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Report to Congressional Committees

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COMPUTER-BASED PATIENT RECORDS

Better Planning and Oversight by VA, DOD, and IHS Would Enhance Health Data Sharing

GAO-01-459

Contents

Abbreviations

CIO	Chief Information Officer
CPRS	Computer Patient Record System
DOD	Department of Defense
GCPR	Government Computer-Based Patient Record
HHS	Department of Health and Human Services
HIPAA	Health Insurance Portability and Accountability Act
IHS	Indian Health Service
IT	information technology
MHS	Military Health System
MOA	memorandum of agreement
PACMEDNET	Pacific Medical Network
PDTS	Pharmacy Data Transaction System
TMIP	Theater Medical Information Program
VA	Department of Veterans Affairs
VHA	Veterans Health Administration
VISN	Veterans' Integrated Service Network
VISTA	Veterans Health Information Systems and Technology Architecture

GAO
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

April 30, 2001

The Honorable John Warner
Chairman
The Honorable Carl Levin
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Bob Stump
Chairman
The Honorable Ike Skelton
Ranking Minority Member
Committee on Armed Services
House of Representatives

The Department of Veterans Affairs (VA) and the Department of Defense (DOD) combined provide health care services to approximately 12 million veterans, military personnel, and dependents at an annual cost of $34 billion. The Veterans Health Administration (VHA) and the Military Health System (MHS) collect and maintain patient health information in separate systems. The Gulf War exposed many deficiencies in these systems and highlighted the need for VA and DOD to be able to readily access and transfer accurate health data on their respective populations. In December 1992, the Congress asked us to report on how VA and DOD, along with the Indian Health Service (IHS), could share information technology (IT) and patient medical information to provide greater continuity of care, accelerate VA eligibility determinations, and save software development costs.[1] In November 1997, the President called for VA and DOD to create an interface that would allow the two agencies to share patient health information.

In 1998, the Government Computer-Based Patient Record (GCPR) project was initiated by VA, DOD, and IHS, which was included in the effort because of its population-based research expertise and its long-standing relationship with VA. Early project documents stated that, when completed, GCPR would allow health care professionals to "share clinical

[1]See *Federal Health Care: Increased Information System Sharing Could Improve Service, Reduce Costs* (GAO/IMTEC-93-33BR, June 1993).

information via a comprehensive, lifelong medical record." Given the inherent complexity of such an undertaking and the value of achieving this capability, the Congress directed us to report on the status of the GCPR effort. Specifically, we were asked to (1) describe GCPR's time frames, costs, and expected benefits; (2) determine whether barriers to the progress of the project exist; and (3) if barriers exist, describe agency actions to address them.[2]

Our review of the GCPR project was based on site visits to VA, DOD, and IHS facilities and on interviews with officials at these facilities and at the agencies' headquarters, GCPR management and contractors, and medical IT experts from the health care industry. We also reviewed relevant GCPR project documents as well as documents on the three agencies' health information systems. In addition, we conducted site visits to several private sector health care organizations that are also undertaking efforts to link disparate health information systems, and we interviewed representatives of these organizations about their experiences. We conducted this review from March 2000 through February 2001 in accordance with generally accepted government auditing standards. For more on our scope and methodology, see appendix I.

Results in Brief

Expanding time frames and cost estimates, as well as inadequate accountability and poor planning, have raised doubts about GCPR's ability to provide its expected benefits, prompting the agencies to refocus their approach to the project. Initial plans called for the agencies to begin worldwide deployment of GCPR on October 1, 2000, but intermediate target dates, such as those for testing, were not met, pushing project deployment out to an undefined date. GCPR cost estimates have also proven to be unreliable. In September 1999, GCPR was estimated to cost about $270 million over its 10-year life cycle, by August 2000, projections for GCPR stood at $360 million—estimates that GCPR project managers acknowledge are probably understated. By the end of 2000, it became evident that, in the near term, physicians and other health care professionals would not have access to comprehensive beneficiary health information across the three partner agencies, limiting the extent to which the effort will provide the benefits originally envisioned—including improved research and quality of care as well as clinical and administrative efficiencies.

[2]H.R. Rep. No. 106-616 at 383 (2000).

With accountability for GCPR blurred across several management entities, basic principles of sound IT project planning, development, and oversight have not been followed, creating barriers to progress. For example, clear goals and objectives have not been set; detailed plans for the design, implementation, and testing of the interface have not been developed; and critical decisions are not binding on all partners. In addition, GCPR plans have not resolved data incompatibilities and other differences that complicate the electronic exchange of health information among the three agencies' facilities. Finally, concerns related to developing a comprehensive strategy to guarantee the privacy and security of health information shared through GCPR have not been addressed.

In September 2000, we discussed these barriers with VHA's and MHS' Chief Information Officers (CIO). Soon after, they began to exercise much needed oversight, temporarily suspending further work on previously planned project activities and focusing on more immediate and less ambitious returns from GCPR. According to the CIOs, they are developing plans for an interim effort to allow VHA to view DOD health data and expect to have this capability by fall 2001. They plan to evaluate their existing IT products as well as commercial products that have a similar aim of sharing patient data to determine whether these technologies can be used for the interim effort, which may allow VA and DOD to reduce or eliminate redundancies. However, this interim effort, which does not include IHS as a partner, has several major limitations. For example, physicians at Military Treatment Facilities (MTF) will not be able to view VHA health information—or information from other MTFs. Moreover, the information's usefulness to health care providers and researchers will likely be limited, in part because the requested data could take as long as 48 hours to receive. Once DOD data are accessible to VA, project officials report that they plan to resume the broader, longer-term effort—establishing a link among multiple health information systems to provide comprehensive patient information to physicians and other health care professionals in the three agencies. However, to date, formal plans for the interim effort and the resumption of the broader GCPR project have not been developed. To help ensure that GCPR succeeds in exchanging patient health information, we are making recommendations for VA and DOD to continue to improve their oversight and planning of the project.

In commenting on our draft report, VA, DOD, and IHS concurred with the findings and recommendations. In their comments, the agencies also outline a new approach for GCPR.

Background

The GCPR effort developed out of VA and DOD discussions about ways to share data in their health information systems and from efforts to create electronic records for active duty personnel and veterans. The patients served by VA's and DOD's systems tend to be highly mobile. Consequently, their health records may be at multiple federal and nonfederal medical facilities both in and outside the United States. In December 1996, the Presidential Advisory Committee on Gulf War Veterans' Illnesses reported on many deficiencies in VA's and DOD's data capabilities for handling service members' health information. In November 1997, the President called for the two agencies to start developing a "comprehensive, life-long medical record for each service member." In August 1998, 8 months after the GCPR project was officially established, the President issued a directive requiring VA and DOD to develop a "computer-based patient record system that will accurately and efficiently exchange information." The directive further stated that VA and DOD should "define, acquire, and implement a fully integrated computer-based patient record available across the entire spectrum of health care delivery over the lifetime of the patient" and recognized VA and DOD's effort to "create additional interface mechanisms that will act as bridges between existing systems."[3] IHS became involved because of its expertise in population-based research and its long-standing relationship with VA in caring for the Indian veteran population as well as IHS' desire to improve the exchange of information among its facilities.

Each of the three agencies' health facilities is linked to their agency's regional database or an IT center: VA has about 750 facilities in 22 regions, DOD has about 600 MTFs in 14 domestic and overseas medical regions, and IHS has 550 facilities in 12 regions.[4] Currently, these facilities cannot electronically share patient health information across agency lines, and only VA facilities have the capability of sharing certain information across regions.

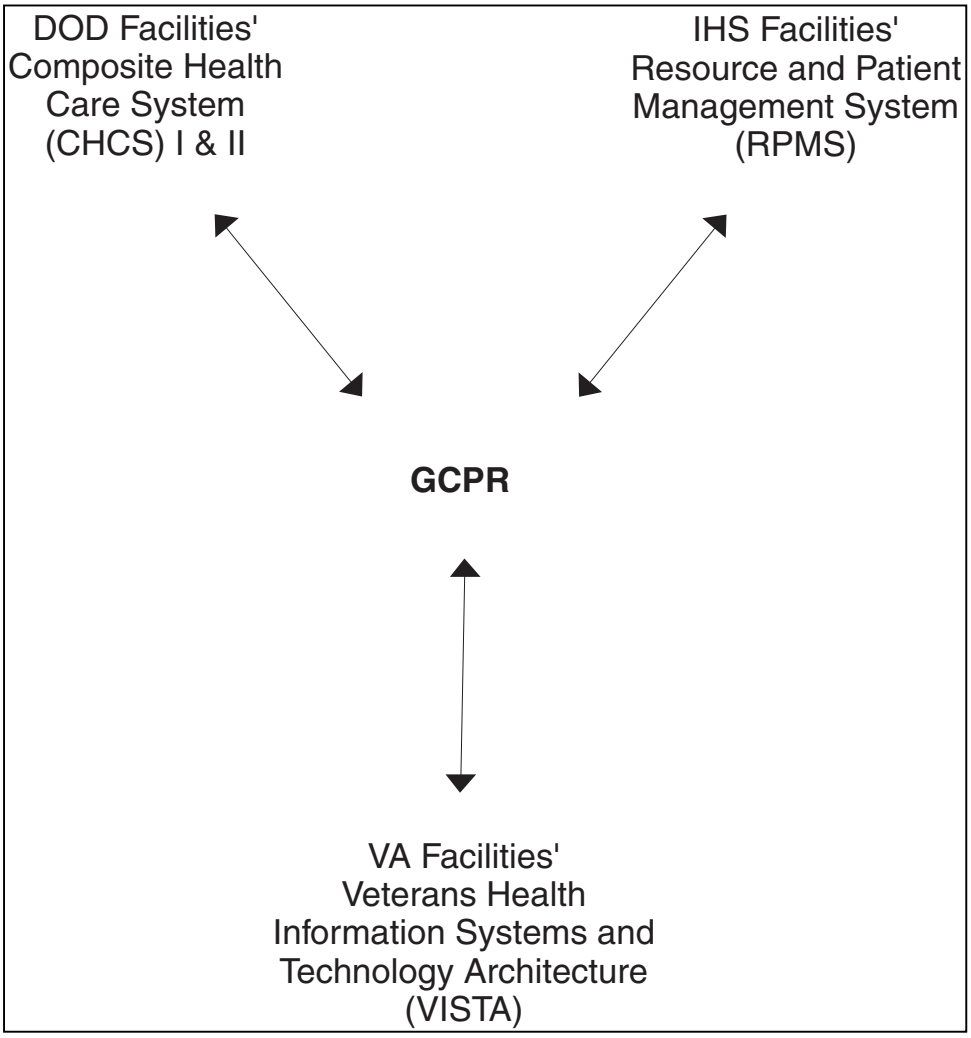
GCPR is not intended to be a separate computerized health information system, nor is it meant to replace VA's, DOD's, and IHS' existing systems.

[3]National Science and Technology Council, *A National Obligation: Planning for Health Preparedness for and Readjustment of the Military, Veterans, and Their Families After Future Deployments*, Presidential Review Directive 5 (Washington, D.C.: Executive Office of the President, Office of Science and Technology Policy, Aug. 1998).

[4]VA's regions are officially referred to as Veterans' Integrated Service Networks, or VISNs; IHS' regions are generally referred to as areas.

GCPR is intended to allow physicians and other authorized users at the agencies' health facilities to access data from any of the agencies' other health facilities by serving as an interface among their health information systems (see fig. 1). As envisioned, the interface would compile requested patient information in a temporary or virtual record while appearing on the computer screen in the format of the user's system. GCPR would divide health data into 24 categories, or "partitions," including pharmacy, laboratory results, adverse reactions, vital signs, patient demographics, and doctors' notes.

Figure 1: GCPR Interface With Agencies' Health Information Systems



Source: GAO.

With this ability to exchange information, GCPR is expected to achieve several benefits, including improving quality of care; providing data for population-based research and public health surveillance; advancing industrywide medical information standards; and generating administrative and clinical efficiencies, such as cost savings.

Several management entities share responsibility for GCPR:

- *Military and Veterans Health Coordinating Board*: This entity was created to ensure coordination among VA, DOD, and the Department of Health and Human Services (HHS) on military and veteran health matters, particularly as they relate to deployed settings, such as the Persian Gulf. The board also oversees implementation of the President's August 1998 directive. The board consists of the Secretaries of VA, DOD, and HHS.
- *DOD and VA Executive Council*: The council was created to identify and implement interagency initiatives that are national in scope. One initiative is to ensure a smooth transfer of information between DOD's and VA's health care systems through efforts such as GCPR. The council comprises VA's Under Secretary for Health, DOD's Assistant Secretary for Health Affairs, their key deputies, and the Surgeon General of each military branch.
- *GCPR Board of Directors*: The board was established to set GCPR programmatic and strategic priorities and secure funding from VA, DOD, and IHS. The board consists of the VA Under Secretary for Health and CIOs for MHS and IHS.[5]
- *GCPR Executive Committee*: The Executive Committee sets tactical priorities, oversees project management activities, and ensures that adequate resources are available. The committee membership consists of senior managers from VA, DOD, and IHS.

GCPR is managed on a day-to-day basis by a program office staffed by personnel from VA, DOD, IHS, and the project's prime contractor, Litton/PRC of McLean, Virginia. Litton/PRC is responsible for building, shipping, installing, configuring, and operating the interface and administering site training. Battelle Memorial Institute of Columbus, Ohio, holds contracts for developing medical "reference models," which allow for the exchange of data among different systems without requiring

[5]The MHS CIO replaced the Deputy Surgeon General of the Navy as DOD's representative on the board. Previously, the MHS CIO was an ex-officio member and was recorded as a participant in board minutes.

standardization.[6] Assisting in the project are government-led work groups, which consist of VA, DOD, and IHS employees and Litton/PRC staff. The work groups' key tasks include acquisition, finance, legal work, marketing, telecommunications, and documenting clinical practices.

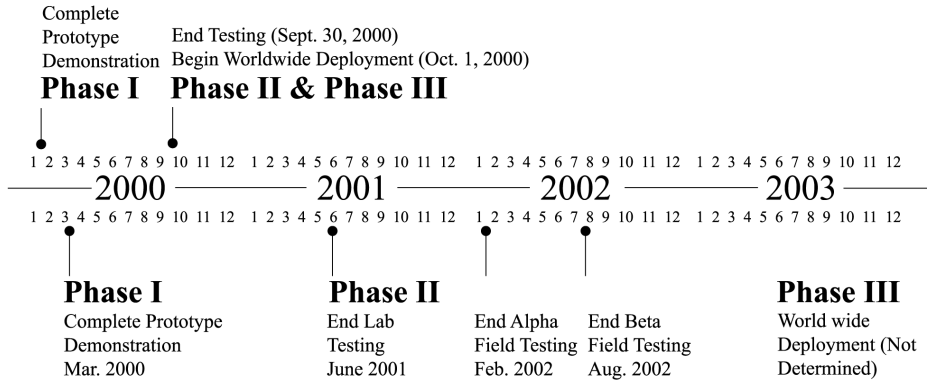
Time Frames and Cost Estimates Have Expanded, and Expected Benefits Have Been Delayed

Throughout the course of the GCPR project, time frames and cost estimates have expanded, and GCPR's ability to deliver its expected benefits has become less certain. In 1999, initial plans called for GCPR to begin worldwide deployment October 1, 2000, but target dates for intermediate phases, such as testing, were not met, pushing project deployment out to an undefined date. For example, completion of testing was originally scheduled for September 2000 but was delayed until August 2002 (see fig. 2).

[6]Comprehensive industry standards for medical language and its context do not exist. Consequently, different health information systems or providers may use different terms to mean the same thing. For example, to indicate a patient is suffering from a rhinovirus, some may use "cold" while others may use "upper respiratory disorder" or "nasal congestion." In addition, without knowing the context in which a term such as "cold" is used, it is difficult to determine whether the patient has a rhinovirus or feels cold or has chronic obstructed lung disease. According to GCPR project documents, reference models would allow translation among the different medical languages and terminologies used by VA, DOD, and IHS.

Figure 2: GCPR Time Frames as of January 1999 and September 2000

January 1999 (Original)



September 2000 (Revised)

Source: GCPR project documents.

GCPR cost estimates also increased. GCPR was estimated in September 1999 to cost about $270 million over its 10-year life cycle; by August 2000, projections for GCPR stood at $360 million (see table 1). However, GCPR project officials told us that the cost estimates were unreliable and probably understated, in part because some costs—such as computer hardware needed by the project's contractors—were not included. Other cost estimates, such as those for deployment, could not be verified. In the case of deployment, final decisions affecting costs were not made.

Table 1: Changes in GCPR's Estimated Project Cost

(Dollars in millions)		
Phase	**Estimates as of Sept. 1999**	**Estimates as of Aug. 2000**
Preliminary	$12.5	$1.8
Phase I (prototype and proof of concept)	42.0	17.7
Phase II (pilot, alpha-, and beta-field testing)	23.3	98.2
Phase III (phased deployment)	92.8	133.5
Ongoing operations	99.0	108.7
Total	**$269.6**	**$359.9**

Source: GCPR project documents.

By the end of 2000, it became apparent that the benefits described in GCPR project documents and brochures and on its website—including access to comprehensive, life-long patient information—would not be realized in the near future. According to Litton/PRC, preliminary testing of data transfer among selected VA facilities is demonstrating that the GCPR technology works. However, significant issues in sharing comprehensive patient data have not been adequately addressed. For example, while GCPR managers planned to field test 6[7] of the 24 data partitions, they had no plans for when other partitions would be tested. Moreover, access was to be limited to patient information in VA's, DOD's, and IHS' health information systems; information in other major data sources, such as TRICARE—DOD's managed care program—and other third-party providers would not be accessible. Access to patient information would be further limited because full deployment of CHCS II—DOD's new, more comprehensive health information system, currently under development—has been delayed until 2004 as the result of complications such as limited system capacity and slow response time. With CHCS II, GCPR would provide access to information on immunizations; allergies; and outpatient encounters, such as diagnostic and treatment codes; as well as to information in CHCS I, DOD's current system, which primarily includes information on patient hospital admission and discharge, patient medications, laboratory results, and radiology. Providing other anticipated benefits—such as improved quality of patient health records—will also be difficult because GCPR plans do not include steps for correcting long-standing data problems, such as inaccurate data entries.

[7]Demographics, security, laboratory results, problem lists, medication profiles, and adverse reactions.

Inadequate Accountability and Planning Compromised GCPR's Progress

The lack of accountability and sound IT project planning—critical to any project, particularly an interagency effort of this magnitude and complexity—put GCPR at risk of failing. The relationships among GCPR's management entities were not clearly established, and no one entity had the authority to make final project decisions binding on the other entities. As a result, plans for the development of GCPR have not included a clear vision for the project and have not given sufficient attention to technological and privacy and security issues as the effort has moved forward.[8]

Lack of Accountability Undermined Agencies' Commitment to the Project

From the outset, decision-making and oversight were blurred across several management entities, compromising GCPR's progress. The roles and responsibilities of these entities and the relationships among them are not spelled out in the VA-DOD-IHS memorandum of agreement (MOA), and no one entity exercised final authority over the project. The Board of Directors and the Executive Committee did not follow sound IT business practices—such as ensuring agency commitment, securing stable funding, and monitoring the project's progress—as dictated by federal requirements.[9] For example, GCPR documents show that VA, DOD, and IHS should provide consistent project funding of 40 percent, 40 percent, and 20 percent, respectively, but DOD has never provided this level of funding and, at times, temporarily withheld funding it had promised. Moreover, the Board of Directors and the Executive Committee did not exercise sufficient oversight, including monitoring, to ensure that the project would be adequately funded.

Without agency commitment and sufficient oversight, the project team has been limited in its ability to manage GCPR effectively or efficiently. Unstable funding forced GCPR project managers to develop and issue multiple short-term contracts for work that could have been covered by a single longer-term contract. At one point during our review, project managers told us that the project would end after field-testing because of a lack of adequate funding and a lack of a clear mandate to proceed with full

[8]An earlier independent risk assessment by Northpoint Software Ventures, Inc., found similar weaknesses in GCPR's business practices.

[9]Six laws largely lay out the IT management responsibilities of federal agencies: the Federal Records Act of 1950, the Privacy Act of 1974, the Computer Security Act of 1987, the Paperwork Reduction Act of 1995, the Clinger-Cohen Act of 1996, and the Government Paperwork Elimination Act of 1998.

deployment, even though plans called for the project to continue through deployment.

Inadequate Planning Hindered Progress

The three partner agencies never reached consensus on GCPR's mission and how it would relate to the individual agencies' missions. In addition, key project documents, such as the MOA establishing GCPR, have not adequately spelled out the project's goals and objectives. For example, some DOD officials thought GCPR's mission paralleled the goals and objectives of Presidential Review Directive 5; however, GCPR project managers did not share this understanding and the directive was never adopted as GCPR's mission. Without an agreed upon mission with clear goals and objectives, it remained unclear what problem GCPR was trying to solve. This lack of consensus on the project's mission, goals, and objectives affected the agencies' dedication of resources. Expecting GCPR to enhance its ability to carry out its mission to provide health care to veterans, VA was providing the most funding to the project. In contrast, DOD elected to place priority on funding CHCS II, which is estimated to cost several billion dollars because officials believe it will more specifically address the Department's health mission.

GCPR plans have also not sufficiently addressed other critical issues that need to be resolved, such as decisions about key data elements. For example, DOD and IHS use different identifiers to match health records to patients—DOD facilities use Social Security numbers, while IHS facilities use facility-specific health record numbers. Differences such as these complicate the electronic exchange of health information. Further, in the absence of common medical terminology, project personnel, assisted by Battelle, are developing reference models they believe will interpret VA, DOD, and IHS data and present the data in a format understandable to the user—without requiring cross-agency standards. However, GCPR plans have not specified the key tasks for developing these models, their relation to one another, and who should carry them out. As a result, work progressed slowly and rework has been necessary. For example, coordination between the Battelle team and Litton/PRC was, initially, not adequate to ensure that the reference models developed by Battelle would meet Litton/PRC's technical requirements for developing the interface. Therefore, the models had to be revised.

In addition, the MOA and other key project documents did not lay out the specific roles and responsibilities of VA, DOD, and IHS in developing, testing, and deploying the interface. GCPR plans also did not describe how the project would use the agencies' existing technologies for sharing

patient health information and to avoid duplication of effort. For example, GCPR plans do not discuss VA's "remote view" capability—which will allow users of VA's Computer Patient Record System (CPRS)[10] to simultaneously view health data across multiple facilities—or three of DOD's health information systems: Theater Medical Information Program (TMIP), Pacific Medical Network (PACMEDNET), and Pharmacy Data Transaction System (PDTS).[11]

Finally, a comprehensive strategy to guarantee the privacy and security of electronic information shared through GCPR was not developed. GCPR's draft privacy and security plan delegates primary responsibility for ensuring privacy and security to more than 1,000 VA, DOD, and IHS local facilities, with few additional resources and little guidance. However, there have been long-standing privacy and security problems within VA's, and DOD's information systems. For example, weak access controls put sensitive information—including health information—at risk of deliberate or inadvertent misuse, improper disclosure, or destruction.[12] By providing broader access to more users, GCPR may exacerbate these risks. DOD is required by the Floyd D. Spence National Defense Authorization Act for 2001 (P.L. 106-398) to submit to the Congress a comprehensive plan consistent with HHS medical privacy regulations to improve privacy.[13] The act also requires DOD to promulgate interim regulations that allow for use of medical records as necessary for certain purposes, including patient treatment and public health reporting, thus providing DOD the flexibility to share patient health information through a mechanism such as GCPR. The HHS privacy regulations went into effect on April 14, 2001, and contain provisions that require consent to disclose health information

[10]CPRS is a component system of VISTA.

[11]DOD's TMIP, currently under development, is intended to capture medical information for deployed personnel; PACMEDNET is a joint DOD/VA effort to link medical records in the Pacific region; and PDTS is DOD's new patient drug transaction and safety database. Program costs are $14.8 million for PDTS and $19.5 million for PACMEDNET; program costs for TMIP have not been determined.

[12]See *Information Security: Serious and Widespread Weaknesses Persist at Federal Agencies* (GAO/AIMD-00-295, Sept. 6, 2000).

[13]The Health Insurance and Portability Act (HIPAA) requires the development of comprehensive privacy standards that would establish rights for patients with respect to their medical records and define the conditions for using and disclosing identifiable health information. (P.L. 104-191, 264, 110 Stat. 1936, 2033.) The final regulations require that patient consent must be secured before disclosing information in individual medical records.

before engaging in treatment, payment, or health care operations (45 C.F.R. parts 160-164).[14]

CIOs Change Immediate Focus, but Serious Concerns Remain

Over the past several months, we have provided briefings on our findings to agency and project officials, including the CIOs of VHA and MHS whom we initially briefed in September 2000. Concerned about the lack of progress and the significant weaknesses that we found, the CIOs have begun to exert much needed oversight. They told us that they are now focusing on "early deliverables" for VA and DOD. To ensure more immediate applicability of GCPR to their missions, VA and DOD's current priority is to allow VA health care providers to view DOD health data by the end of September 2001. Once this interim effort is completed, the CIOs told us that they plan to resume the broader GCPR project—establishing a link among all three partner agencies' health information systems.

Under the interim effort, as described by the CIOs, certain trigger events, such as a new veteran enrolling for VA medical treatment, will prompt VISTA to contact a central server, which would search the hundreds of CHCS I sites and collect any data on that patient. To help ensure efficient development of the interim effort, VA and DOD now plan to evaluate their existing IT products—such as VA's remote view capability, which could have the potential to facilitate the retrieval of DOD health data—as well as commercial products to determine if these technologies can be used to electronically transmit data among the agencies' systems. While we did not conduct an in-depth review of these initiatives, we agree that such an evaluation may allow VA and DOD to reduce or eliminate redundancies because these products have a common aim of sharing patient data. However, it is unclear to what extent the interim effort will be using the GCPR technology—which, according to Litton/PRC, has demonstrated that data can be moved among VA facilities.

However, our concerns regarding the usefulness of the information—and the implications for GCPR's expected benefits—still remain. For example, under the interim effort, the requested information is expected to take as long as 48 hours to be received. In addition, only authorized VHA personnel will have the ability to see CHCS I data from MTFs; health care

[14]The Secretary of HHS has stated that there will be guidelines and modifications made to the consent provisions to make it clear that doctors and hospitals will have access to necessary medical information about patients whom they are treating.

providers at MTFs will not be able to view health information from VHA—or information from other MTFs. It is also unclear whether all or only selected VA and DOD facilities will have the interim capability now being proposed. IHS will not be included in the interim effort. Moreover, the interim effort will rely on DOD's aging system, CHCS I, which historically has not been adequate to meet physicians' needs. CHCS I is primarily limited to administrative information and some patient medical information, such as pharmacy and laboratory results. CHCS I does not include patient information on the health status of personnel when they enter military service, on reservists who receive medical care while not on active duty status, or on military personnel who receive care from TRICARE providers. CHCS I also does not include physician notes made during examinations. In addition, information captured by CHCS I can vary from MTF to MTF. Some facilities, such as Tripler Army Medical Center in Hawaii, have significantly enhanced their CHCS software to respond to the needs of physicians and other system users and to collect patient health information not collected by other facilities.

Further, the interim effort will need to address many of the same problems that confronted the broader GCPR effort:

- Transmitted information will be viewable only as sent; therefore, it will not be computable—that is, it will not be possible to organize or manipulate data for quick review or research.
- Electronic connectivity among MTFs is limited, and the interim effort does not propose to establish facility-to-facility links. Currently, only MTFs within the same region and using the same DOD IT hardware can access one another's data using CHCS I.
- The requested data will not be meaningful to the VA user unless CHCS' language is translated into VISTA's. For example, without interpretation, a VA physician's VISTA query for a patient's sodium level would not recognize "NA" (used by DOD) as equivalent to "sodium" (used by VA). Until terms and their context are standardized or the variations are identified, or "mapped," across all VA and DOD facilities, much of the information could be meaningless to VA physicians.

According to VHA's and MHS' CIOs, detailed plans and time frames are being prepared for the short-term, interim effort to allow VA to receive available electronic health information in CHCS I. However, as of the end of February 2001, no agreement on the goals, time frames, costs, and oversight for the interim approach has been reached, and no formal plans for the interim project exist. Moreover, revised plans for the broader, long-

term GCPR project—including how and when IHS will resume its role in the project—have not been developed.

While a draft of this report was being reviewed by the agencies, they developed a new near-term effort which they outlined in their comments. This effort, which revises their interim effort, is intended to address our concerns. However, many of our concerns remain and are addressed in our response to comments from the agencies.

Conclusions

GCPR's aim to allow health care providers to electronically share comprehensive patient information should provide VA, DOD, and IHS a valuable opportunity to improve the quality of care for their beneficiaries. But without a lead entity, a clear mission, and detailed planning to achieve that mission, it is difficult to monitor progress, identify project risks, and develop appropriate contingency plans to keep the project moving forward and on track. Critical project decisions were not made, and the agencies were not bound by those that were made. The VA and DOD CIOs' action to focus on short-term deliverables and to capitalize on existing technologies is warranted and a step in the right direction. However, until problems with the two agencies' existing systems and issues regarding planning, management, and accountability are resolved, projected costs are likely to continue to increase, and implementation of the larger GCPR effort—along with its expected benefits—will continue to be delayed.

Recommendations for Executive Action

To help strengthen management and oversight of GCPR, we recommend that the Secretaries of VA and DOD and the Director of IHS reassess decisions about the broader, long-term GCPR project, based on the results of the interim effort. If the Secretaries of VA and DOD and the Director of IHS decide to continue with the broader effort, they should direct their health CIOs to apply the principles of sound project management delineated in our following recommendations for the interim effort.

For the interim effort, we recommend that the Secretaries of VA and DOD and the Director of IHS direct their health CIOs to take the following actions:

- Designate a lead entity with final decision-making authority and establish a clear line of authority.
- Create comprehensive and coordinated plans to ensure that the agencies' can share comprehensive, meaningful, accurate, and secure patient health data. These plans include an agreed-upon mission and clear goals,

objectives, and performance measures, and they should capitalize on existing medical IT capabilities.

Agency Comments

VA, DOD, and IHS reviewed and separately commented on a draft of this report. Each concurred with the findings and recommendations. The agencies also provided comments that outline a new near-term effort for GCPR and that aim to clarify GCPR's purpose. Additionally, VA, DOD, and IHS provided written technical comments, which we have incorporated where appropriate. The full texts of their comments are reprinted as appendixes II, III, and IV.

Regarding our recommendation to establish a clear line of authority, the Secretary of VA committed to meeting with the Secretary of Defense and the Director of IHS to designate a lead entity that will have decision-making authority for the three organizations. He said that once established, that entity will have a clear line of authority over all GCPR development activities. With regard to our recommendation to create comprehensive and coordinated plans for sharing patient health data, the Secretary of VA said he would direct the VHA CIO, in collaboration with VA's departmentwide CIO to prepare such plans under the oversight of the lead entity. In response to our recommendation that longer-term GCPR decisions be reassessed based on the results of the interim effort, the Secretary of VA responded that GCPR will be reassessed based on the results of their near-term effort. Additionally, he said that the longer-term strategy will depend to some extent on advances in medical informatics, standards development, and the ability to bring in additional partners.

DOD provided similar comments on our recommendation concerning longer-term GCPR decisions and also mentioned that it plans to include the Military Health System Information Management Committee in GCPR oversight. While IHS provided no information on the steps it plans to take to implement our recommendations, it commented, along with VA and DOD, that collaboration is essential to the future of GCPR. Overall, the agencies' statements, in our view, represent a commitment to oversight and management of GCPR. However, it is much too soon to know whether their commitment will result in a successful project.

VA, DOD, and IHS also provided information that, according to the organizations, is intended to serve as a foundation for assessing GCPR and its progress. The agencies emphasized that GCPR is not intended to carry the whole weight for the service members' health records and the related health information systems, but instead consists of the agencies' core health information systems with GCPR handling the transfer and

mediation of data. Our report does not suggest that GCPR is a replacement for the agencies' information systems or that it should carry the weight of the agencies' patient health information. Rather, our report states that GCPR is intended to create an electronic link that will enable the agencies to share patient data from their separate health information systems.

The agencies also provided a clarification of GCPR's purpose, stating that it will provide a longitudinal record covering service members from the start of their service through their care with VA. VA acknowledges that the realities of the challenges the project has presented have led to a scaling back of the initial version of GCPR as described in early project documents, such as budget submissions, contractors' statements of work, and project plans. These documents indicated that in addition to including IHS, GCPR would permit health care professionals to share clinical information via a comprehensive lifelong, medical record—one that would include information from all sources of care. GCPR was similarly described on GCPR's home page and during briefings to the Congress and others, such as the National Committee on Vital and Health Statistics. Some documents, such as VA's Fiscal Year 2001 Performance Plan, have described GCPR as including dependents of service members. To the extent that the agencies agree on the scaled-back description of GCPR, project documents and communications need to reflect this new understanding. This is, in part, why we recommended that the agencies develop and document a clear, agreed upon project mission, along with specific goals, objectives, and performance measures.

The agencies' also provided information on a new near-term effort for GCPR, which they developed while reviewing our draft report. According to the agencies, this revised near-term effort that they have developed uses the GCPR framework and will provide VA clinicians with DOD data on all active duty members, retirees, and separated personnel. VA and DOD recognize that this one-way flow of information is not perfect but should be a substantial improvement for physicians making medical decisions and enhance the continuity of care for veterans. According to the agencies, the near-term effort is funded through year 2001 and they expect to have initial operating capability by fall 2001. We agree that, if successful, this effort should provide useful information to VA clinicians. In our view, their outline of the new near-term approach indicates that it is only in the concept stage and detailed planning and actual work are just beginning. For example, the agencies note that current data will be sent in "near real-time transmission," and historical data will be "extracted and transmitted on a predetermined schedule." But they do not define "near real-time" and "predetermined schedule."

Additionally, the agencies assert that the new near-term effort addresses many of the concerns we raised in the report. However, several of these issues remain and, as we recommended, need to be reassessed at the conclusion of the near-term effort because of their implications for the long-term effort:

- GCPR—both the near-term and larger efforts—will not provide a longitudinal record because plans call for GCPR to use DOD's CHCS I for the foreseeable future. CHCS I, as DOD acknowledges in its comments, was not designed to include patient information on the health status of personnel when they enter military service, on reservists who receive medical care while not on active duty status, or on military personnel who receive care outside MTFs.
- The meaningfulness of the transmitted data remains in question because the agencies do not plan to standardize or map the differing terminology in their health information systems. As we note in the report, without standardized terminology or mapping, the meaning of certain terms used in medical records may not be apparent to the VA provider requesting the information. For example, unless the context is clear, the meaning of the term "cold" in a medical record may be interpreted as meaning a rhinovirus, a feeling of being cold, or having chronic obstructed lung disease.
- The agencies also need to more fully address data-specific matters, such as GCPR's reference modeling, before developing additional hardware and software. Once they reach consensus on these issues, their agreement must be clearly stated in a formalized document—one that is binding on all three partners. Finally, for the project to be successfully deployed, detailed plans on GCPR's system components and tasks with clear project parameters need to be developed. Until such plans are developed, the agencies' GCPR efforts cannot be fully assessed.
- Privacy and security issues are also continuing concerns. DOD states in its comments that it does not intend to delegate responsibility for complying with DOD and federal privacy and security requirements to its local facilities. However, DOD does not describe how it plans to ensure compliance, raising concerns such as how unintended or unauthorized disclosure or access of information would be prevented when the near-term effort provides selected "data feeds from CHCS I [into] a database to be accessed by VA." Similarly, VA generally describes how authorized VA staff will access DOD medical records. However, we have concerns about how the two Departments will ensure the privacy and security of patient information given the security weaknesses in their computer systems, which we have repeatedly reported on. In March 2001, we reported that DOD continues to face significant personnel, technical, and operational

challenges in implementing a departmentwide information security program, and DOD management has not carried out sufficient program oversight.[15] We included VA's computer security in our January 2001 High-Risk Series and, in an accompanying report, pointed out persistent computer security weaknesses that placed critical VA operations, including health care delivery, at risk of misuse, fraud, improper disclosure, or destruction.[16] For example, we found that VA has not adequately limited access granted to authorized users, managed user identification and passwords, or monitored access activity—weaknesses that VA's Inspector General recently testified on.[17]

- Funding is also a concern. VA states that GCPR's "success and rate of progression will depend to some extent on the ability to add partners and available funding." Similarly, DOD states that GCPR program requirements will be funded in accordance with overarching DOD mission priorities. IHS also noted that it faces competing demands for scarce resources. We recognize that each agency has multiple priorities. However, securing adequate and stable funding and determining whether additional partners are needed depends on reliable cost estimates—which can only be determined with well-defined goals and detailed plans for achieving those goals. As DOD points out in its comments, the 10-year cost estimates for GCPR will continue to be considered unreliable until clear mid- and long-term goals and objectives have been established and agreed to by the three agencies.

Each of the three agencies also stated that GCPR may have been judged by the criteria used to assess a standard information system development effort and that doing so understates the complexity of their undertaking. While we believe that the technology exists to support GCPR—particularly the new near-term effort—we agree that GCPR presents unique and difficult administrative challenges. Yet it is this very complexity that calls for thorough planning, interagency coordination, and diligent oversight as well as consistent and regular communication of the project's status and progress to all stakeholders.

[15] *Information Security: Progress and Challenges to an Effective Defense-wide Information Assurance Program* (GAO-01-307, Mar. 30, 2001).

[16] *Major Management Challenges and Program Risks: Department of Veterans Affairs* (GAO-01-255, Jan. 2001).

[17] Testimony of Richard J. Griffin, Inspector General, Department of Veterans Affairs, before the House Committee on Veterans' Affairs, Subcommittee on Oversight and Investigations, April 4, 2001.

Finally, VA noted that it would like to discuss with us certain details in our report with which it did not fully agree but yet did not disclose in its comments. Throughout the course of the project—and particularly over the past 6 months—we met frequently with the agencies to provide observations on our work and discuss any concerns that were brought to our attention. We are committed to continuing to meet with VA, DOD, and IHS to help in this important endeavor.

We are sending this report to the Honorable Anthony Principi, Secretary of Veterans Affairs; the Honorable Donald Rumsfeld, Secretary of Defense; the Honorable Tommy Thompson, Secretary of Health and Human Services; appropriate congressional committees; and other interested parties. We will also make copies available to others upon request. Should you have any questions on matters discussed in this report, please contact me at (202) 512-7101. Other contacts and key contributors to this report are listed in appendix V.

Stephen P. Backhus
Director, Health Care—Veterans'
and Military Health Care Issues

Appendix I: Scope and Methodology

To determine the status of the GCPR project, we conducted site visits to VA, DOD, and IHS facilities; interviewed personnel at these locations, representatives of nonfederal health care organizations, and others knowledgeable about computerized linking of disparate health information systems; and reviewed documents relevant to the project. We also consulted with project officials at various times during our audit about the status of our review.

We went to a total of nine VA, DOD, and IHS health care facilities in California, Hawaii, Indiana, and Washington, D.C. These sites were judgmentally selected based on a variety of factors, including diversity of system capabilities and size and type of facility, such as major medical centers and small community-based clinics. Therefore, they are not necessarily representative of the agencies' facilities. During these site visits, we spoke with a variety of facility staff—ranging from a DOD regional medical commander and IHS facility managers to VA administrative personnel—about their experiences using the agencies' existing health information systems. We also asked them about what additional information and system features they consider to be important in treating patients and conducting population-based research. Further, we talked with facility IT technicians and administrators about their systems' capabilities and the technical requirements for developing the GCPR interface, and we discussed the potential effect the interface might have on current operations and systems.

We interviewed VA, DOD, and IHS officials, primarily from the agencies' headquarters, involved directly in the GCPR project to obtain specific information about the project's day-to-day operations and management, including timelines, costs, and technical matters. We also interviewed personnel from the two primary GCPR contractors—Litton/PRC in McLean, Virginia, and Battelle Memorial Institute of Columbus, Ohio—on the status of the interface development, particularly regarding the reference modeling. We also talked with agency representatives on the GCPR Board of Directors and Executive Committee about the oversight of the project.

To obtain additional perspectives about the development of computerized patient record systems, we talked with recognized leaders in the field and visited selected private sector facilities, including Kaiser Permanente, Aurora HealthCare of Wisconsin, and the Regenstrief Institute of the University of Indiana in Indianapolis. We also talked with officials from the National Committee on Vital and Health Statistics regarding privacy

and security issues and the status of the development of HIPAA regulations.

Finally, we reviewed many GCPR project documents. These included technical plans, such as the project's draft privacy and security plan, deployment plans, and other planning documents; cost analyses; and Board of Directors and Executive Committee meeting minutes; and other relevant project documents. We conducted our review between March 2000 and April 2001 in accordance with generally accepted government auditing standards.

Appendix II: Comments From the Department of Veterans Affairs

THE SECRETARY OF VETERANS AFFAIRS
WASHINGTON

April 09, 2001

Mr. Stephen P. Backhus, Director
Health Care—Veterans and Military Health Care Issues
U. S. General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Backhus:

This responds to your draft report, ***COMPUTER-BASED PATIENT RECORDS: Better Planning and Oversight By VA, DOD, and IHS Would Enhance Health Data Sharing*** (GAO-01-459). I agree with the General Accounting Office (GAO) that the Departments of Veterans Affairs (VA) and Defense (DOD) and the Indian Health Service (IHS) need to improve their efforts to create a Government Computer-Based Patient Record (GCPR). The GCPR will enhance all organizations' ability to rapidly share health information to best serve our veterans, service members, and Native Americans.

As the Congress and GAO already recognize, the challenge requires vision, practical application, and perhaps most importantly, an implementation plan. As GAO realizes, both VA and the DOD are vast agencies with long-standing and independently developed health information systems. I concur with GAO that to successfully create the GCPR, the three entities must agree to designate a lead with decisionmaking authority. I will work closely with the Secretary of Defense and the Director, IHS to establish that lead entity with a clear line of authority. Three enclosures are provided to furnish additional details. Enclosure #1 addresses GAO's specific recommendations, and Enclosure #2 provides details on the GCPR Near-Term (FY01) Solution. Enclosure #3 is a fact sheet that we understand mirrors the views submitted by DOD and IHS.

We are in a new Millennium and at the threshold of an information technology that is evolving at an immeasurable pace. Creating a GCPR will not only allow VA, DOD, and IHS to serve our special populations, but will also be a seminal step toward advancing health care delivery to all Americans.

Sincerely yours,

Anthony J. Principi

Enclosures

Enclosure (1)

DEPARTMENT OF VETERANS AFFAIRS COMMENTS
TO GAO DRAFT REPORT,
COMPUTER-BASED PATIENT RECORD: Better Planning and Oversight By VA, DOD, and IHS Would Enhance Health Data Sharing
(GAO-01-459)

GAO recommends that I along with the Secretary of DOD and the Director of IHS direct our health CIOs to take the following actions for the interim effort:

- **Designate a lead entity with final decisionmaking authority and establish a clear line of authority.**

Concur – I will meet with the Secretary of Defense and the Director, Indian Health Service to establish a lead entity that will have decisionmaking authority for our three organizations. Once established, that entity will have a clear line of authority over all GCPR development activities.

- **Create comprehensive and coordinated plans—which include an agreed upon mission, clear goals, objectives, and performance measures and capitalize on existing medical IT capabilities—to ensure that the agencies can share comprehensive, accurate, and secure patient health data.**

Concur – I will direct the Veterans Health Administration CIO, in collaboration with VA's Departmental CIO, to prepare comprehensive and coordinated plans for GCPR. Under the oversight of the lead entity, these plans will match missions, goals, objectives, and performance measures to capitalize on existing medical IT capabilities as well as assist all three agencies' ability to share comprehensive, accurate, and secure patient health data.

GAO also recommends that decisions about the broader, long-term GCPR project be reassessed, based on the results of the interim effort. If the Secretaries of VA and DOD and the Director of IHS decide to continue with the broader effort, they should direct their health CIOs to apply the principles of sound project management delineated in GAO's recommendations for the interim effort.

Concur – I anticipate that the integration testing for our near-term solution will be completed by September 30, 2001, providing for an initial operating capability by October 31, 2001. Based on the results, decisions about the broader, long-term GCPR project will be reassessed. The long-term strategy will depend, to some

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Enclosure (1)

DEPARTMENT OF VETERANS AFFAIRS COMMENTS
TO GAO DRAFT REPORT,
COMPUTER-BASED PATIENT RECORD: Better Planning and Oversight By VA, DOD, and IHS Would Enhance Health Data Sharing
(GAO-01-459)
(Continued)

extent, on advances in medical informatics, standards development, and the ability to bring in additional partners.

Beyond the near-term solution, two additional phases of the GCPR project are envisioned.

- Phase II - Complete the middle-term effort to produce the GCPR framework that allows disparate systems, in both the public and private sectors, to share health information. Its success and rate of progression will depend to some extent on the ability to add partners and available funding.
- Phase III – Build the longer-term effort to work with the public and private sector national health information standards development activities to develop similar, standards-based health information systems that may be used by both the public and private sectors. Resources for this effort will need to come from both sectors.

Additional Comments:

VA would also like to share several points to provide a foundation for assessing GCPR and its progress. A longitudinal record covering service members from their start of service through their care with VA consists of three primary elements. They are:

- The Department of Defense's (DOD) core health information system (currently the Composite Health Care System (CHCS) I; the future is CHCS II);
- GCPR for handling the transfer and mediation of data among DOD, VA and the Indian Health Service (IHS); and,
- VA's core health information system (currently the Veterans Health Information Systems and Technology Architecture (*VistA*); the future is next generation *VistA*; i.e., Health*e*Vet).

While early project documents indicated that GCPR would permit health care professionals to "share clinical information via a comprehensive, lifelong medical

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Enclosure (1)

DEPARTMENT OF VETERANS AFFAIRS COMMENTS
TO GAO DRAFT REPORT,
COMPUTER-BASED PATIENT RECORD: Better Planning and Oversight By VA, DOD, and IHS Would Enhance Health Data Sharing
(GAO-01-459)
(Continued)

record," the realities of the challenges have led to a scaling back of the initial vision.

As discussed with GAO, a new near-term solution has been developed to address the concerns GAO raises in its report. The new near-term solution uses the GCPR framework, provides a significant amount of information in a sortable format for clinician use, and is funded for fiscal year 2001. This solution will provide current and historical data feeds from CHCS I on selected data types for active duty, retirees, and separated personnel into the GCPR framework and data base for VA access. Current data that DOD will send to VA will include laboratory results, radiology results, outpatient pharmacy, admission, discharge, and transfer messages, and patient demographics. DOD will transmit the current data to VA in near-real-time. Using a pre-determined schedule, we will extract and transmit historical data feeds.

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Enclosure (2)

Government Computer-based Patient Record (GCPR) -- Near-Term (FY01) Solution

DOD and VA are working very closely on establishing the appropriate technical architecture to extract electronic health information from the DOD Composite Health Care System (CHCS I) and transmit this information to a shared repository where this medical data is available for use by VA. VA will make this data accessible to VA clinical care providers as part of the veteran's electronic medical record within its Veterans Health Information Systems and Technology Architecture (*VistA*) health information system.

Representatives from DOD, VA, Indian Health Service, Litton PRC, and Science Application International Corporation met the week of March 19, 2001, to evaluate the information exchange architecture alternatives, analyze technical risks/capability tradeoffs, and develop costs and a schedule for the most viable alternatives. The solution agreed to by all parties utilizes the GCPR framework, provides a significant amount of information in a sortable format for use by clinicians, facilitates future IHS participation, and is funded for FY01.

The solution will provide current and historical data feeds from CHCS I to the GCPR Framework Node on selected data types for active duty, retired, and separated service members. Medical data on non-veterans will not be sent as part of this solution. Current data that will be sent in Health Level Seven (HL7) like messages are laboratory results, radiology results, outpatient pharmacy, admission, discharge, and transfer messages, and patient demographics. Current data will be sent in near-real-time transmission from DOD to the GCPR Framework Node for storage in the GCPR Repository. These current data feeds will use existing event triggers within CHCS I to send messages to the shared repository.

Historical medical information will be extracted from CHCS I systems and transmitted to the GCPR Framework Node, for storage in the GCPR Repository, using batch transmission techniques that will facilitate the handling of this bulk information and eliminate possible performance impacts on the existing CHCS I systems.

The GCPR Repository will allow access to medical information during VA care and will also provide for potential future use for aggregate analysis if necessary. While final sizing estimates are incomplete, we do know that this repository of medical data will be large enough to contain medical record information on the approximately 220,000 service members separating each year, in addition to the historical information on separated or retired service members who have had medical data in CHCS I since it became fully operational in the 1990's. Work is in progress to accurately determine initial capacity needed to store data from CHCS I.

VHA clinical staff who are authorized to view medical records will have access to the DOD data stored in the GCPR Repository by using the *VistA* Computer Patient Record System (CPRS) Remote Data Views application. When a patient with DOD data is selected in CPRS, the CPRS facility list will

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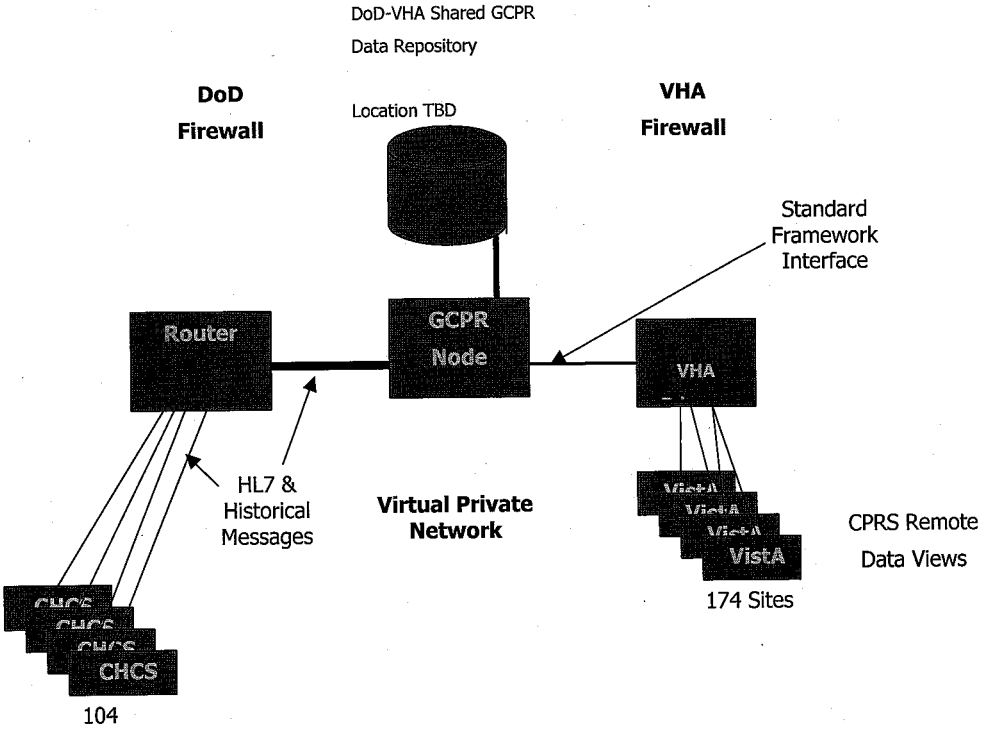
include a selection that will alert the clinician that the patient has DOD data available for display. If the clinician wishes to see that data, a remote procedure call will be issued from the initiating site to the VHA Primary Host, just as is done for data from other VA facilities. The VHA Primary Host serves as a single point of access to the shared GCPR Repository, using the standards-based CORBA Clinical Observations Access Service (COAS) already developed for the GCPR framework to request data from the GCPR Repository.

Positioning the VHA Primary Host between the shared GCPR Repository and VA facilities virtually eliminates the need to implement new software at the local VA medical care facilities to support this solution. Components originally planned for use in the original GCPR Pilot project, such as the COAS client/server software, clinical templates, and the MUMPS Object Request Broker (ORB), will be installed on this VHA Primary Host and used for communication with the GCPR repository. This reuse of existing software on both DOD and VHA systems creates the ability to deliver a short-term solution to provide DOD medical data to VA by the end of the year. The current target for this near-term solution is to complete integration testing by September 30, 2001, and to have initial operating capability by October 31, 2001.

Enclosure (2)

Near Term (FY01) Solution



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Enclosure (3)

Fact Sheet on Government Computer-Based Patient Record (GCPR)

In general, VA concurs with the overall GAO draft report and agrees that there should be a lead entity, a comprehensive and coordinated plan, and a reassessment of the long-term project. As you are aware, the three agencies began more aggressive planning and oversight last fall. It is VA's understanding that GAO agrees that this change should result in a much better defined future for GCPR, a stronger management of the GCPR effort, a valuable near-term solution, and a greater assurance of a successful outcome.

There are several points that need to be made in order to provide the appropriate foundation for assessing GCPR and its progress.

First, while GCPR is a very important effort, its role is not to carry the whole weight for the service members' health records and the related health information systems within each of the three agencies. A longitudinal record covering service members from their start of service through their care with VA consists of three primary elements:

- DOD's core health information system (currently is the Composite Health Care System (CHCS) I; future is CHCS II),
- GCPR for handling the transfer and mediation of data among DOD, VA and the IHS, and
- VA's core health information system (currently is *VistA*; future is next generation *VistA* -- HealtheVet).

GCPR also has a critical role in our efforts to share information with the private sector.

Second, as has been discussed with GAO, the DOD, VA, and IHS have developed a new and more robust near-term solution that addresses many of the concerns GAO raised in its report. This new-near term solution utilizes the GCPR framework, provides a significant amount of information in a sortable format for use by clinicians, and is funded for FY01. It will provide current and historical data feeds from CHCS I on selected data types for active duty, retirees, and separated personnel into the GCPR framework and database to be accessed by VA. Current data that will be sent from DOD to VA will include laboratory results, radiology results, outpatient pharmacy, admission, discharge, and transfer messages, and patient demographics. Current data will be sent in near-real-time transmission from DOD to VA. Historical data feeds will be extracted and transmitted on a pre-determined schedule. The current target for this near-term solution is to complete integration testing by September 30, 2001, and to have initial operating capability by October 31, 2001.

With respect to the longer-term strategy, the three agencies are reassessing and will firm up that longer-term strategy quickly. The three agencies anticipate that the longer-term strategy will depend, to some extent, on advances in medical informatics,

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standards development, and the three agencies' ability to bring in additional partners. The three agencies envision two additional phases of the GCPR project beyond the near-term solution:

- Phase II – The three agencies will complete the middle-term effort to produce the GCPR framework that allows disparate systems, in both the public and private sector, to share health information. Its success and rate of progression will depend to some extent on our ability to bring in additional partners and available funding.

- Phase III – For the longer-term, we will work with the public and private sector national health information standards development activities to develop similar, standards-based health information systems that could be used by both the public and private sectors. Resources for this effort will need to come from both the public and private sector.

The development of GCPR is a very difficult design and development effort that has never been done before. GCPR has the reduced predictability and many of the characteristics and challenges associated with research and development efforts. To judge it by the same measures used for assessing a standard information system development effort is to underestimate the challenge that the three agencies have taken on.

To facilitate the very open process necessary for three federal agencies to develop a complex product such as the GCPR, it is essential that many concepts and ideas be developed. These concepts must be given wide dissemination in order to elicit points of view, clarify requirements, and identify potential risks. As part of our reassessment of the long-term GCPR project, VA will work closely with DOD and IHS to establish an agreed upon mission, goals, objectives, and performance measures, while still encouraging an atmosphere of open exploration necessary for such a complex and evolutionary endeavor.

All three agencies are facing many competing demands for their resources. The three agencies are firmly committed to the GCPR effort, but need to use resources carefully. DOD and VA will fully fund the near-term solution. The three agencies intend to explore other funding options for those elements of GCPR that also would benefit the private sector.

In response to your proposed recommendation with respect to improving planning and oversight, the three agencies agree with GAO and that has begun as GAO acknowledges in its draft report. The three agencies are committed to maintaining aggressive planning and oversight until GCPR is a success.

Finally, while VA agrees with the recommendations and have focused on the major points, there are a number of more detailed items we do not fully agree with in the draft report. We would be happy to meet with you to discuss them at your convenience.

As in the past, the three agencies look forward to working with GAO on this issue. Collaboration will be key as the three agencies move to implement the near term solution for sharing DOD information with VA and to develop the longer term strategies that will both enable information sharing among disparate health information systems across the nation and result in more similar, standardized health information systems for the public and private sectors. Collaboration among the three agencies has been a key element in the progress to date and is essential to the future of GCPR and other information system efforts of common interest.

Collaboration with the Department of Defense and the Indian Health Service is a high priority for the Department of Veterans Affairs. Your observations have been helpful in assisting us.

Appendix III: Comments From the Department of Defense

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

HEALTH AFFAIRS

APR 5 2001

Stephen P. Backhus
Director, Health Care – Veterans and Military Health Care Issues
United States General Accounting Office
Washington, DC 20548

Dear Mr. Backhus:

This is the Department of Defense (DoD) response to the GAO draft report, COMPUTER-BASED PATIENT RECORDS: Better Planning and Oversight By VA, DOD and IHS Would Enhance Health Data Sharing, dated March 15, 2001 (GAO Code 101646/OSD Case 3057).

In general, the DoD concurs with the recommendations in the GAO draft report and agrees there should be a lead entity, a comprehensive and coordinated plan, and a reassessment of the long-term project. As you are aware, we began more aggressive planning and oversight last Fall by more direct involvement of the medical Chief Information Officer (CIO) in the Government Computer-Based Patient Record (GCPR) governance process. We also plan to include the Military Health System (MHS) Information Management Committee in GCPR oversight. It is our understanding that you agree that this change should result in a much better defined future for GCPR, a stronger management of the GCPR effort, a valuable near-term solution, and a greater assurance of a successful outcome.

There are several points that need to be made in order to provide the appropriate foundation for assessing GCPR and its progress.

First, while GCPR is a very important effort, its role is not to carry the whole weight for the service members' health records and the related health information systems within each of the three agencies. A longitudinal record covering service members from their start of service through their care with the VA consists of three primary elements:

- DoD's core health information system. Currently, this system is the Composite Health Care System (CHCS) I; future is CHCS II;
- GCPR for handling the transfer and mediation of data between DoD, the Department of Veterans Affairs (VA), and the Indian Health Service (IHS); and
- VA's core health information system (currently is VistA; future is next generation VistA -- Health*e*Vet).

GCPR also has a critical role in our efforts to share information with the private sector.

Second, as has been discussed with you, DoD, VA, and IHS have developed a new and more robust near-term solution that addresses many of the concerns you raised in your report. This new near-term solution utilizes the GCPR framework, provides a significant amount of information in a sortable format for use by clinicians, and is funded. It will provide current and historical data feeds from CHCS I on selected data types for active duty, retirees, and separated personnel into the GCPR framework and the database to be accessed by VA. Current data that will be sent from DoD to the VA will include laboratory results, radiology results, outpatient pharmacy, admission, discharge, and transfer messages, and patient demographics. Current data will be sent in near real-time transmission from DoD to VA. Historical data feeds will be extracted and transmitted on a pre-determined schedule. The current target for this near-term solution is to complete integration testing by September 30, 2001, and to have initial operating capability by October 31, 2001.

As the draft GAO report recommends, DoD, working closely with VA and IHS, will reassess the GCPR mid- and long-term strategies in concert with the implementation of the near-term solution. We anticipate that the longer-term strategy will depend, to some extent, on advances in medical informatics, standards development, and our ability to bring in additional federal and industry partners. We envision two potential additional phases of the GCPR project beyond the near-term solution:

- Phase II – In concert with other federal agency and industry partners, continue to participate in the effort to develop a GCPR framework that allows disparate systems to share health information. Its success and rate of progression will depend, to some extent, on our ability to bring in additional partners and available funding.

- Phase III – For the longer-term, we must work with the public and private sector national health information standards development activities to develop standards-based health information systems that could be used by both the public and private sectors. Resources and agreement on national health information standards will need to come from both the public and private sector.

The development of GCPR is a very difficult design and development effort that has never been done before. It maintains a reduced predictability and many of the characteristics and challenges associated with research and development efforts. To judge it by the same measures used for assessing a standard information system development effort greatly underestimates the challenge that the three agencies have undertaken.

To facilitate the very open process necessary for three federal agencies to develop a complex product such as the GCPR, it is essential that many concepts and ideas be developed. These concepts must be given wide dissemination in order to elicit points of view, clarify requirements, and identify potential risks. As part of our reassessment of the long-term GCPR project, we will work closely with the VA and IHS in establishing a common mission, goals, objectives, and performance measures, while continuing to encourage an atmosphere of open exploration and discussion necessary for such a complex and evolutionary endeavor.

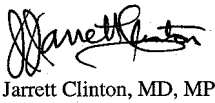
All three agencies are facing many competing demands for their resources. We are firmly committed to the GCPR effort, but we need to use our resources carefully. We will fund the near-term solution and intend to explore other funding options for mid- and long-term GCPR efforts that will potentially include other agencies and the private sector.

With regard to your proposed recommendation that the health CIOs become more involved in improving planning and oversight, the DoD medical CIO did, in fact, become more directly involved in the GCPR governance process last Fall. The three agencies are committed to maintaining aggressive planning and oversight of the GCPR project.

Finally, while we have focused on the major points, there are additional comments provided in enclosure 2. We look forward to discussing these items with you at your convenience.

As in the past, we look forward to working with GAO on this issue. Collaboration will be key as we move to implement the near-term solution for sharing DoD information with VA. Ultimately, we will develop the longer-term strategies that both enable information sharing among disparate health information systems across the nation, and create more similar, standardized health information systems for the public and private sectors. Teamwork among the three agencies has been a key element in the progress to date, and is essential to the future of GCPR and other information system efforts of common interest.

Collaboration with the Department of Veterans Affairs is a high priority for the MHS. Your observations have been helpful in assisting us. Please feel free to direct any questions to my project officers on this matter, Lt Col Marie-Jocelyne Charles (functional) at (703) 681-8789 or Mr. Gunther J. Zimmerman (GAO/IG Liaison) at (703) 681-7889.



J. Jarrett Clinton, MD, MPH
Acting Assistant Secretary

Enclosures:
1. Response to GAO Recommendations
2. Additional Comments

Enclosure 1:
Response to Recommendations of
GAO Draft Report GAO-01-459,
"COMPUTER-BASED PATIENT RECORDS:
Better Planning and Oversight By VA, DoD and IHS
Would Enhance Health Data Sharing."

RECOMMENDATION 1: The Secretaries of VA and DoD and the Director of IHS direct their health CIO's to designate a lead entity with final decision making authority and establish a clear line of authority (p. 17/Draft Report).

PROPOSED DOD RESPONSE: Concur.

RECOMMENDATION 2: The Secretaries of VA and DoD and the Director of IHS direct their health CIO's to create comprehensive and coordinated plans-which include an agreed upon mission, clear goals, objectives, and performance measures and capitalize on existing medical IT capabilities to ensure that the agencies' can share comprehensive, accurate, and secure patient health data. (p.17/Draft Report)

PROPOSED DOD RESPONSE: Concur.

RECOMMENDATION 3: Decisions about the broader, long-term GCPR project be reassessed, based on results of the interim effort. If the Secretaries of VA and DoD and the Director of IHS decide to continue with the broader effort, they should direct their health CIO's to apply the principles of sound project management delineated in our recommendations for the interim effort. (p. 17/Draft Report)

PROPOSED DOD RESPONSE: Concur.

Attachment 1 to Memo.
GAO Draft Report,
page 1 of 1

Enclosure 2:
Additional Comments on the
GAO Draft Report GAO-01-459,
"COMPUTER-BASED PATIENT RECORDS:
Better Planning and Oversight By VA, DoD and IHS
Would Enhance Health Data Sharing."

In addition to the remarks in the letter, DoD would like to provide the following additional comments:

1. Near-Term Solution

   The DoD and VHA medical CIOs are more directly involved in the GCPR governance process. They, as well as the IHS CIO, are working closely to establish the appropriate technical architecture to extract electronic health information from the DoD Composite Health Care System (CHCS) and transmit this information to the VA for inclusion in the veterans electronic health record system, VistA. The DoD, VA, IHS, Litton PRC, and Science Application International Corporation met the week of March 19, 2001, to evaluate the information exchange architecture alternatives, analyze technical risks/capability tradeoffs, and develop cost and schedule for the most viable alternatives. The solution agreed to by all parties utilizes the GCPR framework, provides a significant amount of information in a sortable format for use by clinicians, facilitates IHS participation, and is funded for FY01.

   The near-term solution will provide current and historical data feeds from CHCS I on selected data types for active duty, retirees, and separated personnel into the GCPR framework and database to be accessed by VA. Current data that will be sent in Health Level Seven (HL7) like messages are laboratory results, radiology results, outpatient pharmacy, admission, discharge, and transfer messages, and patient demographics. Current data will be sent in near real-time transmission from DoD to VA. For example, data collected during the day will be available for use by VA the next morning. Historical data feeds will be extracted and transmitted on a pre-determined schedule. While not perfect, the data provided electronically should be a substantial improvement for physicians making medical decisions and enhance the continuity of care for veterans. The current target for this near-term solution is to complete integration testing by September 30, 2001, and to have initial operating capability by October 31, 2001.

2. Funding

   The ten year cost estimates for the GCPR are considered to be unreliable until clear mid- and long-term goals and objectives for the GCPR are established and agreed to by DoD, VA, and IHS. Pursuant to agreement on the mid- and long-term goals and objectives, GCPR program requirements will be resourced through the DoD Planning, Programming, and Budgeting System (PPBS) process in accordance with overarching DoD mission priorities.

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3. Security

   GCPR will be designed to comply with DoD and Federal privacy and security requirements. It is not the intent of DoD to delegate primary responsibility for ensuring privacy and security of the GCPR to over a thousand local facilities.

4. Composite Health Care System (CHCS) I

   CHCS I is a clinically-focused system. It supports physician order entry and results retrieval, along with access to all clinical information in radiology, pharmacy, laboratory, and clinical dietetics. In its report, *Defense Achieves Worldwide Deployment of Composite Health Care System*, GAO/AIMD-96-39, dated April 1996, GAO states "CHCS I is a comprehensive medical information system that Defense has developed to provide automated support to its military medical treatment facilities." GAO further stated, "CHCS I supports high-volume workloads generated by numerous physicians and other health care professionals using the system simultaneously and enhances communications within and among medical treatment facilities." CHCS I was not designed to include information on personnel when they enter service, information on reservists, or information on TRICARE provider care.

5. Members of the Board of Directors

   The Board of Directors for the GCPR project consisted of the VA Deputy Under Secretary for Health, the Deputy Surgeon General of the Navy, and the IHS CIO.

6. Industry Standards

   The proliferation of committees working on health information standards is an indicator of the level of complexity in establishing national health standards. The GCPR will likely serve as a contributor to the development of health information standards and be of value to federal and industrywide standards panels.

7. Miscellaneous

   A) Add the word "Government" so the title reads "Government Computer-Based Patient Record."

   B) On page 13, paragraph 2, line 9 an inaccurate acronym was used for the Pharmacy Data Transaction System. Please replace "(PTDS)" with "(PDTS)."

Appendix IV: Comments From the Indian Health Service

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Indian Health Service
Rockville MD 20857

MAR 2 3 2001

Mr. Stephen P. Backhus
Director, Health Care - Veterans and
Military Health Care Issues
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Backhus:

I am responding to your March 15 letter, regarding the General Accounting Office (GAO) draft report, "Computer-Based Patient Records: Better Planning and Oversight By VA, DOD and IHS Would Enhance Health Data Sharing," (GAO-01-459). The Indian Health Service (IHS) concurs with the overall findings regarding the Government Computer-Based Patient Records (GCPR) project; however, there are several issues that I would like to discuss in order to provide the appropriate foundation for assessing GCPR and its progress.

1. While GCPR is a very important project, it was not meant to carry the entire weight for the service members' health records and the related health information systems within each of the three Agencies. A longitudinal record covering service members from their start of service throughout their care with the Veterans Administration (VA) consists of three primary elements:

   - The Department of Defense's (DOD) core health information system is currently Composite Health Care System (CHCS) I; future is CHCS II,
   - The GCPR for handling the transfer and mediation of data amongst DOD, VA, and IHS; and,
   - The VA's core health information system is currently Veterans Information Systems Technology Architect (VISTA), future is next generation -- HealtheVet).

   The GCPR also has a critical role in our efforts to share information with the private sector.

2. A new near-term solution has been developed that addresses the concerns raised in the report. This near-term solution uses the elements of the GCPR framework. It will move and bring together both historical and current health information and make all DOD electronic health information available to VA clinicians in sufficient time to care for veterans. The current target for this near-term solution is September 30, 2001.

Page 2 - Mr. Stephen P. Backhus

3. With respect to a longer-term strategy, we are reassessing and will firm up that longer-term strategy soon. We anticipate that the longer-term strategy will be as follows:

   Phase II - We will complete the middle-term effort to produce the GCPR framework that allows disparate systems to share health information. Its success will depend to some extent on our ability to bring in additional partners.

   Phase III - For the longer-term, we will work with the private sector to develop similar, standards-based health information systems that could be used by both the public and private sectors. Resources for this effort will need to come from both the public and private sectors.

4. The development of GCPR is a very difficult design and a development effort that has not been done before. The GCPR has the reduced predictability and many of the characteristics associated with research and development efforts. To judge it as a standard information system development effort is to underestimate the challenge that the three Agencies have undertaken.

5. To facilitate the very open process for developing GCPR, many ideas and documents with different degrees of merit are developed by staff and contractors and floated for consideration. Many of these have not received approval from the senior decision-makers and should not be treated as such.

6. All three Agencies are facing many competing demands for their scarce resources. We are firmly committed to the GCPR effort; however, we need to use our scarce resources carefully.

7. In response to your proposed recommendation regarding the improvement in planning and oversight by the Chief Information Officers, they are already doing that as [you] acknowledged in your draft report. The three Agencies are committed to maintaining that aggressive planning and oversight through the successful outcome of the GCPR effort.

Finally, while we have focused on the major points, there are two items that we believe should be corrected in the final report: 1) Page 5, first paragraph "...IHS has more than 150 facilities in 12 regions..." should be changed to "IHS has 550 facilities in 12 regions..." 2) Page 6, footnote - Replace "Area Offices" with Areas. As always, we look forward to working with GAO on this

issue. Collaboration will be key as we move to implement the near-term solution for sharing information with the DOD and the VA, and to develop the longer-term strategies that will a) enable information sharing amongst disparate health information systems across the nation and b) result in more similar, standardized health information systems for both the public and private sectors. Collaboration amongst the three Agencies has been a key element in the progress to date and is essential to the future of GCPR and other information system efforts of common interest.

If you have any questions regarding this letter, you may contact Dr. Richard Church, Director, Division of Information Resources, at (301) 443-0750. Thank you for the opportunity to comment on this important report.

Sincerely yours,

Michael H. Trujillo, M.D., M.P.H., M.S.
Assistant Surgeon General
Director

Appendix V: GAO Contacts and Staff Acknowledgments

GAO Contacts

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Staff Acknowledgments

In addition to those named above, the following staff made key contributions to this report: Tonia Johnson, Helen Lew, William Lew, Valerie Melvin, Karen Sloan, and Thomas Yatsco.

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