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Report to Congressional Requesters

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MEDICARE COMPUTER SYSTEMS

Year 2000 Challenges Put Benefits and Services in Jeopardy

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The Honorable Charles E. Grassley
Chairman
The Honorable John Breaux
Ranking Minority Member
Special Committee on Aging
United States Senate

The Honorable Nancy L. Johnson
Chairwoman
Subcommittee on Oversight
The Honorable Bill Thomas
Chairman
Subcommittee on Health
Committee on Ways and Means
House of Representatives

This report responds to your request that we review the Health Care Financing Administration's (HCFA) progress in addressing the Year 2000 issue for its Medicare claims processing systems. The Year 2000 problem, commonly referred to as Y2K, results from the inability of computer systems to interpret the century correctly when only two digits are used to indicate the year in recorded or calculated dates. In many systems, the year 2000 is indistinguishable from 1900, and those systems that support the processing of Medicare claims are no exception. As you know, time is running out to correct Medicare systems that could malfunction or produce incorrect information when the year 2000 is encountered during automated data processing. If uncorrected, this problem could result in serious disruption to critical functions and services administered through HCFA's Medicare program, as well as to all programs governmentwide. For this reason, we included the Y2K computing problem in our high-risk series, published in early 1997.[1]

For a program as large and complex as Medicare—paying about $207 billion in benefits for about 39 million beneficiaries—addressing the Y2K problem is a formidable task. The Medicare program uses 7 standard Medicare claims processing systems, over 70 private contractors, and financial institutions nationwide to process about 800 million Medicare claims each year for about 1 million hospitals, physicians, and medical equipment suppliers. Over 85 percent of these Medicare claims are

[1]High-Risk Series: Information Management and Technology (GAO/HR-9, February 1997).

submitted and paid electronically, which will require that electronic data exchanges also be assessed for Y2K compliance.

In view of the impact this problem could have on millions of elderly and disabled American citizens, you requested that we provide information on HCFA's progress in addressing the Y2K issue for its Medicare claims processing systems. During our review, we assessed the extent to which HCFA is (1) making progress in renovating its Medicare systems to be Y2K compliant, (2) directing and overseeing the Y2K effort, (3) ensuring that all data exchanges necessary for processing Medicare claims are identified, renovated, tested, and validated, and (4) developing and initiating business continuity and contingency plans for key business processes.

Results in Brief

HCFA and its contractors are severely behind schedule in repairing, testing, and implementing the mission-critical systems supporting Medicare. HCFA has recently begun improving its management of Y2K matters, including establishing a Y2K organization and hiring independent contractors to assist in overseeing the Y2K work. However, because of the complexity and magnitude of the problem and HCFA's late start, its progress in repairing mission-critical Medicare systems for the year 2000 is far behind schedule. Specifically, in August HCFA reported that as of June 30, 1998, less than a third of Medicare's 98 mission-critical systems had been fully renovated, and none had been validated or implemented. The Office of Management and Budget (OMB) has established target dates of September 30, 1998, for completion of agencies' Y2K renovations; January 31, 1999, for validation; and March 31, 1999, for implementation of renovated and validated systems.

Compounding this difficult task is HCFA's lack of key management practices necessary to adequately direct and monitor its Y2K project. To date, HCFA has not

- developed an adequate overall schedule and a critical path that identifies and ranks Y2K tasks, and helps ensure that they can be completed in a timely manner,
- implemented risk management processes necessary to highlight potential technical and managerial weaknesses that could impair project success, and
- planned for or scheduled end-to-end testing to ensure that Medicare-wide renovations will work as planned.

HCFA has also not been effectively managing the identification and correction of its electronic data exchanges. It appears to have thousands of such exchanges, but HCFA does not know for sure because it has not yet identified the actual number. Neither has it determined whether needed agreements with data exchange partners have been made. This increases the risk that Y2K errors will be transferred through data exchanges from one organization's computer systems to another's.

Given the magnitude of the task and risks ahead, and the limited time remaining, it is highly unlikely that all of the Medicare systems will be compliant in time to ensure the delivery of uninterrupted benefits and services into the year 2000. Accordingly, it is more critical than ever that HCFA have sound business continuity and contingency plans in place, which can be implemented should systems failures occur. However, HCFA is late in establishing its business continuity and contingency plans. It is relying on its Medicare contractors to develop plans for their own systems; several contractors told us they do not plan to begin developing their individual plans until 1999. Also, HCFA has not yet developed a Medicare-wide business continuity and contingency planning framework. It has only recently completed drafting a set of contingency planning guidelines, and does not plan to have its Medicare-wide plan completed and tested until June 20, 1999.

Objectives, Scope, and Methodology

Our objectives were to determine the extent to which HCFA is (1) making progress in renovating its Medicare systems to be Y2K compliant, (2) directing and monitoring the Y2K program, (3) ensuring that all data exchanges necessary for processing Medicare claims are identified, renovated, tested, and validated, and (4) developing and initiating business continuity and contingency plans for key business processes.

In conducting our review, we compared HCFA's activities with the key processes in our Year 2000 assessment and testing guides.[2,3] The assessment guide addresses common issues affecting most federal agencies and presents a structured approach and a checklist to aid in planning, managing, and evaluating Y2K programs. It describes five phases—to be supported by program and project management activities—with each phase representing a major Y2K program activity or segment. The phases and a description of each follows.

[2]Year 2000 Computing Crisis: An Assessment Guide (GAO/AIMD-10.1.14, September 1997).

[3]Year 2000 Computing Crisis: A Testing Guide (GAO/AIMD-10.2.21, exposure draft, June 1998).

- **Awareness** - Define the Y2K problem and gain executive-level support and sponsorship for it. Establish a Y2K program team and develop an overall strategy. Ensure that everyone in the organization is fully aware of the issue.
- **Assessment** - Assess the Y2K impact on the enterprise. Identify core business areas and processes, inventory and analyze the systems supporting the core business areas, and prioritize their conversion or replacement. Develop contingency plans to handle data exchange issues, lack of data, and bad data. Identify and secure the necessary resources.
- **Renovation** - Convert, replace, or eliminate selected platforms, applications, databases, and utilities. Modify interfaces.
- **Validation** - Test, verify, and validate all converted or replaced platforms, applications, databases, and utilities. Test the performance, functionality, and integration of converted or replaced platforms, applications, databases, utilities, and interfaces in an environment that represents the operational environment.
- **Implementation** - Implement converted or replaced platforms, applications, databases, utilities, and interfaces. Implement data exchange contingency plans, if necessary.

The testing guide is intended to aid organizations in managing and assessing their Y2K testing programs. It presents a Y2K test model and sets forth five levels of test activity supported by continual management oversight and control activities. The testing guide phases and a description of each follows.

- **Testing infrastructure** - Assign Y2K test management authority and responsibility and define compliance criteria. Develop a test and evaluation master plan, define and secure resources, establish a test environment, and develop and issue test guidance. Establish processes and information sources to support testers, ensure Y2K compliance of vendor-supported products and services, establish processes and metrics for test reporting, and establish test tools.
- **Software unit testing** - Schedule and plan software unit tests. Prepare test procedures and data and define test exit criteria. Execute tests and document test results. Correct defects and ensure that test exit criteria are satisfied.
- **Software integration testing** - Schedule and plan the software integration test. Prepare test procedures and data and define test exit criteria. Execute tests and document test results. Correct defects and ensure test exit criteria are satisfied.

- **System acceptance testing** - Schedule and plan system acceptance tests, prepare test procedures and data, and define test exit criteria. Confirm Y2K compliance of vendor-supported system components. Execute tests, document test results, correct defects, and ensure that test criteria are satisfied.
- **End-to-end testing** - Define end-to-end test boundaries. Secure commitments from the data exchange partners and establish an end-to-end test team. Confirm the Y2K compliance of the vendor-supported telecommunications infrastructure, schedule and plan end-to-end tests, prepare test procedures and data, and define test exit criteria. Execute tests and document test results. Correct defects and ensure that test exit criteria are satisfied.

We also analyzed documents which included HCFA and contractors' Y2K plans and schedules, reports provided to HCFA by its independent verification and validation (IV&V) contractor, and reports provided to HCFA by its Medicare contractors and internal systems maintainers. We interviewed agency officials, Medicare contractors, HCFA's IV&V and independent testing contractors, and standard system maintainers.[4] We used the resulting information to identify the status of HCFA's renovation work and determine the extent of its project direction and oversight. Specifically, we assessed HCFA's actions to (1) ensure that its contractors prepare their Medicare systems for the year 2000, (2) prepare its internal claims processing-related systems for the year 2000, and (3) identify and reach agreement on renovating data exchanges that support Medicare claims.

We then assessed HCFA's business continuity and contingency planning against our guide for such planning.[5] The guide provides agencies with a structured approach to reducing the risk and potential impact of Y2K-induced information systems failures on their core business processes by implementing a rigorous business continuity planning process. The guidance describes four phases—to be supported by agency Y2K program management activities—with each phase representing a major Y2K business continuity planning project, activity, or segment. In reviewing HCFA's business continuity and contingency plans, we compared the completeness of these plans against our contingency planning guidance,

[4]Standard system maintainers are those contractors who provide claims processing software to Medicare fiscal intermediaries and carriers. Currently there are two part A standard systems maintainers and five part B standard systems maintainers.

[5]Year 2000 Computing Crisis: Business Continuity and Contingency Planning (GAO/AIMD-10.1.19, August 1998).

and discussed these plans and the time allowed to implement them with agency and contractor officials. The phases in this guide and a description of each follows.

- **Initiation -** Establish a business continuity project workgroup and develop a high-level business continuity planning strategy. Develop a master schedule and milestones, and obtain executive support.
- **Business impact analysis** - Assess the potential impact of mission-critical systems failures on an agency's core business processes. Define Y2K failure scenarios, and perform a risk and impact analysis for each core business process. Assess infrastructure risks, and define the minimum acceptable levels of outputs for each core business process.
- **Contingency planning** - Identify and document contingency plans and implementation modes. Define triggers for activating contingency plans, and establish a business resumption team for each core business process.
- **Testing -** Validate the agency's business continuity strategy. Develop and document contingency test plans. Prepare and execute tests. Update disaster recovery plans and procedures.

We performed our work at HCFA headquarters in Baltimore, Maryland; at claims processing contractors' sites and a common working file (CWF)[6] host site in Richardson, Texas; at a standard part B system maintainer's office in Plano, Texas; and at the CWF Y2K contractor's office in Camp Hill, Pennsylvania. Our work was performed from February 1998 through August 1998, in accordance with generally accepted government auditing standards. HCFA provided comments on a draft of this report. These comments are summarized and evaluated in the "Agency Comments and Our Evaluation" section of this report, and are reprinted as appendix I.

Background

HCFA, under the Department of Health and Human Services (HHS), administers the Medicare program. Medicare is the nation's largest health insurer, serving about 39 million Americans by providing federal health insurance to individuals 65 or older and to many of the nation's disabled. For fiscal year 1997, HCFA provided a reported $207 billion in fee-for-service and managed care benefits, and expects to process over 1 billion claims and pay $288 billion in benefits annually by 2000.

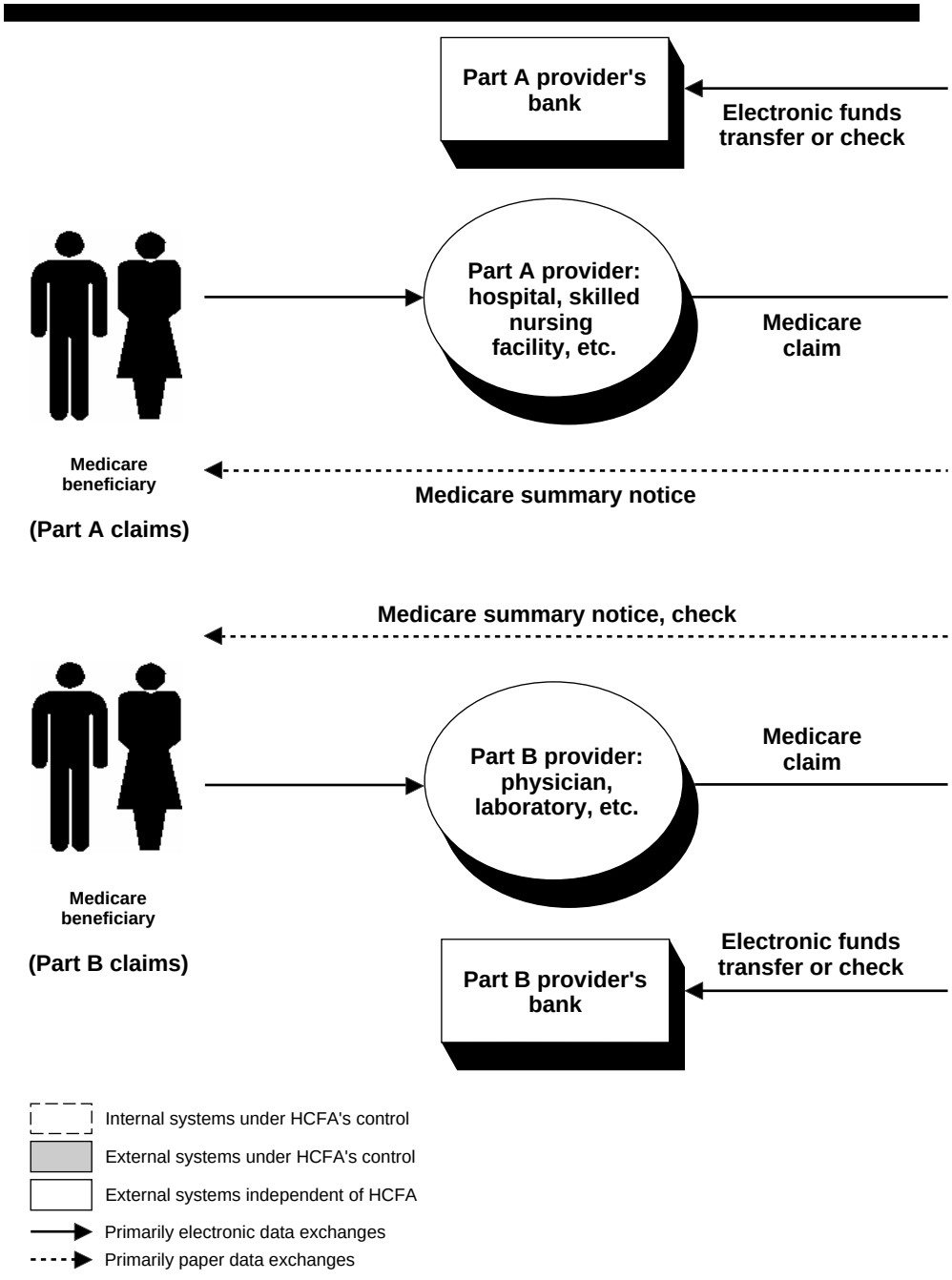
[6]CWF is a set of databases used by Medicare claims processing contractors to provide beneficiary-related edit checks such as whether Medicare premiums have been paid or whether duplicate claims have been made to cover beneficiary conditions. Contractors use the CWF edit checks to determine whether to approve, adjust, or deny claims payments.

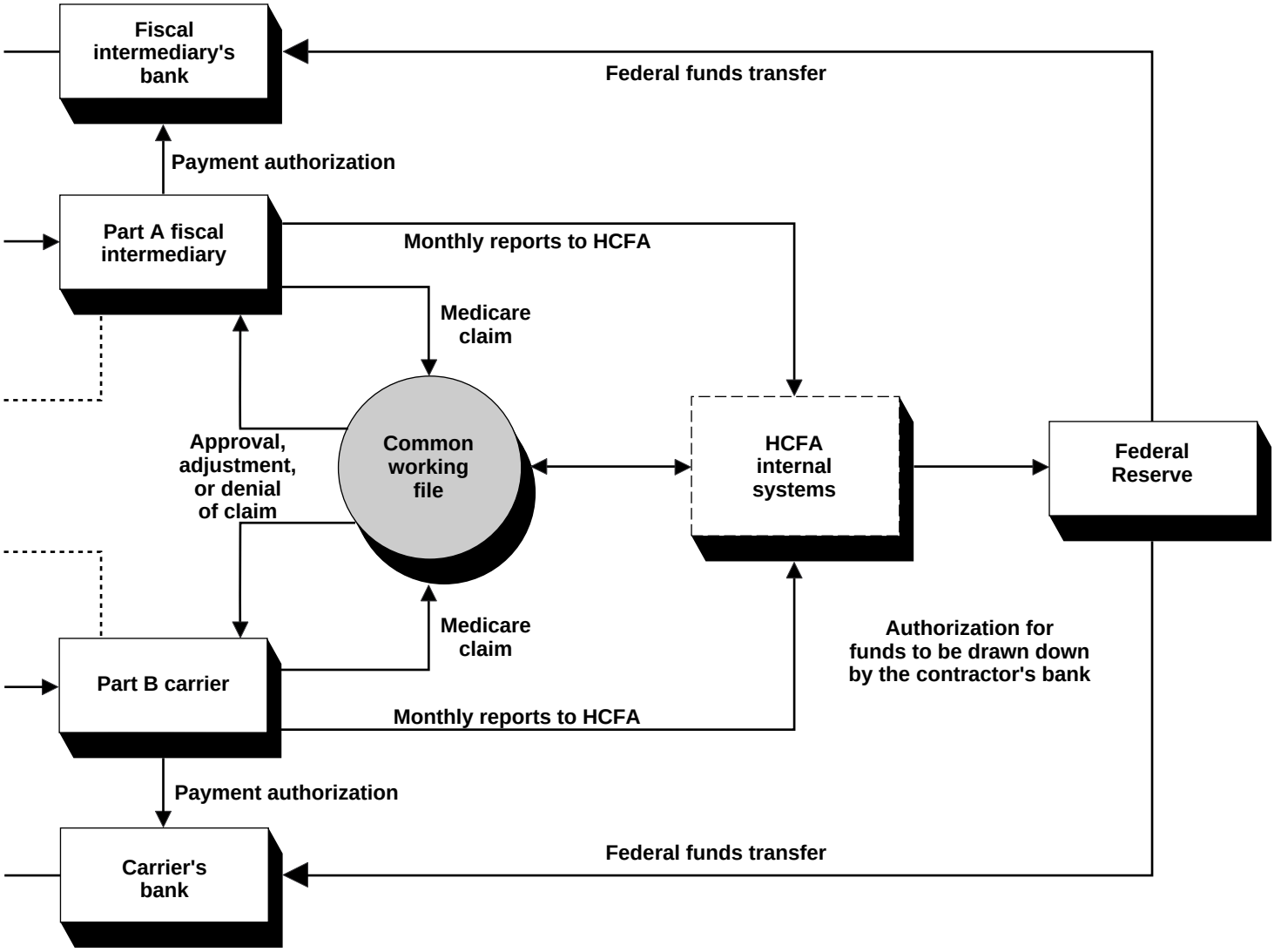
Medicare Fee-For-Service Claims Process Is Complicated

HCFA uses about 70 fiscal intermediaries and carriers to process Medicare claims. These intermediaries are the contractors that process part A claims (those submitted by hospitals, skilled nursing facilities, hospices, home health agencies, and rehabilitation agencies). Carrier contractors process part B claims (those submitted by physicians, laboratories, durable medical equipment suppliers, outpatient providers, and other practitioners).

In addition to the Medicare contractors, the process involves about 970,000 medical providers, numerous banks serving both contractors and providers, the Federal Reserve System, nine CWF databases of Medicare beneficiary information, systems maintained by HCFA that provide information to Medicare contractors as part of their claims processing activities, and hundreds of thousands of electronic data exchanges that carry claims data throughout the process. Figure 1 depicts this intricate, complicated Medicare claims process. Many of the claims processing data exchanges, such as those used with the Medicaid program, are not shown in figure 1.

Figure 1: Overview of the Medicare Fee for Service Claims Process Showing the Complexity of the Process and Data Exchanges Supporting the Medicare Program





Note: The claims process also includes a data exchange with the Social Security Administration, which is used to determine beneficiary eligibility.

Source: GAO, from HCFA documentation.

Claims Processing Systems Are Complex

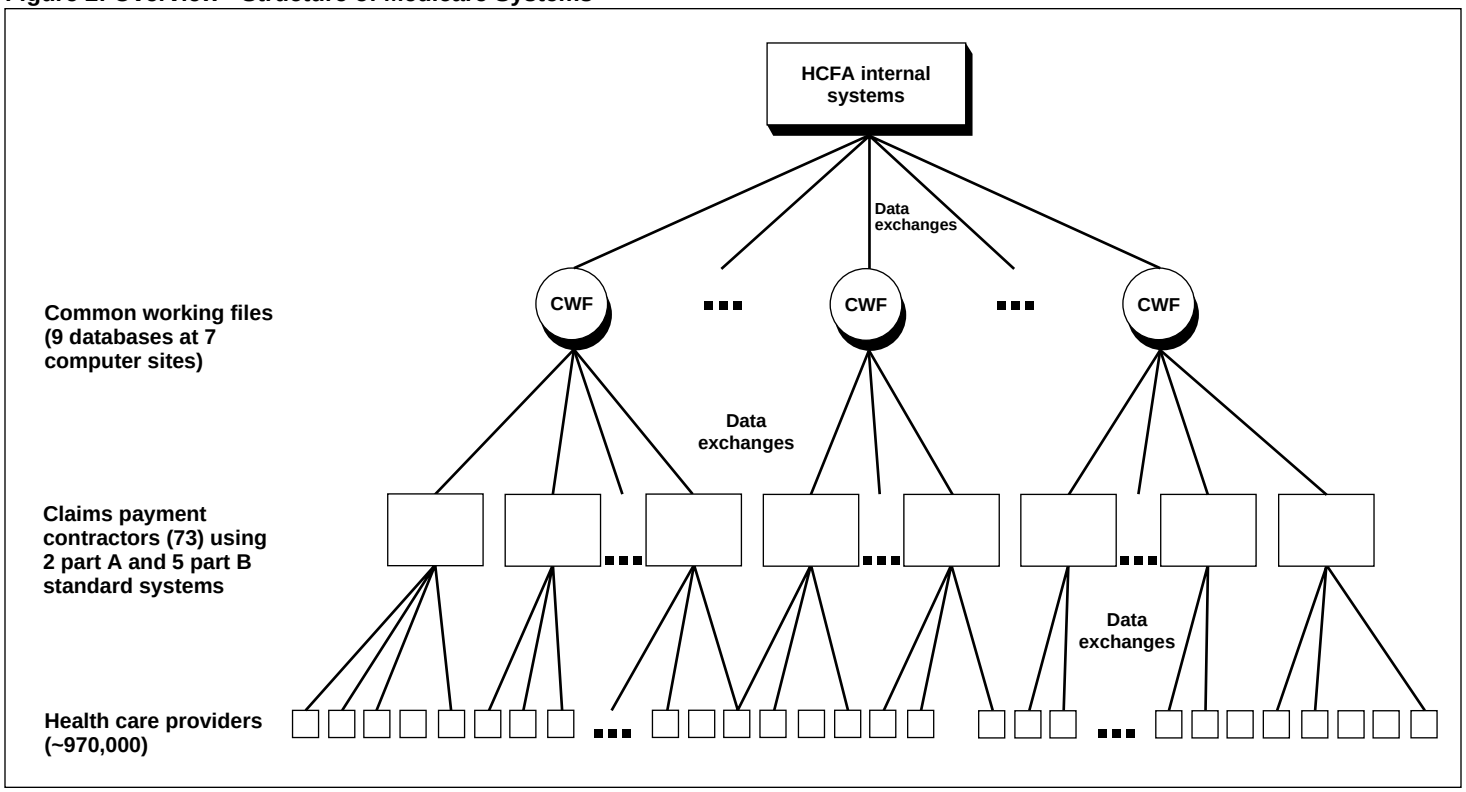
The Medicare claims process involves four categories of systems—contractors' standard external systems, the CWF, internal HCFA systems and providers' systems. All interrelate and must be modified and tested to ensure Y2K compliance.

The over 70 intermediaries and carriers use the standard external systems (currently consisting of two part A and five part B systems) to process claims that are submitted by the providers. Each contractor's system also obtains data from the CWF and HCFA's internal systems, and sends information to systems outside of HCFA's control, such as those run by banks.

The CWF consists of nine databases that are processed at seven different computer sites around the country. Each CWF database contains beneficiary information for specific geographic regions. It provides data to help contractors determine if claims are for eligible individuals and for appropriate benefits. The CWF also obtains information, such as enrollment data, from HCFA's internal systems.

HCFA's internal systems include financial and accounting data. They provide relevant information to the contractors and the CWF through data exchanges. Figure 2 depicts the complexity of the Medicare systems.

Figure 2: Overview - Structure of Medicare Systems



This complex system poses several challenges in achieving Y2K compliance. For example, because the contractors modify the standard systems they use to address local claims processing needs, each contractor will have to renovate and test its modified system for Y2K compliance. Also, because the standard systems, CWF, and internal HCFA systems exchange data, they must be renovated and ready for Y2K testing in proper sequence. Further, detailed planning and careful project management will be required to manage the complex relationships between almost 1 million providers and over 200,000 reported data exchanges with the contractor systems. Finally, HCFA recently estimated that its internal and external Medicare systems contain about 50 million lines of computer code that must be assessed for Y2K compliance. On August 17, 1998, HHS reported that HCFA's estimated cost for its Y2K effort will range between $917 million and $1.3 billion.

At a July 16, 1998, hearing by the Subcommittee on Health, House Ways and Means Committee, HCFA's Administrator said that Medicare claims payments could be delayed if Medicare's systems are not made Y2K compliant. According to HCFA, if these systems and data exchanges are not renovated, providers could experience cash flow problems, enrollment systems could malfunction, and beneficiaries could be denied services because providers may not be able to confirm eligibility.

Additional Y2K Work Required Because of Failed Medicare Transaction System

In January 1994, HCFA entered into a contract to develop a claims processing system that would have significantly reduced the amount of work necessary for it to address the Medicare Y2K problem. Called the Medicare Transaction System (MTS), the project was intended to be a single government-owned system that would replace the existing, two standard part A and five standard part B claims processing systems currently being used by Medicare contractors. HCFA intended to develop MTS as a Y2K-compliant system and have it in place and operational before 2000. However, the MTS project encountered problems from the very beginning. It was plagued with schedule delays, cost overruns, and the lack of effective management and oversight. We repeatedly reported that HCFA was not applying effective investment management practices in its planning and management and, as a result, had no assurance that the project would be cost-effective, delivered within estimated time frames, or even improve the processing of Medicare claims.[7]

Given the magnitude of these problems, along with continually increasing costs, HCFA terminated the MTS contract on August 15, 1997. The failure of MTS cost HCFA about $50 million for the software development contract alone. While MTS provided HCFA with a learning experience about the difficulty of acquiring such a large system and a better understanding of the requirements for developing a Medicare claims processing system, the project did not result in a new, integrated, Y2K compliant claims processing system.

Because the Y2K compliant MTS was not successful, HCFA is continuing to process Medicare claims with the two standard part A and five standard

[7]See Medicare Transaction System: Success Depends Upon Correcting Critical Managerial and Technical Weaknesses (GAO/AIMD-97-78, May 16, 1997); Medicare Transaction System: Serious Managerial and Technical Weaknesses Threaten Modernization (GAO/T-AIMD-97-91, May 16, 1997); Medicare Transaction System: Strengthened Management and Sound Development Approach Critical to Success (GAO/T-AIMD-96-12, November 16, 1995); and Medicare: New Claims Processing System Benefits and Acquisition Risks (GAO/HEHS/AIMD-94-79, January 25, 1994).

part B claims processing systems. Consequently, additional time and resources must now be spent to make these systems Y2K compliant.

HCFA Has Mobilized for Action, but Its Y2K Effort Is Severely Behind Schedule

In our May 1997 report on MTS, we stated that unless timely and effective Y2K changes are implemented, HCFA may be unable to process Medicare claims.[8] We identified serious problems with HCFA's oversight of its Medicare contractors' Y2K remediation efforts, as well as problems with its own Y2K activities. For example, HCFA had not planned to establish legal agreements with its contractors specifying how or when the Y2K problem would be corrected, had no plans to independently validate contractors' strategies and test plans, had not approved their approaches for addressing data exchange issues, and had not developed contingency plans in the event that the Medicare systems fail.

Our May 1997 report made several recommendations to HCFA to improve its contractors' Y2K remediation efforts. We recommended that HCFA require its contractors to submit for review and approval their plans for identifying and correcting potential Y2K problems, including a certification that their planned changes would correct the problems, as well as their plans for Y2K testing, and addressing interface and data exchange issues. We also recommended that HCFA develop contingency plans in the event of systems failures. To improve its internal Y2K program, we further recommended that HCFA take action to identify responsibilities for managing and monitoring the Y2K project.

HCFA Has Taken Steps That Better Position It to Prepare for 2000

HCFA has taken several steps to respond to our recommendations. First, HCFA prepared a contract amendment to help ensure that its contractors make appropriate, timely Y2K remediations. This amendment directed its contractors to develop and submit for review their Y2K project and test plans, to use their best efforts to make their systems Y2K compliant, and to certify that their mission-critical systems would be millennium compliant no later than December 31, 1998.

Further, in September 1997 HCFA awarded independent verification and validation and testing contracts for its Y2K program. These contractors are (1) assessing HCFA's process for certifying millennium compliance, (2) assessing Medicare contractors' Y2K project plans, test plans, test results, and methodologies, (3) developing acceptance test plans, test cases, scenarios and specifications, and (4) conducting acceptance testing

[8]GAO/AIMD-97-78, May 16, 1997.

of standard part A and part B external systems. HCFA headquarters, regional offices, and its IV&V contractor began conducting oversight visits to claims processing contractors' locations in October 1997; those visits are continuing.

HCFA also asked its contractors and internal systems maintainers to complete agreements with all of its data exchange partners by May 1, 1998, and provided suggested wording for these agreements.[9] Further, HCFA asked its contractors to develop and implement contingency plans by October 1, 1998, showing their planned courses of action in event of systems failures. It also revised its Medicare Carriers Manual to require contractors to develop these plans.

In response to our recommendations to improve its internal Y2K program, HCFA's administrator hired a chief information officer (CIO) and directed this official to make Y2K his top priority. As part of that effort, the CIO established a Y2K organization that includes groups devoted to overseeing Medicare contractors' Y2K activities, renovating HCFA's internal systems, and developing contingency plans. Further, HCFA has issued surveys to all contractors to gather additional information on their systems' status.

HCFA's Y2K Work Is Severely Behind Schedule

Despite its actions to improve the direction and oversight of the Y2K effort, HCFA's Y2K progress is significantly behind schedule. OMB is also concerned about the status of HCFA's effort and, as a result, has placed HHS on its list of agencies that are not making adequate progress. HCFA's August 15, 1998, report to HHS showed that as of June 30, 1998,

- renovations that, according to OMB guidelines, should be completed by September 1998 are only 16 percent complete for HCFA's contractors, and 64 percent complete for its internal systems, and
- no systems have been validated as Y2K compliant, or implemented.

Table 1 summarizes HCFA's reported status of its Y2K effort.

[9]Internal systems maintainers are HCFA staff who are responsible for the Y2K compliance of HCFA's internal systems.

Table 1: Reported Status of Medicare Mission-Critical Systems (as of June 30, 1998)

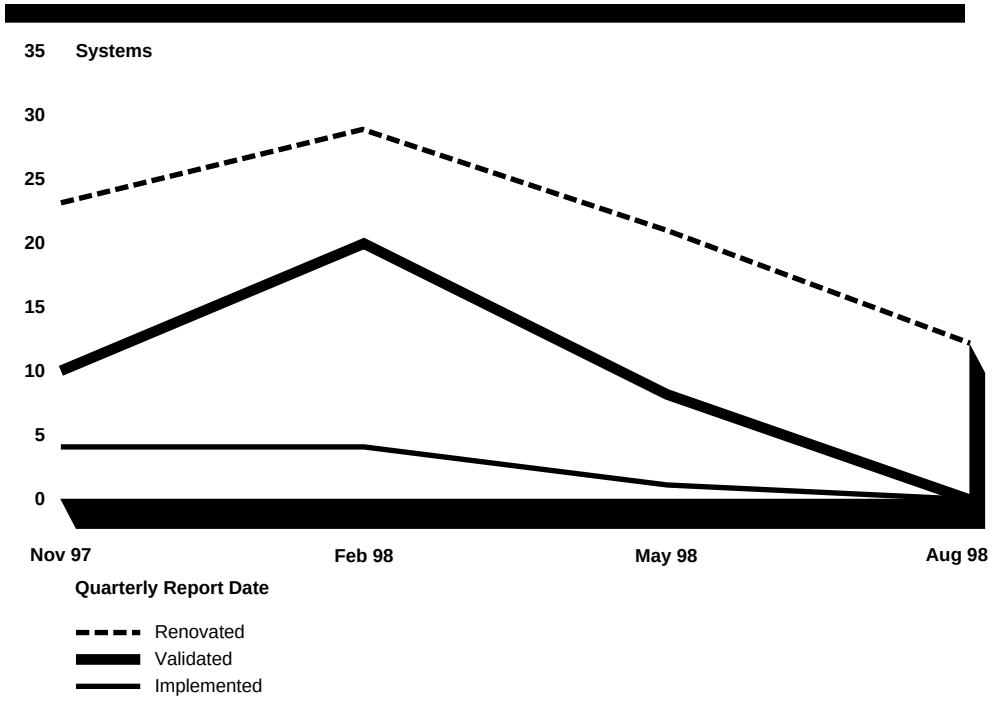
	External systems (73)		Internal systems (25)	
Phase completed	**Number**	**Percentage**	**Number**	**Percentage**
Assessment	71[a]	97	25	100
Renovation	12	16	16	64
Validation	0	0	0	0
Implementation	0	0	0	0

[a]HCFA reported that 2 of the 73 external mission-critical systems will be phased out before 2000 and thus will not be assessed or renovated.

Source: HCFA's August 15, 1998, quarterly report to HHS. We did not independently verify this information.

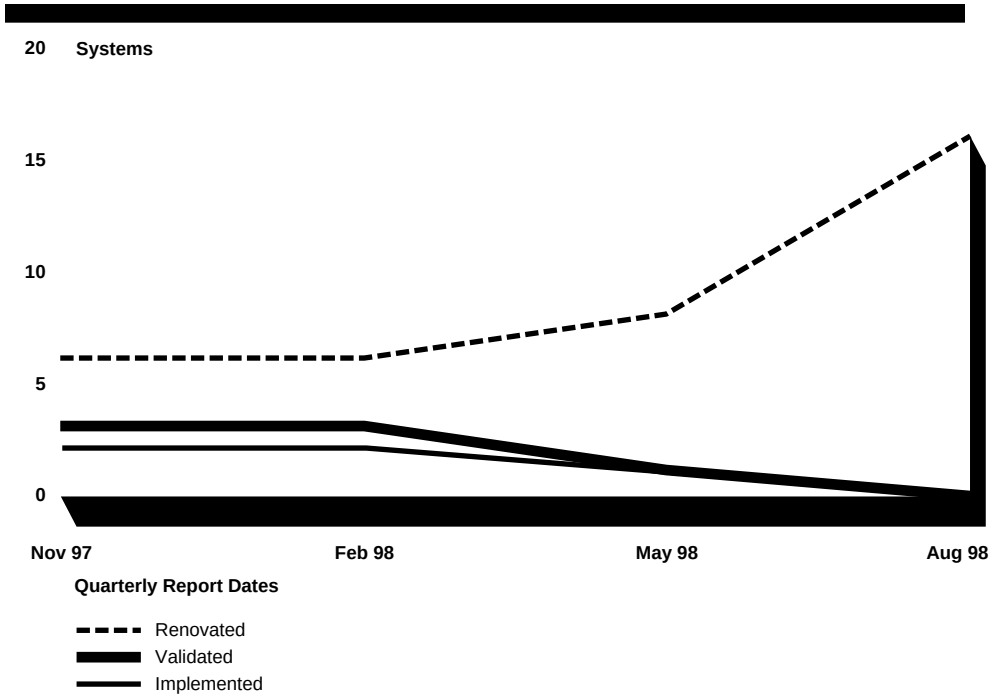
HCFA's latest quarterly report to HHS, covering the period ending June 30, 1998, reflects that fewer systems have been validated and implemented than earlier reports. As shown in figures 3 and 4, HCFA reported in November 1997 that four of its external systems and two of its internal systems were implemented. By August 1998, HCFA had revised its report to show that none of its systems had been implemented. Since its November 1997 report, the data also show that the numbers of validated and implemented external and internal systems had declined.

Figure 3: Trend in HCFA Reporting Progress of External Systems



Source: HCFA Quarterly Reports to HHS. We did not independently verify this information.

Figure 4: Trend in HCFA Reporting Progress of Internal Systems



Source: HCFA Quarterly Reports to HHS. We did not independently verify this information.

HCFA provided two reasons for this change. Officials explained that since its November 1997 report to HHS, the department has strengthened its definition of Y2K compliance. For example, systems that Medicare contractors reported as compliant are now not considered compliant unless HCFA's IV&V contractor tests and certifies that status. HCFA also explained that since its IV&V contractor began making site visits, its Medicare contractors and internal systems maintainers have a better understanding of the renovation work required and are submitting more realistic reports. For example, after one contractor completed its renovation work and preliminary testing, and put the system into production, the IV&V contractor conducted a 2-month evaluation of 4.6 percent of the system's renovated code and found that 83 (14 percent) of 581 two-digit years had not been corrected. IV&V determined that the renovation quality was low and the system was not ready for testing until the errors were corrected. As of August 19, 1998, 2 months after the

independent test was done, the Medicare contractor still had not completed the required follow-up renovation and testing.

Even though the status information in the most recent quarterly reports to HHS may be more realistic, it is not being verified for accuracy. HCFA officials acknowledge that the quality of the data reported by Medicare contractors and internal systems maintainers is an important issue. HCFA officials also told us that the IV&V contractor does follow up on any unusual data reported by Medicare contractors or internal systems maintainers and may schedule an additional site visit or meeting to review the data reported. In addition, the CIO told us that he and the HCFA administrator, to reiterate the urgency of the situation and of the need to meet their Y2K deadlines, have personally contacted several Medicare contractors that have reported significant schedule problems. However, HCFA officials said that, because of the demands of other Y2K-related work, HCFA and its IV&V contractor do not have time to follow up on most of the Medicare contractors' reports to verify the information provided.

On September 1, 1998, HCFA gave us updated information on the status of their work and stated that it had made significant progress since its latest quarterly report to HHS, which provided the status as of June 30, 1998. The updated data showed that HCFA had identified 9 additional external mission-critical systems, bringing its total from 73 to 82. It also showed that all 82 (100 percent) of these external systems had completed assessment and that 30 (37 percent) had completed renovation. The data also showed that 22 (88 percent) of the 25 internal systems had completed renovation and that 3 (12 percent) had completed validation. However, no external systems had completed validation and none of the external or internal systems had completed implementation. The data had not yet been reported in HCFA's quarterly reports to HHS, nor did we verify it.

Direction and Oversight Could Be Improved

HCFA is not fully implementing key practices to effectively direct and oversee its Y2K program, as recommended in our assessment guide.[10] Specifically, HCFA has not (1) developed an adequate project schedule and a critical path—to ensure that all project activities are completed in

[10]GAO/AIMD-10.1.14, September 1997.

appropriate time frames and to assess the project's progress,[11] and (2) implemented its own risk management process—to surface potential technical and managerial weaknesses that could impair project success. Without these program management processes and tools in place, HCFA is increasing its risk of not completing its Y2K work in time to ensure uninterrupted Medicare claims processing beyond December 31, 1999.

Further, HCFA has not yet developed a plan and a schedule for critical end-to-end testing. The purpose of end-to-end testing is to verify that interrelated systems, which support an organization's core business functions, interoperate as intended in a production environment.[12] In planning an end-to-end test, it is critical to analyze the organization's core business functions, the interrelationships among systems supporting those functions, and potential risk exposure due to date-induced system failures of any system in the chain of support. However, HCFA has not yet completed such plans.

HCFA Lacks an Adequate Overall Y2K Program Schedule and Critical Path for Its Medicare Mission-Critical Systems

HCFA does not yet have an adequate overall schedule showing how all Y2K tasks are interrelated and prioritized, or a critical path to establish the sequence in which tasks must be completed to ensure that this complex project can be finished on time. Without a complete, overall project schedule, HCFA cannot effectively prioritize its remaining work to accomplish the most within the time remaining. Without a critical path, it cannot judge the likelihood of completing its most critical remediation efforts before the year 2000.

HCFA's external system schedule is the most comprehensive Y2K schedule that it has developed to date. However, it cannot be considered an adequate overall project schedule because it lacks many external systems' Y2K project tasks and internal, mission-critical systems' remediation activities. For example, the schedule includes start and end dates for some of the contractor's remediation efforts as well as tasks related to testing

[11]According to Joseph G. Monks, in Theory and Problems of Operations Management, 2nd Edition, McGraw-Hill, 1996, a project's critical path is determined by (1) identifying and defining the activities and tasks required to complete the project, (2) identifying the relationships among all of those activities and tasks, (3) developing an estimate of the time required to complete each activity or task, (4) computing the time requirement for each possible sequence of tasks required to complete the entire project, and (5) designating the path with the longest estimated time as the critical path.

[12]These interrelated systems include not only those owned and managed by the organization, but also the external systems with which they interface. For example, agencies that administer key federal benefits programs, such as the Department of Veterans Affairs, exchange data with the Department of the Treasury which, in turn, interfaces with various financial institutions to ensure that benefits checks are issued. Consequently, end-to-end testing of the federal benefits payment function would include systems for all entities involved, as well as their supporting telecommunications infrastructures.

the renovated CWF and installing it at two CWF test sites. However, it does not include tasks associated with testing HCFA's contractors' systems using the two CWF test sites even though HCFA's contractors have reported that testing with the CWF is a critical step in the validation of their claims processing systems. Other key Y2K tasks not included in HCFA's external systems schedule include planning and conducting system certification testing for all systems, testing end-to-end, renovating data exchanges, and developing and implementing business continuity and contingency plans.

HCFA has also not yet developed a Y2K project schedule to control its internal systems work, or incorporated internal systems' tasks into its more comprehensive external schedule. Instead, HCFA monitors the progress and status of its internal systems with tracking reports, but these reports do not document all of the tasks necessary to complete internal systems Y2K work. For example, one undocumented critical task is the need to test several of the internal systems with the CWF. According to HCFA, several of these systems must be tested against the CWF before they can be certified as compliant. However, the task and schedule details of testing these internal systems against the CWF are not included in HCFA's tracking reports.

At the conclusion of our review, HCFA assured us that it is gathering and validating data for an external project schedule, planned for mid-September 1998, and also plans to have an internal systems project plan in place by September 30, 1998. However, its plans to develop separate external and internal systems' schedules will not provide HCFA with the overall project information it needs to adequately prioritize its remaining Y2K work. In addition, separate external and internal project schedules will not enable HCFA to develop a greatly needed critical path for its Y2K work.

A critical path based on an overall Y2K project schedule is important because it shows the total time necessary to complete all key tasks of a project, and it helps ensure that these tasks are addressed in proper sequence and in time to be available for later critical tasks that must rely on their being completed. A Y2K critical path would help HCFA more effectively oversee and monitor the project's progress, and better estimate program completion dates. Two examples illustrate the value of such a critical path.

First, HCFA is not including time to conduct all key tasks of the project, such as a complete system testing program and end-to-end testing.

According to HCFA and contractor officials, each contractor will need 60 to 90 days to test its system with the CWF to certify Y2K compliance. HCFA has scheduled time for contractors to use a test version of the CWF starting in September 1998. However, HCFA has not included in the schedule the 60 to 90 days required for testing systems with the Y2K compliant production version of the CWF, scheduled to start January 4, 1999. If HCFA had performed a critical path analysis incorporating the Y2K compliant production version of the CWF, and included reasonable amounts of time for testing, this management tool would have shown that the Medicare Y2K project could not be completed before March 1999 at the very earliest. Further, none of HCFA's schedules include time to conduct end-to-end testing. Including this as a critical task in the overall schedule would show that even more time will be required to complete the project testing.

Second, HCFA has not ensured that all critical tasks will be completed in a timely sequence. For example, 71 of the 73 Medicare contractors have planned to complete individual system renovations before the Y2K-compliant production version of the CWF is available for contractor testing. According to current schedules, these contractors will have to wait an average of 114 days to begin testing against this CWF. HCFA recently identified this problem and acted to speed CWF renovations so that a test version would be available for contractor testing at an earlier date. HCFA officials assured us that they are taking steps to minimize the number and complexity of changes to the CWF that would require that Medicare contractors extensively retest their systems when the production version of the CWF is available. However, the production version of the CWF still will not be available for contractor testing before January 4, 1999. Early development of a critical path would have highlighted this task dependency, allowing HCFA to address it in a more timely manner and allowing contractors to better plan for their Y2K renovation, testing, and certification work.

HCFA Lacks Key Risk Management Process Necessary for Ensuring That Y2K Program Weaknesses Are Addressed

HCFA has no risk management process which enables it to track all identified risks and ensure that they are mitigated. HCFA does not track all risks that have been identified and allows risks it does track to be prematurely closed. Also, a planned HCFA tracking system will likely be no better than the IV&V system it currently relies on.

HCFA is not appropriately tracking and mitigating the risks that have been identified. Of the risks reported by the IV&V contractor, HCFA is only tracking those risks for which the IV&V contractor made accompanying

recommendations for mitigation. For example, during an April 1998 site visit, the IV&V contractor identified 17 issues that required attention by HCFA or its claims processing contractor, and made recommendations for mitigating 3 of them. Although 17 risks were identified as requiring attention, HCFA is only tracking the 3 risks that contained accompanying recommendations. One of the 17 risks not being tracked addressed the need to ensure that data exchange software provided by the Medicare contractor to its provider community had not been adequately addressed. If this software is left unaddressed, it could affect about 22,000 data exchange partners.

Also, HCFA is allowing the risks it is tracking to be prematurely closed. The IV&V contractor who tracks and reports risks to HCFA closes them as soon as a mitigation plan is established, rather than when the risk is actually mitigated. For example, the IV&V contractor had identified a risk associated with the potential unavailability of sites for external systems acceptance testing along with related issues associated with conducting the test, and using configuration management and Y2K-specific test tools. The IV&V contractor closed the risk and discontinued tracking it as soon as HCFA developed a potential test site list, even though the other issues had not been addressed.

HCFA is developing its own recommendation-tracking database. However, according to recent plans it will be no better than the reports from its IV&V contractor, which it now uses. HCFA's planned database will only track recommendations made and reported by the IV&V contractor, and will not function as a risk tracking system. For example, it will not include (1) those risks for which HCFA's IV&V contractor has not provided a recommended solution, (2) established time frames for mitigating risks, or (3) a course of action to mitigate individual risks.

HCFA officials told us they need their own recommendation-tracking database because they do not have direct access to the IV&V tracking system, only to the reports developed from it. While having its own recommendation-tracking database or complete access to the IV&V contractor's system would provide HCFA with more information than it currently receives, it would not be adequate as long as the IV&V contractor continues to close risks prematurely. HCFA said it does not plan to develop a more comprehensive risk management system because it is relying on its IV&V contractor to track risks associated with its Y2K program, and because it does not want to slow down its Y2K work by devoting resources to building a new risk management system. On September 1, 1998, HCFA

officials told us that they are evaluating a commercial tool designed to help organizations formalize their risk management activities. Without a more comprehensive risk tracking system than the one that HCFA currently uses, it cannot establish a comprehensive risk management process to ensure adequate and timely mitigation of Y2K program risks.

HCFA Lacks an Adequate End-To-End Testing Plan for Its Medicare Claims Processing Systems

Our Year 2000 testing guide states that a Y2K testing program may require between 50 and 70 percent of a project's time and resources.[13] Because year 2000 conversions often involve numerous and large interconnecting systems with many external interfaces, testing should be approached in a structured and disciplined fashion. First, an organizational infrastructure for testing should be established. Second, software should be tested as units to isolate Y2K errors. Then it should undergo software integration testing to assure that subsystems work together properly. Third, a system acceptance test should be carried out to ensure that the complete system operates correctly in the future date environment of the computer. After completing and passing all these tests, a major system such as that used by Medicare needs to undergo an end-to-end test that would include HCFA's systems, the part A and part B systems, the CWF, the provider community, banks, and financial institutions.

Our testing guide recommends that end-to-end testing be conducted when one major system in a chain of systems is modified or replaced. The Medicare system clearly fits that criterion. The purpose of end-to-end testing is to verify that a defined set of interrelated systems, which collectively support an organizational core business area or function, interoperates as intended. HCFA's administrator stated that she will not be assured that Medicare claims processing systems have been renovated correctly until an end-to-end test has been performed.

HCFA has not yet scheduled an end-to-end test which will require coordinating over 100 separate external and internal Y2K projects to ensure that all will be completed in time to conduct the test. A group to define and plan an end-to-end test for the Medicare claims processing systems was established in March 1998. On September 1, 1998, HCFA was continuing to define the parameters of an end-to-end test. HCFA officials told us that they plan to require each Medicare contractor to test its Medicare claims process, including testing the receiving and processing of provider claims and the data exchanges between the contractor and the provider's bank. In

[13]GAO/AIMD-10.2.21, exposure draft, June 1998.

addition, HCFA plans to use its independent testing contractor to test each of the seven standard systems at a single contractor site.

However, HCFA has not yet established system boundaries for an end-to-end test, obtained commitments from key data exchange partners that will participate in the test, developed procedures and data for the test, and developed a plan to execute the test. Also, although HCFA officials told us that they have obtained a Y2K compliance certification from their telecommunications vendor, they have not yet confirmed that all telecommunications links to contractors and providers that are necessary for such a test are Year 2000 compliant.

Little time remains for HCFA to plan and implement an end-to-end test. As discussed earlier in this report, certification testing on the individual contractors' systems cannot be completed, at the earliest, before March 1999. Also, HCFA has to identify Y2K certified participants for the test from among almost 1 million providers, 73 Medicare contractors, 25 internal system maintainers, and financial institutions and reach agreement on a date to conduct the test.

HCFA Lacks an Accurate Inventory and Assessment of Its Medicare Data Exchanges

HCFA's internal and external systems must exchange data between themselves as well as with the CWF, other federal agencies, banks, and providers. As a result, it is essential that HCFA ensure that Y2K related errors will not be introduced into the Medicare program through these data exchanges. Our assessment guide recommends that data exchange issues be identified early in the Y2K process, during the assessment phase.[14] HCFA has reported that over 200,000 data exchanges exist, and required its contractors and internal systems maintainers to sign data exchange agreements with exchange partners by May 1, 1998; agreeing to the format that will be used to consistently exchange data. As of September 1, 1998, HCFA had (1) no assurance that all of its data exchanges related to its external or internal systems had been identified, (2) not ensured that the required data exchange agreements had been signed, and (3) increased the difficulty of ensuring that exchanged data is Y2K compliant by not requiring all contractors to use a consistent method for making temporary modifications to their systems (called the windowing conversion feature).

In July 1998, HCFA reported that over 200,000 data exchanges were involved. It has not verified this data and has no assurance that this number is accurate. Contractors, who report monthly on the status of their

[14]GAO/AIMD-10.1.14, September 1997.

data exchange work have reported a wide disparity in the number of data exchanges, which indicates that some reports may be inaccurate. For example, 13 part B contractors reported that they had no data exchanges, yet many others reported that they had 1,000 or more; one even reported that it had about 50,000 data exchanges.

HCFA officials told us that the disparity in the number of reported data exchanges resulted from differing interpretations of the guidance provided by HCFA. They also said that due to the demands of other Y2K work, they have not had time to verify the data exchange information reported by the contractors or internal systems maintainers. Recognizing that their data exchange reports have been inconsistent, HCFA officials told us that they have directed their staff to ensure that the quality of data exchange data that is received from its Medicare contractors and internal systems maintainers as well as the quality of reports that are provided to HHS is improved.

HCFA is also not ensuring that the data exchange agreements are being signed on schedule. HCFA required its external systems contractors and internal systems maintainers to obtain signed data exchange agreements by May 1, 1998. It relies on its IV&V contractor to determine if data exchange agreements involving both external and internal systems had been signed. However, as of July 1998, the IV&V contractor's monthly reports made no mention about the status of data exchange agreements. In August, HCFA officials told us that they had received 54 signed data exchange agreements but had not yet begun to review them, or to follow-up with the internal systems maintainers who did not provide the signed copies as requested. At the conclusion of our review, HCFA's CIO told us that HCFA is preparing to conduct a more rigorous inventory of its Medicare contractors' data exchange agreements.

Finally, HCFA is not requiring contractors and internal systems maintainers to use a consistent pivot year when making temporary modifications to their systems using the Y2K windowing conversion feature. Windowing is used to make temporary corrections to the Y2K problem and provide a "window of time" for permanent solutions. With windowing, the computer is programmed to convert two-digit years into four-digit years. This is accomplished by designating a pivot year, such as 1917. The computer is then programmed to place a 20 in front of two-digit years less than 17 (as in 2016) and a 19 in front of any years equal to or greater than 17 (as in 1917).

This practice of using multiple pivot years will increase the potential for errors in data exchanges and require additional management oversight to avoid future systems' failures. When date information is exchanged between systems that have been windowed with different pivot years, the same date may be interpreted differently by the systems. For example, consider two systems where one manager chooses 17 as the pivot year and the other manager chooses 64 as the pivot year. The system with 17 as the pivot year is programmed to treat 50 as 1950, but the system with 64 as the pivot year is programmed to convert 50 to 2050. In this example, such misinterpretation could occur for any two-digit year that lies between 17 and 63. HCFA officials told us that they would have preferred to use a standard pivot year for all Medicare data exchange partners, but instead are developing bridging software to accommodate inconsistent use of two- and four-digit date formats. Had a single pivot year been established and used by all Medicare data exchange partners, these potential problems and additional efforts could have been avoided. Further, the use of multiple pivot years will require HCFA to manage additional, future renovations to ensure that they are adequately planned and performed to avoid future systems failures.

Y2K Business Continuity and Contingency Planning Not Done

Given the magnitude of HCFA's Y2K problem and its slow progress in addressing this issue, it is highly unlikely that all Medicare systems will be compliant by the year 2000. Thus, contingency plans to ensure continuity of critical operations and business processes are critical.

Our assessment guide recommends that agencies perform risk assessments and begin developing realistic contingency plans during the assessment phase. Business continuity and contingency plans are vital because they identify the fall-back procedures to be employed should systems miss their Y2K deadline or fail unexpectedly in operation. These plans also define the specific conditions that will cause their activation.

To ensure uninterrupted Medicare claims processing beyond 1999, it is imperative that HCFA prepare and test business continuity and contingency plans. However, HCFA has only recently begun establishing guidelines for such plans, is relying on its contractors to develop reliable plans for the external systems, and has yet to develop a comprehensive business continuity and contingency plan for the full Medicare program. HCFA completed a draft set of guidelines for contingency planning in June 1998, and officials told us that they expect an initial set of contingency plans will be completed by the end of this calendar year. HCFA's guidelines, currently

under development, are primarily for internal systems' maintainers, and are only suggested as guidance for contractors' external systems.

On July 10, 1998, HCFA requested that its seven standard system maintainers provide copies of their contingency plans for review by HCFA, and as of September 1, 1998, all but one had responded. HCFA officials told us it is currently reviewing these plans to ensure that they are adequate. HCFA's CIO told us that HCFA will require the contractors that use these standard systems to adopt HCFA's Medicare-wide contingency plan to ensure continuity of claims payments, but will not require these contractors to submit contingency plans for approval. HCFA told us it is relying on its IV&V contractor to review these plans during its scheduled site visits.

Several contractors told us they have not yet scheduled detailed contingency planning activities as part of their efforts. They said that their systems remediation tasks alone are so overwhelming that they do not anticipate beginning to prepare and test their business continuity and contingency plans until 1999.

Finally, HCFA does not intend to have its Medicare-wide claims processing contingency plan developed and tested until June 20, 1999, thus potentially leaving insufficient time for implementation. For example, HCFA may include in its business continuity and contingency plan an approach to transfer the workload of any contractor not Y2K compliant by July 1, 1999, to a contractor certified as Y2K compliant. However, both contractor and HCFA officials told us that, at a minimum, it requires 6 months to a year to transfer the claims processing workload from one contractor to another. At its current rate of plan development, HCFA has no assurance that its plans will be developed and tested before they may be needed on January 1, 2000.

Conclusions

The size and complexity of Medicare systems and processes poses significant challenges to HCFA as it works to prepare its Medicare claims processing systems for the year 2000. Correcting the Y2K problem is crucial if HCFA is to maintain its current level of support for Medicare beneficiaries and providers. HCFA's leadership has been working hard to catch up for its very late start, and has taken steps to address the problem and prepare its Medicare claims processing systems for the change of century.

HCFA, however, is severely behind schedule in repairing its mission-critical Medicare systems for the year 2000; as of September 1, 1998, only 37 percent of its external systems had been reported as being fully renovated and none of these systems has been validated or implemented. Further, HCFA lacks several critical project management practices and tools that could help ensure the success of its Y2K efforts. Without an integrated Y2K project schedule, a critical path, and an adequate risk mitigation process, HCFA risks inadequate oversight of the Medicare systems Y2K programs and progress.

Further, without planning for and conducting end-to-end testing of its Medicare claims processing systems, HCFA will lack adequate assurance that it can avoid Y2K induced disruptions. Likewise, HCFA has no assurance that all data exchanges critical to the functioning of the Medicare claims process have been identified and will be renovated and tested for Y2K compliance. Also, without identifying and tracking the multiple pivot years used throughout its Medicare systems, HCFA will not be able to adequately identify and manage them to prevent future systems' malfunctions resulting from pivot year failures.

In addition, the activities associated with project scheduling, using a critical path, conducting end-to-end testing, renovating data exchanges, and contingency planning are interrelated. Without prioritizing its remaining work with an overall schedule and a critical path in place, and without first identifying, renovating, and testing its mission-critical data exchanges, HCFA cannot ensure that adequate time for end-to-end testing of its mission-critical systems remains. Similarly, it is critical that HCFA ensure that all of these Y2K project activities are addressed so that it can more effectively focus its efforts on the most mission-critical priorities and problems identified during these activities, as well as to better direct its contingency planning efforts.

Until HCFA supports its Y2K remediation efforts with key management practices that will help it adequately direct and oversee its Y2K program, Medicare benefits and services remain vulnerable to severe disruption as a result of the Y2K problem.

Recommendations

To minimize disruption of Medicare benefits and services, we recommend that the Administrator of HCFA take the following actions.

- Rank the remaining Y2K work on the basis of an integrated project schedule that includes milestones for the renovation and testing of all (1) Medicare contractors systems, (2) internal mission-critical systems, (3) mission-critical data exchanges, and (4) the CWF. This schedule should include time to conduct end-to-end testing of the Y2K-compliant Medicare claims process, and incorporate time frames to develop, implement, and test business continuity and contingency plans.
- Identify the critical path for the Y2K program on the basis of a complete and integrated Y2K project schedule and use it to (1) ensure that all critical tasks are prioritized and completed in time to prevent unnecessary delays and (2) report a more realistic completion date.
- Define the scope of an end-to-end test of the Medicare claims process, and develop plans and a schedule for conducting such a test. This work should include developing testing procedures and a plan for executing the test, obtaining commitments from participating data exchange partners, confirming that telecommunications infrastructures are Y2K compliant, and reaching an agreement on dates for conducting the test.
- Develop a risk management process that identifies all risks and their interdependencies, assesses their impact on the Y2K program, establishes time frames for mitigation and criteria for determining when risks should be considered mitigated, and follows this criteria to ensure that risks are indeed fully mitigated.
- Ensure that all external and internal systems' data exchanges have been identified, and agreements signed between the data exchange partners. Also, enhance management control over data exchanges by developing a pivot year tracking system that identifies each pivot year used, the expected date when the pivot year will fail to function, and the contractor or maintainer responsible for the system.
- Accelerate the development of business continuity and contingency plans for the Medicare program to allow time to ensure that they are reliable and ready when they may be needed.
- Ensure that HCFA is adequately assessing the scope of the remaining Y2K work by independently verifying the reported status of its claims processing contractors systems, internal systems, and data exchanges—either internally or through its IV&V contractor. All reports submitted to HHS should be included as part of this independent verification.

Agency Comments and Our Evaluation

In her comments, the HCFA administrator said that we had raised significant issues that were of concern and appreciated the information and constructive suggestions contained in our report. The administrator

also said she would take immediate steps to address our recommendations, and that, "HCFA will do whatever it takes, and devote whatever resources necessary, to ensure there is no interruption of services and claims payments for our thirty-eight million beneficiaries and one million providers." Further, she outlined a number of actions being taken to address our recommendations, including preparing an integrated critical path, improving the quality and completeness of its data exchange information, and verifying the accuracy of its reported Y2K status.

While agreeing with our recommendations, and acknowledging the need to intensify its efforts, the administrator stated that we did not take into account actions completed or already underway on several issues. She expressed her belief that HCFA is making significant progress toward Y2K compliance. She pointed out that the reports HCFA provided to OMB do not reflect renovations that are almost completed, may contain information that is months old, and do not reflect substantial steps that HCFA has taken over the past year. Among the steps cited by the administrator were hiring independent experts to provide assessments of progress; rehiring retired federal programmers to assist in the Y2K effort; working within the Administration and with the Congress to increase funding for Y2K renovation activities; and establishing a Y2K organization to better manage and oversee the Y2K effort. The administrator stated that according to HCFA's current data, it is not severely behind schedule, and that using multiple pivot years is not a problem and will not cause an increased amount of oversight.

We disagree. The additional information that was provided to support these comments does not change our position. Specifically, the administrator commented that 85 percent of HCFA's external systems renovations are now complete, based on lines of computer code, subroutines, and similar measures. However, not one additional external system has completed renovation beyond the 12 we reported, nor has HCFA addressed the status of the nine additional mission critical external systems it identified in its September 1, 1998, update. Also, we stressed that use of multiple pivot years will increase the potential for errors in data exchanges and require additional management oversight. While using multiple pivot years is not an insurmountable problem, it will require additional management oversight that otherwise would not have been necessary.

As we concluded in our report, HCFA will substantially reduce the risk to its Y2K effort by implementing all of our recommendations. HCFA's comments in their entirety and our detailed evaluation of them are in appendix I.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we will not distribute it until 30 days from the date of this letter. At that time, we will provide copies to the Secretary of Health and Human Services, the Administrator of the Health Care Financing Administration, the Director of the Office of Management and Budget, appropriate congressional committees, and other interested parties. Copies will also be made available to others upon request.

Please contact me at (202) 512-6253 or by e-mail at *willemssenj.aimd@gao.gov*, or Senior Assistant Director, Mark Heatwole at (202) 512-6203 or by e-mail at *heatwolem.aimd@gao.gov* if you have any questions concerning this report. Major contributors to this report are listed in appendix II.

Joel C. Willemssen
Director, Civil Agencies Information Systems

Comments From the Health Care Financing Administration

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

The Administrator
Washington, D.C. 20201

SEP 18 1998

TO: Gene L. Dodaro
Assistant Comptroller General
General Accounting Office

FROM: Nancy-Ann Min DeParle NMD
Administrator
Health Care Financing Administration

SUBJECT: GAO Draft Report, "Medicare Computer Systems: Year 2000 Challenges Put Benefits and Services in Jeopardy"

We appreciate the opportunity to review and comment on the GAO's draft report on HCFA's efforts to achieve Year 2000 (Y2K) date compliance in its Medicare computer systems. The draft report raises significant issues that concern us, and we appreciate the information and constructive suggestions contained in the report. This response outlines a number of aggressive steps we are taking to address GAO's recommendations.

Achieving Y2K compliance is our number one priority. HCFA will do whatever it takes, and devote whatever resources necessary, to ensure there is no interruption of services and claims payments for our thirty-eight million beneficiaries and one million providers.

I believe we are making significant progress toward Y2K compliance. This progress is not always evident from the reports provided to OMB for a couple of reasons. First, the metrics used to measure progress need more refinement. For example, the OMB metrics give us credit only for completion of systems renovation with respect to each individual system, and thus do not reflect that the renovations may be almost complete for that system. Second, the OMB report contains information that is often months old by the time the report is released. In fact, our current data show that renovations are now about 85 percent complete for external systems and more than 95 percent complete for our internal systems. Further, the OMB reports do not reflect substantial steps we have taken over the past year.

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We have:

- Hired outside, independent experts to look over our shoulders and give us honest and accurate assessments of progress;
- Rehired retired federal programmers to assist in our Y2K renovation, testing and validation efforts;
- Worked within the Administration, and with the Congress to increase funding for Y2K renovation activities, which included a transfer of funds from other HHS components to HCFA;
- Amended our contractors' contracts to require that they complete Y2K renovation and testing by December 31, 1998;
- Intensified our monitoring of contractors' progress, and met with all 70 contractors a number of times, with the Administrator meeting individually with several contractors judged to be behind schedule;
- Postponed important projects, including activities required by the Balanced Budget Act, to avoid system changes that could drain system resources away from Y2K activities;
- Established a Y2K organization to better manage our renovation process, track renovation activities, and plan for contingencies;
- Implemented an outreach program to contact and provide information to hospitals, nursing facilities, home health agencies, laboratories, physicians, suppliers, and all other organizations and individuals providing goods and services to Medicare beneficiaries to help them be ready for January 1, 2000.

Notwithstanding this progress, as we move through the renovation process we have identified weaknesses, as has the GAO. The draft report identifies weaknesses in our direction and oversight of Y2K renovations, testing, contingency planning, and risk assessment. We agree that we have not used some of the management information tools that are prudent in such an effort, that would result in a quicker and more effective identification and response to problems -- at the contractors, in the shared claims processing systems, in our own systems -- and that would give us assurance that reported progress in solving those problems is valid and complete.

HCFA is taking the following steps immediately in response to key issues raised in the report:

Project Tracking and Information System (War Room and Planning)

- We are strengthening our project planning, tracking and reporting

information by infusing new financial and human resources. We will create a "war room" in our Baltimore headquarters with staff dedicated solely to tracking Y2K progress and troubleshooting as problems arise and providing accurate and timely information to the Administrator and the Secretary.

- The report recommends that HCFA undertake additional planning to make sure that the tasks are completed in the right sequence and on time. We are in the process of carefully examining all of the systems renovations, validations, and testing interdependencies so that we can more effectively manage successful completion of the Y2K process. We have already developed a draft critical path, and will have this project plan ready for external systems within a few weeks, and will integrate this into a critical path analysis for all of our systems, internal and external, before the end of the year.

- In addition, where it makes sense, HCFA will station HCFA or contractor staff at the fiscal intermediaries (FIs), carriers, and shared systems maintainers to supplement the independent verification and validation (IV&V) efforts by HCFA's IV&V contractor and HCFA Regional Office staff. These people will be our eyes and ears and will be able to report to staff in the "war room" on a continuous basis. This prompt flow of credible status information is critical to proper risk management, and to the overall critical path analysis and integrated project planning we are now undertaking.

Contingency Planning

- Contingency planning ensures continuity of critical business functions. At HCFA, contingency planning necessarily involves all of our staff, not just information systems staff. To emphasize this point, I have directed all senior managers throughout the agency to be personally involved in the agency-wide effort to ensure uninterrupted business operations. Each of our operating and policy components will be involved in putting together their piece of the contingency plan and our senior managers will bring these together to construct one global plan. By the end of this year, we will have an overall business continuity strategic plan. Detailed tactical plans will be prepared consistent with this strategy. Our planning will be modeled on the GAO contingency planning recommendations, and will take into account the results of testing and experience implementing production versions of renovated systems.

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- As part of our agency strategy, and consistent with the GAO recommendations, we have directed our standard system maintainers and the intermediaries and carriers to develop their own contingency plans from a business, rather than a systems, point of view. We are reviewing the initial plans of the standard system maintainers now. They are uneven, and we will be giving them further guidance. The intermediaries and carriers have already been directed to perform their own comprehensive risk analysis of their business and operations, and to develop contingency plans for risks that meet a threshold of impact and probability.

- Finally, we are making progress in educating providers that they have a responsibility too. We are educating them about Y2K compliance and helping them to be ready for the Year 2000 so that they can send us claims on January 1, 2000 and beyond. This outreach effort is a significant risk mitigator to ensure that providers are not only able to generate claims but also for reducing the influx of paper claims that would result from providers being unable to generate electronic claims.

Planning for End-to-End Testing

- We agree the key to success for Y2K is extensive testing, including future date testing, and, wherever appropriate, end-to-end testing. We have directed our system owners, including contractors, to perform end-to-end testing. For certain cases, HCFA has also arranged for its testing contractor to perform additional, independent testing, to provide additional assurance.

- The report recommends integrated planning of testing to ensure that tests are properly coordinated. We are now beginning to develop plans that integrate the testing timing among all of our contractors. We have up to now focused on individually integrating the schedules for each of the given standard systems with those of the contractors using those systems, and in ensuring that renovations stay on time.

These steps will require HCFA to increase staff and resources devoted to follow up, risk assessment, and troubleshooting. This plan may nearly double the number of HCFA staff devoted to our Y2K efforts. With our already credible progress, we are convinced that these actions will further ensure our readiness for the Year 2000.

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Technical Comments

In addition to those areas where we have clear agreement, there are several conclusions/recommendations raised in the draft report that do not take into account actions completed or already under way. I want to bring these items to your attention.

HCFA's Y2K Work Is "Severely Behind Schedule"

See comment 1.

When all of the data are considered, HCFA's Y2K work is not severely behind schedule. OMB guidelines require renovation to be complete by September 30, 1998. The report says that as of June 30, 1998, 37 percent of external systems have completed renovation and 92 percent of the internal systems have completed renovation. Current data, however, show additional progress. HCFA's experience has been consistent with that of private industry: completion progress is not linear with time, but accelerates with time as many different renovation processes are carried out in parallel. Our recent data, based upon lines of code, subroutines renovated, and similar measures, support that finding. Our IV&V contractor tells us, based on such currently available information, that right now renovations are 85 percent for our external systems. For our internal mission critical systems, our data show greater than 95 percent completion of renovations. At this time we are close to achieving OMB's September 30, 1998 target.

IV&V Follow-up

See comment 2.

As GAO recommended last year, HCFA has established a process using an IV&V contractor and, where appropriate, an independent testing contractor to measure the quality of the Y2K work performed by both our internal and external systems owners to ensure that HCFA systems will be Y2K-ready on January 1, 2000. The process is intended to identify errors and to make sure that they are fixed. The example cited in the report supports the success of the process -- identifying and fixing problems sooner rather than later is key to successful management of this complex issue.

The report states that ". . . the IV&V contractor conducted a 2-month evaluation of 4.6 percent of the system's renovated code and found that eighty-three (14 percent) of 581 two-digit years had not been corrected. IV&V determined that the renovation quality was low and the system was not ready for testing until the errors were corrected. As of August 24, 1998, two months after the independent test was done, the contractor still had not completed the required follow up renovation and testing."

While the comments from the GAO are technically accurate, some additional information might be helpful to put the entire activity into proper perspective.

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* First, the IV&V assessments demonstrate HCFA's requirement for extra assurances that code is being correctly and completely renovated.

* With respect to the cited system, the maintenance contractor responded quickly to the IV&V report. Their investigation showed that many of the problems found were attributable to two causes: 1) some of the software submitted for analysis was Common Working File (CWF) interfacing software that could not be renovated until a more current version of CWF was made available, and 2) a single programmer was responsible for some poor coding practices, which resulted in several of the problems noted. The maintenance contractor took immediate action to correct these programming errors, but the IV&V contractor could not verify that the corrections were made until the next on-site visit, expected in October, 1998.

Based on the error rate, the report suggested that the maintainer did a poor job renovating the code. However, the maintainer error rate reported was actually less than half of the probable rate for comparable work, as publicized by the Year2000.com website run by a corporation led by Peter DeJeager, who is one of the top Y2K experts. According to this data, one error per 1000 lines of code was the probable potential for error. Therefore, we could have expected an error rate of 200 errors in the maintainer code that the IV&V contractor evaluated, when in fact it was twice as good as this. That we found and began addressing such errors, eighteen months before the millennium, is certainly evidence our process is working.

GAO also states that "HCFA and its IV&V contractor do not have time to follow up on the contractors' reports to verify the information provided." The IV&V contractor conducts site visits to the external contractors and attends weekly meetings and calls with the internal system maintainers. During these activities, selective verification of the submitted data does occur as outlined earlier. But HCFA is also now developing a plan to increase its Y2K staff and activity significantly. A major component of that strategy will be devoted to a "hands-on" oversight initiative that, through a combination of a continuous on-site presence and off-site tracking, monitoring and validation will supplement the IV&V contractor's efforts.

End-to-End Testing

See comment 3.

HCFA agrees that end-to-end testing is critical and, as reported to GAO staff during various interviews, is incorporating end-to-end testing of critical Medicare functionality in its test planning, including:

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- at a exchanges that provide for claim submission from providers to selected FI and carrier system front-ends;
- data exchanges that provide eligibility information to providers;
- data exchanges between the Social Security Administration and the Enrollment Database at the HCFA Data Center;
- data exchanges between the CWF and the Enrollment Database resident at the HCFA Data Center; and
- data exchanges between Medicare contractors and financial institutions.

End-to-end testing is being conducted by our Medicare contractors and HCFA and its testing contractor within the independent testing effort. End-to-end testing is included in each Medicare contractor's testing plan. Each contractor will be required to test end-to-end, from provider to bank.

Within the HCFA independent testing effort:

- each of the seven shared system testing environments includes the installation of local contractor maintained, non-standard system components as required to test end-to-end functionality from the submission of provider electronic media claims to the generation of electronic funds transfers, electronic remittances, paper remittances, and beneficiary Medicare summary notices;
- HCFA is currently procuring additional testing support services to facilitate end-to-end testing of the standard systems;
- HCFA is currently procuring additional testing support services to facilitate end-to-end testing of those local contractor Medicare systems that are not currently resident at one of the existing HCFA Medicare shared system test sites. HCFA will initially concentrate on the results that received a "comprehensive" score on the Criticality and Risk Assessment (CARA) completed by the IV&V contractor; and
- the scope of testing the claims generation and submittal process from the provider to the Medicare contractor will be limited to include software provided by HCFA or the Medicare shared system maintainer.

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Critical Path

See comment 4.

The report states that HCFA does not have an overall schedule showing how all Y2K tasks are interrelated and prioritized, or a critical path established. We agree that such a schedule is important, and we are in the process of developing one. The process of preparing an overall project plan and critical path is a daunting task for a software system as complex as that of Medicare systems. HCFA has made great strides in gathering and validating the data for an overall project schedule. We are carefully examining dependencies so that we may generate a true, overall critical path. For external systems HCFA completed a draft critical path on September 14. We are presently reviewing and validating it.

As for the internal plan, we are currently validating this data and we will have an overall project plan for internal systems by September 30. We will carefully examine and identify dependencies for the internal systems and develop a critical path for these systems as well.

HCFA agrees that the critical path will enable us to better manage the overall project to ensure success. At the same time we have to remain highly proactive in monitoring the progress of our shared system maintainers and internal systems. When we saw that they were falling behind, we ensured that appropriate resources were brought to bear to get them back on schedule. In effect, we have been managing at least seven nearly independent critical paths, one for each of our standard systems and a separate one for CWF.

CWF Scheduling

See comment 5.

The report states that there is a problem because, given the need to make system changes to implement the Balanced Budget Act, the CWF "will not be available for contractor testing before January 4, 1999." HCFA continues to disagree. The 98.02 CWF version, installed in July, has been renovated for Y2K and will be installed in test mode at the four test Host sites for shared systems and contractors to self-certify Y2K compliance. The 98.02 version includes the most complex of the BBA changes.

The 98.04 version, installed into production 1/4/99 will be Y2K compliant, so throughout 1999, there will be a single controlled version of CWF to assure reliability of Y2K performance. HCFA is taking extraordinary measures to minimize the number and

complexity of changes to both the shared systems and to CWF between July 1998 and April 2000 to mitigate the risk that the versions of the systems self-certified by 12/31/98 will require extensive re-certification.

Risk Management

See comment 6.

The report states, "HCFA has no risk management process which enables it to track all identified risks and ensure that they are mitigated." The comments correctly note some process shortcomings, but do not give HCFA credit for the proactive stance is has taken with many potential risks. HCFA has focused its resources to mitigate issues that are identified by the IV&V contractor as part of the Criticality and Risk Assessment process that track those risks deemed to be critical. As more and more critical risks are mitigated, then HCFA will track and concentrate its resources on risks that are identified as lower level, until full mitigation is ultimately accomplished. HCFA recognizes the tracking of risk management needs improvement and will work with its IV&V contractor to identify pitfalls, such as traceability between the recommendations and risk issues as well as identifying dates for completion of the recommendations.

Multiple Pivot Years

See comment 7.

The report notes that HCFA is allowing contractors and internal system maintainers to use multiple pivot years and alleges that this will cause operational problems. HCFA disagrees with this assessment. Systems that use pivot years in their internal processing produce output records in the required four digit year format. It does not matter technically what pivot year is used in that internal logic. Likewise bridge routines that accept two digit input records require the sender to specify the pivot year used. It does not matter to the bridge program what the pivot year is, as long as it is known. Data exchange agreements cover this point when bridges are utilized.

Pivot years and bridges are generally recognized and accepted as Y2K remediation techniques throughout the United States. The use of multiple pivot years does not impair the Y2K remediation program. All pivot year and bridge repairs must be systematically reviewed and repaired just as major commercial organizations will be required to do over the next few years.

Data Exchanges

See comment 8.

The report states, "HCFA lacks an accurate inventory and assessment of its Medicare data exchanges." We have already taken steps to improve both the quality and completeness of our information on data exchanges between our Medicare contractors and third parties.

See comment 9.

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This action will ensure that our end-to-end testing is thorough and that our contingency plans are complete.

Budget Estimates

The report includes HCFA's budget estimates for Y2K activities from the OMB August 14, 1998 Quarterly Report without including any specifics. I think it is important to explain the context for this information, and the numerous factors that affect the budget estimates associated with Y2K. HCFA's estimates include costs of systems remediation, independent verification and validation, contingency planning, outreach and expected increases in billing and communication activities. The success of the Y2K effort and the continued operation of the Medicare program are critically dependent on adequate funding of HCFA's basic program management budget as well as its Y2K needs.

The complexity of preparing all HCFA systems, both internal and external, for the Year 2000 has had a significant impact on the funding needs of the Agency. HCFA, like many other agencies and private sector entities, has learned upon gaining some practical experience in trying to deal with the Y2K issue is that initial estimates of the amount of work and the related costs for remediation were almost universally understated. Level of effort and cost estimates have risen steadily as remedial activities uncovered previously unforeseen effects of the Y2K problem. There is no reason to think that this trend will stop as the bulk of our efforts move out of the renovation phase into the testing and implementation phases.

The Federal budget process requires the formulation of a fiscal year budget well in advance of the budget year. The significant span of time between the formulation of the budget request and actual enactment , combined with the fact that HCFA got a late start in fully assessing the scope of the Y2K challenge, has meant that we have been constantly reassessing our funding needs. When the FY 1998 budget was developed, during 1996, HCFA was in the process of developing a Y2K compliant Medicare claims processing system, called the Medicare Transaction System. Accordingly, the original FY 1998 budget included only a minimal request for the renovation of internal systems ($15 million).

In the summer of 1997, it became apparent that the proposed Medicare Transaction System was not on track and could not be implemented as planned. That project was terminated, and accordingly, the Y2K funding levels for the fiscal year that was about to begin, FY 1998, had to be significantly increased.

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When HCFA identified the need for additional Y2K funding in FY 1998, we took the following aggressive actions: (1) moved $30 million in funds away from other priorities to devote to Y2K remediation activities; (2) submitted a request to OMB for $123 million in FY 1998 supplemental funding to fund external systems Y2K activities; (3) requested and received $20 million through Congressional appropriations action that allowed us to reprogram funds that had been appropriated for other activities, and (4) requested and received $42.1 million through the Secretary's exercise of her authority to transfer up to 1% of the Department's discretionary funds from other programs. Thus, the total HCFA FY 1998 funding for millennium was $107.1 million.

In the original FY 1999 budget formulation process during the fall of 1997, HCFA identified the need for $37.5 million for millennium activity -- $22.5 million for external systems and $15 million for internal systems. In the spring of 1998, with the support of the IV & V efforts that were initiated in the fall and winter of 1997, the scope and complexity of the Y2K effort became more apparent and the agency identified additional Y2K funding needs: the remaining $61 million for external systems that had not been made available in the FY 1998 supplemental and an additional $143.1 million since the preparation of the supplemental. Thus, at this point, our total FY 1999 needs for Y2K renovation, testing, and contingency planning are $241.6 million, and they break out as follows: $213.6 million for external systems including renovation, IV&V and independent testing, contingency planning, outreach, and increased billing and communications activities; and $28 million for internal systems including systems renovation, IV&V and independent testing, and contingency planning. The agency is working with Congress to obtain the additional $204.1 million required to support millennium compliance activities in FY 1999.

Preliminary estimates for FY 2000 include $27 million for internal systems and $208.5 million for external systems. Activities to be funded include: recoding to repair problems identified in testing; conversion of temporary logic; file conversions and testing; outreach; and processing additional paper claims. In addition, HCFA has identified the need for a contingency fund in FY 2000 to make funds available to deal with problems that may arise. The current estimate for the contingency fund is approximately $311 million.

The uniqueness of the Y2K problem and its constantly evolving scope have led HCFA to formulate funding need estimates for a range of potential Y2K-cost implications in FY 1999 and 2000. The above estimates reflect what we have identified as the "most likely" scenario. Using "pessimistic" assumptions increases FY 1999 estimates to $299.7 million, and FY 2000 estimates to $328.1 million. These "pessimistic" assumptions also increase the FY 2000 contingency fund estimates to $536.7 million.

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Finally, it is important to add that the success of our efforts is contingent upon continuity of adequate funding. We have submitted requests sufficient to support the activities required both at HCFA and at our contractors. Although contingency planning, outreach, and the renovation of non-mission critical systems will continue beyond January 1, 2000, the actual remediation of mission critical systems must be complete by the middle of FY 1999 to give us a reasonable assurance of continuity of operations after January 1, 2000. Therefore, it is critical to have the majority of FY 1999 funding early in the fiscal year. We appreciate your support of our efforts to secure the continuity of critical adequate funding, especially in the first quarter of FY 1999.

GAO's draft report has provided us with much constructive criticism, and we are moving forward as quickly as we can to implement many of your recommendations. We appreciate your support for HCFA's Y2K initiative and will continue to work with your office to ensure that our Y2K efforts are successful.

The following are GAO's comments on the Health Care Financing Administration's September 18, 1998, letter responding to a draft of this report.

GAO Comments

1. We do not agree that the additional data HCFA provided supports its position that the Y2K work is not severely behind schedule. After several years of effort, according to HCFA's September 1, 1998, update, only 37 percent of its external systems and 88 percent of its internal systems had completed Y2K renovation. In its September 18, 1998, comments, HCFA did not (1) report progress in actually completing the renovation of any external systems and (2) provide the renovation status of the nine additional mission critical external systems that it identified. Accordingly, it will be difficult for HCFA to achieve OMB's September 30, 1998, target for completing Y2K renovations.

2. HCFA noted that it agrees with the technical accuracy of our report regarding the IV&V contractor's test of a system that had been renovated and tested by its maintainer. It implied, however, that the number of identified errors was low and that addressing this issue 18 months before the year 2000 is evidence that the process is working. We disagree. By assuming that the error rate of this renovation effort is low compared to an average error rate found on the Internet, HCFA is not taking into consideration that the error rate of this renovation was determined from a partial test, and that the IV&V contractor determined that the system was not ready for IV&V testing. Further, the Internet average cited does not provide the range of values or the number of systems evaluated in developing its value.

The IV&V contractor's opinion that the renovation was not suitable for testing was based on an in-depth understanding of these systems. Therefore, it is a better gauge of this effort than the Internet average, the basis of which is unknown. Also, because of the extent of problems found during its partial test, the IV&V contractor recommended that the system's entire portfolio of code ultimately receive an IV&V evaluation. Even though the maintenance contractor aggressively addressed the identified errors HCFA noted, it could take years for the IV&V contractor to complete its evaluation; thus, conducting this test 18 months before 2000 is not necessarily timely. For example, it took 2 months to evaluate 200,000 lines of computer code. At this rate of work, to evaluate the remaining 4.3 million lines of computer code will take another 3-1/2 years—or until 2002—to complete the test. Further, during our audit, three individuals

(the Acting Director of Tracking and Reporting, the Director of External Systems, and a Senior Technical Advisor) told us that because of other Y2K demands, HCFA and its IV&V contractor did not have time to follow up on and verify most of the Medicare contractor reports. Yet, HCFA has demonstrated that it believes that these activities are worthwhile by concurring with our recommendation to independently verify the reported status of its claims processing contractors' systems, internal systems, and data exchanges and developing a plan to significantly increase its staff and related activity.

3. HCFA concurs that end-to-end testing is critical and is procuring additional support services to test standard systems and local contractor Medicare systems not currently resident at one of the existing HCFA Medicare shared system test sites. While end-to-end tests of individual Medicare systems are important as a first step, they will not provide sufficient assurance that Medicare is Y2K compliant without a test of the combined Medicare system and its components. HCFA's Director of Engineering concurs and told us that conducting a series of individual overlapping tests does not meet the standard for an end-to-end test. Further, HCFA has not received a certification from its IV&V contractor that its planned approach to end-to-end testing is complete and sufficient.

4. HCFA agrees that an overall schedule and a critical path are important to managing its Y2K work. While we agree with HCFA that preparing an overall project plan and a critical path is a daunting task for a system as complex as that of Medicare, carrying out such a complex project without these tools would be overwhelming. Even though HCFA is working to gather and validate data for an overall project schedule and is identifying dependencies to develop an overall critical path for its Y2K work, its external and internal schedules are being developed separately. As stated in our report, HCFA's plans to develop two separate schedules will not provide the overall project information it needs to adequately prioritize its remaining work and will not enable it to develop a unified Y2K critical path. In its summary, HCFA stated that it plans to integrate its external systems project plan into a critical path analysis for all of its systems, internal and external, before the end of the year. However, integrating separately developed schedules and critical path dependencies will require additional time and resources. Accordingly, HCFA should start to combine these efforts immediately and develop a single, overall Y2K schedule and critical path for its external and internal systems. Further, we agree that HCFA should remain highly proactive in monitoring the progress of its shared

system maintainers and its internal system renovation effort. A fully integrated schedule with a critical path will help it achieve this goal.

5. HCFA's comments about its efforts to renovate the CWF do not change our position that a critical path analysis, incorporating the production version 98.04 of the CWF (scheduled to be operational after January 4, 1999) and including reasonable amounts of time for testing, would have shown that the Medicare Y2K project could not be completed before March 1999 at the very earliest. HCFA's comments address a non-production version of the CWF. While HCFA is correct in stating that this CWF version 98.02 has been renovated, it was not installed until September 2, 1998. Also, even though it was installed at four test sites so that shared systems maintainers and contractors could self-certify that their systems are Y2K compliant, this version cannot substitute for the production version. All self-certification tests conducted with CWF version 98.02 will have to be repeated using production version 98.04.

Further, it is highly unlikely that the self-certifying test against version 98.02 will be completed by HCFA's December 31, 1998, deadline. Thus, the testing process could slip even further. For example, according to the HCFA Testing Project Officer, the first three standard systems to complete renovation will not begin testing against this version until the first week of October 1998. Given that this testing generally requires 60 to 90 days to complete, as we stated earlier in our report, only these three of HCFA's seven standard systems will complete these tests by December 31, 1998, as indicated by HCFA. Further, this assumes that no additional changes to these systems will be required when they are tested against production version CWF 98.04, which generally is not the case. HCFA had previously estimated that these three systems would complete their tests by September 1, October 28, and December 18, 1998. Shared system maintainers and contractors will have to go through a complete recertification with production version CWF 98.04 after it is installed. If these tests take 60 to 90 days, as generally required, the testing will not be completed until at least March 1999.

6. HCFA recognizes that its risk management and tracking processes need improvement. Consequently, HCFA plans to work with its IV&V contractor to improve these processes. Indeed, HCFA has taken a proactive stance in addressing potential risks, such as suspending many contractors transitions to the standard part A and part B claims processing systems to ensure that resources would be available to address Y2K remediation efforts. However, HCFA's comments do not address several of the risk

management problems we identified, such as closing risks before they are mitigated and tracking only those risks for which its IV&V contractor has made a recommendation. As stated in our report, without a more comprehensive risk tracking system than it now uses, HCFA cannot ensure adequate and timely mitigation of Y2K program risks.

7. We agree with HCFA that pivot years are generally recognized and accepted as a Y2K remediation technique throughout the United States. However, as we reported, using multiple years increases the potential for errors in data exchanges and requires additional management oversight. Although HCFA disagreed with our assessment, its guidelines recommended that all contractors use a single pivot year in their Y2K renovations, and HCFA's Common Working File Technical Advisor agreed that it would "make sense" to have one pivot year for all HCFA systems. HCFA stated that (1) it does not matter to the bridging software what the pivot year is as long as it is known and (2) bridging software that accepts dates with two-digit years requires senders to specify the pivot year used. While this is true, we continue to maintain our position that multiple pivot years should not be used because they require additional management oversight. Additionally, even when bridging software is used, the same two-digit year may be expanded into different four-digit years when a single system uses multiple pivot years. The potential for date misinterpretation exists when multiple pivot years are used without a tracking mechanism. Now that HCFA has allowed the contractors and internal system maintainers to use multiple pivot years, it should track the pivot years and assess any potential problems due to their use. This requires additional management oversight that would not have been necessary if a single pivot year had been used. Our recommendation on this subject calls for a pivot year tracking system, which is needed to assist in this additional management effort.

8. HCFA has taken steps to improve the quality and completeness of the information on data exchanges between its Medicare contractors and third parties. While HCFA did not identify those steps in its comments, our report identified some of the actions that HCFA is taking, such as ensuring that the quality of information on data exchanges received from contractors is improved and preparing to conduct a more rigorous inventory of contractor data exchange agreements. We agree that these actions are important. However, we are concerned that HCFA will not be able to complete its remaining data exchange work in time to support its testing and contingency planning. Without additional information, we cannot determine how well the steps HCFA is taking will help it ensure that its

end-to-end testing is thorough and its contingency plans are complete as HCFA states.

9. HCFA has provided more detail concerning its budget requests for Y2K renovation projects. This additional information should be useful to OMB and the Congress in analyzing HCFA's Y2K effort and understanding its planned approach for the next few years. It should be noted that OMB's most recent quarterly report on governmentwide Year 2000 progress did not include HHS' recent estimate of Y2K costs for fiscal year 2000. According to OMB, "approximately $550 million in FY 2000 costs is still being reviewed by OMB. Almost all of these costs are attributable to HCFA."

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