MOCHA 2 Initial Operating Capabilities			X	
PECS 2.2 National Deployment			X	
MOCHA1 Enhancement 2 Operational Readiness			X	
MOCHA1 Enhancement 2B Operational Readiness			X	
PECS 4.0 User Functional Test			X	
MOCHA v2.0 National Deployment				X
MOCHA1 Enhancement 2 National Deployment				X
MOCHA1 Enhancement 2B National Deployment				X
MOCHA2 Enhancement 1 User Functional Test				X
MOCHA2 Enhancement 1 Operational Readiness				X
MOCHA2 Enhancement 1 National Deployment				X
MOCHA2 Enhancement 2 User Functional Test				X
MOCHA2 Enhancement 2 Operational Readiness				X
MOCHA2 Enhancement 2 National Deployment				X
MOCHA2 Enhancement 3 User Functional Test				X
MOCHA2 Enhancement 3 Operational Readiness				X

Increments	Complete and Deployed	Complete	In Progress	Not Started
MOCHA2 Enhancement 3 National Deployment				X
MOCHA2 Enhancement 4 User Functional Test				X
MOCHA2 Enhancement 4 Operational Readiness				X
MOCHA2 Enhancement 4 National Deployment				X
PECS 3.0 National Deployment				X
PECS 5.0 User Functional Test				X
PECS 5.0 Operational Readiness				X
PECS 5.0 National Deployment				X
PECS 6.0 User Functional Test				X
PECS 6.0 Operational Readiness				X
PECS 6.0 National Deployment				X
PPS-N 2.0 User Functional Test				X
PPS-N 2.0 Operational Readiness				X
PPS-N 2.0 National Deployment				X
PPS-N 3.0 User Functional Test				X
PPS-N 3.0 Operational Readiness				X
PPS-N 3.0 National Deployment				X
PPS-L 1.0 Tools User Functional Test				X
PPS-L 1.0 Migration User Functional Test 1				X
PPS-L 1.0 Sync User Functional Test 1				X
PPS-L 1.0 Sync Operational Readiness 1				X
PPS-L 1.0 National Deployment				X
PPS-L 2.0 Tools User Functional Test 1				X
PPS-L 2.0 Tools User Functional Test 2				X

Increments	Complete and Deployed	Complete	In Progress	Not Started
PPS-L 2.0 Migration/Sync User Functional Test				X
PPS-L 2.0 Migration/Sync Operational Readiness				X
PPS-L 2.0 National Deployment				X
PPS-L 3.0 Migration/Sync User Functional Test				X
PPS-L3.0 Migration/Sync Operational Readiness				X
PPS-L3.0 National Deployment				X

Source: Office of Information Technology

Appendix D Executive in Charge and Chief Information Officer Comments

Department of Veterans Affairs

Memorandum

Date: October 31, 2013

From: Executive in Charge and Chief Information Officer, Office of Information and Technology (005)

Subj: Draft Report, Audit of the Pharmacy Reengineering (PRE) Software Development Project, Project No. 2012-04536-R6-0220

To: Assistant Inspector General for Audits and Evaluations (52)

1. The Office of Information and Technology (OIT) appreciates the opportunity to review the subject Office of Inspector General (OIG) draft report. OIT began implementing activities that address the five OIG recommendations prior to the compilation of the subject draft report; as such, OIT concurs with the five OIG recommendations. Several of the documented OIG findings do not reflect a full understanding of the business practices within OIT; as such, OIT does not concur with many of the OIG findings. The attached detailed comments are submitted for inclusion in the final report.

2. For all five recommendations, OIT has already evolved its development processes and tracking to address the areas noted for improvement. Detailed comments are provided in the attachment.

3. For Recommendation 1, the Project Management Accountability System (PMAS) Dashboard has already developed requirements to track IOC, testing, and deployment, which will ensure monitoring within the PMAS Dashboard of the time needed to develop and deploy IT software. OIT implemented all but the IOC period tracking in Fiscal Year (FY) 2013.

    a. For Recommendation 2, a reliable methodology and guidance for capturing and reporting project costs at the increment level was established by OIT's Product Development (PD) organization in FY13, with 86% of eligible PD development contracts executing at the increment level. PRE will adapt to this methodology and guidance in FY14.

    b. For Recommendation 3, OIT established guidance on planning well thought-out and achievable software development project increments as part of the PMAS Milestone review process. OIT published this guidance in PMAS Guide 4.0 in November of 2012.

    c. For Recommendation 4, controls to ensure information technology projects have sufficient leadership and staff assigned throughout the lifecycle has already been established through leadership engagement in the Integrated Project Team (IPT), Milestone, and competency Resource Management Council (RMC) process. In the event that insufficient

resources are available, the Flag and Techstat processes allow for rapid leadership awareness and engagement to resolve resource requirements.

d. For Recommendation 5, VA follows an established process to make funding decisions. For future Pharmacy Reengineering development, VA will follow the IT Planning, Prioritization, Budget, and Execution (IT PPBE), IT Leadership Board (ITLB), and the Budget Operating Plan (BOP) processes to be prioritized by the VA staff offices. This prioritization process will ensure adequate plans for resources and funding based on the transformation priorities of the Department.

4. Many of the documented OIG findings do not reflect a full understanding of the increment based contracting development lifecycle, the variances in deployment processes within the health care environment, the evolution of PMAS guidance to reflect lessons learned, and the prioritization process for IT appropriations and OIT development. OIT's detailed comments are located in the attachment.

   a. Increment based development: Many of the findings do not recognize the difference between the time period covered by a PMAS increment and the time period covered by a full software development cycle. A full software development cycle includes the entire period from planning to full deployment at all sites; a PMAS increment covers a shorter period. In addition, many of the measurements and analyses in the OIG draft report incorrectly attribute time to increments that, in fact, belong to time periods in between increments, such as the time from IOC Entry to IOC Exit. The OIG draft report also contains date inaccuracies and misunderstandings of the difference between increments that are completed in test environment versus increments that are completed in a development environment.

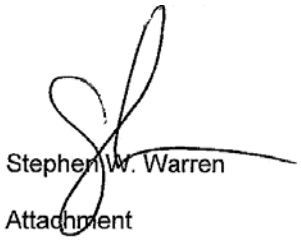
   b. Health deployment variances: Due to the highly customized business processes within VHA, a project team declares IOC once it releases software into the production environment. The PMAS definition of success is customer facing functionality delivered into the production environment. The OIG documents PMAS failure when the PRE project national deployment was not achieved within six months or less. The six month software development increments intentionally do not account for the IOC time, as it varies significantly amongst increments, depending on the clinical environment.

   c. PMAS evolution: PMAS is an evolving set of policies, practices, and methodologies which have progressed through lessons learned and best practices over the past four years. Many of the OIG findings reflect lapses in data collection and reporting, which were present in the previous iterations of PMAS, but PMAS has since matured to provide tailored workflows and guidance for the software development lifecycle.

   d. IT development prioritization: The OIG report does not account for the factors in place to prioritize IT development based on governance processes established across the department. The CIO or IT Chief

Financial Officer (CFO) chairs the prioritization governance meetings and is responsible for executing funds based on prioritization guidance provided by stakeholders across the department. This prioritization process takes into account the various transformation initiatives across the department and prioritizes funding based on impact and value to the veteran.

5. Should you have any questions, please contact me at (202) 461-6910 or have a member of your staff contact Lorraine Landfried, Deputy CIO for Product Development, at 202-632-4347.



Stephen W. Warren

Attachment

Attachment

Office of Information and Technology
Comments on the Recommendations in OIG Draft Report,
Audit of the Pharmacy Reengineering Software Development Project
(Project No. 2012-04536-R6-0220)

OIG Recommendation 1: ***Ensure all of the time needed to develop and deploy each remaining Pharmacy Reengineering increment, to include the initial operating capability phase, is reported and monitored on the Project Management Accountability System Dashboard.***

OIT Comments: Concur. The PMAS Dashboard requirements have been modified to include increment tracking of all periods of time within a project including deployment, testing, and IOC. The PMAS Business Office (PBO) has begun the process to modify the PMAS Dashboard to include this functionality and it will be implemented by February 2014. OIG Recommendation 1 may reflect an OIG misunderstanding of PMAS in its current state. The current version of PMAS (4.0) already uses the PMAS Dashboard to track the total time needed to deploy an increment. This change was implemented under PMAS 4.0 as "implementation" increments which begin after IOC exit and after Milestone 2. All current and past versions of PMAS and the PMAS Dashboard also track "development" increments. These increments end either at IOC entry or when the customer signs off and does not want to proceed to IOC entry without first working on a subsequent development increment. OIT believes that OIG Recommendation 1 may be referring to the time between development increments and deployment increments, which occurs between IOC Entry and IOC Exit, during which projects use a limited number of sites for production testing prior to full deployment to all sites. For some PMAS projects, this period of time consists of recursive testing and defect repair cycles until production testing reveals that the functionality is ready for additional production sites. This IOC period is not tracked on the dashboard, except in rare exceptions to the current PMAS 4.0 practices. The PMAS Dashboard has been enhanced to track all periods of time within a project, including testing, and this functionality will be available after the February 2014 implementation.

OIG Recommendation 2: ***Develop guidance and a reliable methodology for capturing and reporting planned and actual project costs at the increment level on the Project Management Accountability System Dashboard for the remaining increments of Pharmacy Reengineering software development.***

OIT Comments: Concur. Based on the draft report, it appears that OIG Recommendation 2 refers to improving methodology to ensure that capturing and reporting planned and actual projects costs on the PMAS Dashboard is done at an increment level, rather than using allocation mechanisms to subdivide costs that are only reliable at a higher program or project level. It should be noted that, at present, costs are often only known reliably at a project or program level. OIT is transitioning to framework which will execute development contracts at the increment level. In FY13, 86% of eligible PD development contracts were executed at the increment level. However, it will take time before legacy contracts with only program level costs information expire and can be replaced with new contracts that require costs to be tracked at the increment level. PRE will have contracts that are all increment-based by FY14. PRE now meets monthly to reconcile and report actual costs to the PMAS Dashboard.

OIG Recommendation 3: ***Establish guidance on replanning software development projects that have been paused in sufficient detail to demonstrate that increments of the projects are well thought out and achievable.***

OIT Comments: Concur. Prior to the release of the draft OIG report, OIT had established and implemented the recommended guidance; OIT published in PMAS Guide 4.0 in November. The PRE increments cited by OIG from 2009 and 2010 occurred during the preliminary stages of PMAS. As PRE and PMAS have evolved, project teams have improved their ability to determine an achievable increment-sized scope. Reviews now include function-point counts as well as an assessment of risks and dependencies. OIT requires Milestone Reviews and pre-briefs for each increment; a project will not be

approved if the milestone dates, budget and technical approach are not achievable. Milestone Reviews require senior management representation from each of the primary organizations under the CIO. Each of these Milestone Reviews also involves not less than three levels of review before full approval: Level 1 IPT Approval, Level 2 Pre-brief Approval, and Level 3 Formal Milestone Brief Approval.

OIG Recommendation 4: ***Establish controls to ensure information technology projects have sufficient leadership and staff assigned throughout the project life cycle.***

OIT Comments: Concur. OIT established and implemented the recommended controls prior to the release of the draft OIG report. OIT leaders are engaged in the Integrated Project Team (IPT), Milestone Review, and competency Resource Management Council (RMC) processes. OIT has implemented the red flag and Techstat processes to gain senior management assistance when a Project Manager has resource requirements for an Active PMAS project that cannot be met through the Resource Management Council (RMC). Red Flags serve to escalate the priority level of a resource request that goes to the competency model for staffing. OIT now uses the competency model to prioritize and allocate staffing for each project increment. Under this model, the project manager requests resources through the Project Management Council (PMC) and RMC based on the resource requirements identified in their project plans. Once the PMC approves and prioritizes a resource request, the RMC will work within the competency organization to match resources to the highest priority needs.

OIG Recommendation 5: ***Establish plans on how future Pharmacy Reengineering development will be funded until a decision is made regarding transferring this effort to the Integrated Electronic Health Record project.***

OIT Comments: Concur. OIT has already addressed funding prioritization through the the IT Planning, Prioritization, Budget, and Execution (IT PPBE), IT Leadership Board (ITLB), and the Budget Operating Plan (BOP) process. These processes ensure adequate plans for resources and funding based on the transformation priorities of the department, and the prioritization input of the VA Staff offices. OIT merely executes development funds in accordance with the prioritization guidance it receives from the IT PPBE, ITLB, and BOP. Current plans do not call for Pharmacy Reengineering to be absorbed into iEHR in FY14. Instead, under current plans, Pharmacy Reengineering will move forward as an independent project. The FY14 funding request for Pharmacy Reengineering was submitted to the BOP. Depending on the priority of the Pharmacy Reengineering project among other OIT projects, it may or may not be funded in FY14. Finally, it is also likely that the FY14 Continuing Resolution, which provides significantly reduced funding than was requested in the President's FY 14 budget, may cause funding constraints that undermine VA's Pharmacy Reengineering planning efforts.

Appendix E Office of Inspector General Contact and Staff Acknowledgments

OIG Contact	For more information about this report, please contact the Office of Inspector General at (202) 461-4720.
Acknowledgments	Mario M. Carbone, Director Clenes Duhon Michael Jacobs Jehri Lawson Theresa Lospinoso Kristin Nichols Charanpreet Singh

Appendix F Report Distribution

VA Distribution

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