OFFICE OF
THE INSPECTOR GENERAL

SOCIAL SECURITY ADMINISTRATION

THE SOCIAL SECURITY ADMINISTRATION'S
SIMPLIFIED DISABILITY INTERNET APPLICATION

September 2011   **A-14-11-21137**

AUDIT REPORT

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The Inspector General Act created independent audit and investigative units, called the Office of Inspector General (OIG). The mission of the OIG, as spelled out in the Act, is to:

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- ❍ Promote economy, effectiveness, and efficiency within the agency.
- ❍ Prevent and detect fraud, waste, and abuse in agency programs and operations.
- ❍ Review and make recommendations regarding existing and proposed legislation and regulations relating to agency programs and operations.
- ❍ Keep the agency head and the Congress fully and currently informed of problems in agency programs and operations.

To ensure objectivity, the IG Act empowers the IG with:

- ❍ Independence to determine what reviews to perform.
- ❍ Access to all information necessary for the reviews.
- ❍ Authority to publish findings and recommendations based on the reviews.

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MEMORANDUM

Date: September 6, 2011   Refer To:

To: The Commissioner

From: Inspector General

Subject: The Social Security Administration's Simplified Disability Internet Application
         (A-14-11-21137)

OBJECTIVE

Our objectives were to determine (1) the events that led the Social Security
Administration (SSA) to find a software error in its Simplified Disability Internet
Application, (2) what actions SSA took to correct the error, (3) the status of the cases
impacted by the error, and (4) what actions the Agency implemented to ensure future
development efforts do not contain similar errors.

BACKGROUND

Internet Adult Disability Report

SSA's Disability Insurance (DI) program provides monthly benefits to qualified
individuals who are unable to work because of a medical condition that is expected to
last at least 1 year or result in death.[1] DI applicants can file for benefits by visiting a
field office or using the Internet. DI applicants use the Internet Disability Benefit
Application to file electronically. The *Disability Report-Adult* (Form SSA-3368-BK) is
required to file a claim. SSA automated the SSA-3368-BK, the *Internet Adult Disability
Report* (i3368), in 2002. The i3368 allows applicants to provide medical and work
history information through the Internet when filing for disability benefits.

Field office personnel electronically transmit[2] i3368 data into the Electronic Disability
Collection System (EDCS)[3] when they initiate work on a claim. SSA maintains the

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[1] The *Social Security Act* §§ 216(i) and 223, 42 U.S.C. §§ 416(i) and 423.

[2] SSA uses the term "propagate" to mean electronically transmit data from the i3368 file into EDCS.

[3] EDCS captures information recorded on paper forms; SSA-3368-BK is one of those forms.

Simplified i3368 data for 90 days after transmission into EDCS. Field office staff resolves any data discrepancies and forwards the claim to the State disability determination services (DDS) for medical determination.

Simplified i3368

According to SSA, as part of its Disability Direct Initiative, the Agency revised the i3368 to improve the quality of information received and reduce the amount of time for both the public and Agency employees to complete the report. SSA called this new Internet application the Simplified i3368. The Simplified i3368 reduced the amount of detailed information required and tailored the form to accommodate individual circumstances. In addition, the Simplified i3368 included new data fields to be stored and transmitted into EDCS. SSA had a limited Simplified i3368 implementation in December 2009 and a nationwide implementation in January 2010.

To achieve our objective, we reviewed Federal standards, guidelines, and SSA's procedures for systems development.[4] We obtained and reviewed information related to the i3368 software error and actions taken to resolve the error, as well as the i3368 and the Simplified i3368 systems documentation. We validated that the system was corrected by checking various data input scenarios in the Simplified i3368 and EDCS. For our scope and methodology, see Appendix B.

RESULTS OF REVIEW

In December 2009, SSA released the Simplified i3368 Internet application for public use. However, the Agency identified a software error in the Internet application that potentially impacted approximately 47,300 disability claims. As of July 2010, SSA had denied 12,900 of the approximately 47,300 disability claims. The Agency fixed the software error and released the updated version of the Simplified i3368 in May 2010. Based on additional medical evidence, SSA made a substantive change to the disability determinations for 94 claims.[5] To ensure future i3368 application releases do not contain a software error, the Agency changed the i3368 and EDCS testing procedures. For example, SSA staff began testing multiple data input scenarios where they entered different combinations of data and transmitted them into EDCS.

Discovering and Correcting the Error

According to SSA, an applicant submitted a claim through the Simplified i3368 on February 25, 2010. On March 19, 2010, the applicant contacted SSA and advised the

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[4] Government Accountability Office, GAO-09-232G, *Federal Information Systems Control Audit Manual* February 2, 2009; National Institute of Standards and Technology Special Publication 800-53, *Recommended Security Controls for Federal Information Systems and Organizations*, August 2009; and SSA, Project Resource Guide, PRIDE.

[5] SSA changed the decision for 94 claims to a more favorable decision. Of the 94 claims, SSA allowed 83. The remaining 11 claims were originally favorable, but upon further review, SSA revised the disability onset to an earlier date. These changes entitled the claimants to additional benefits.

Agency that the applicant entered 14 doctors; however, when field office staff reviewed the data in EDCS, only 2 doctors were listed. At that time, SSA could not determine why information for all 14 doctors did not transmit into EDCS and believed the problem was due to erroneous keying of data.

From mid-April to mid-May 2010, SSA continued receiving inquiries about claims entered through the Simplified i3368. The Agency determined these claims were also missing doctor information. In mid-May 2010, SSA decided to reexamine the Simplified i3368.

The Agency determined the problem occurred when an applicant did not enter a doctor's name. The i3368 has fields for the doctor's first and last names, and a field for the office name or clinic (see below). In the original i3368, an applicant had to enter information for the doctor's first name or last name. The Simplified i3368 allows the doctor's name field to be blank as long as the applicant entered information in the office name or clinic field. SSA found that, when users entered **only** the office name/clinic, and not a doctor's name, the information related to that doctor and all subsequent doctors was not transmitted into EDCS.

Simplified i3368 Doctor Screen

The Agency reported that on May 21, 2010, it had fixed the software error and had confirmed resolution of the issue through testing. On May 31, 2010, SSA released an updated version of the Simplified i3368. During our review, we validated six scenarios in the test environment by entering information into the Simplified i3368 and transmitting the claims to EDCS. We also selected a sample of new claims in the production environment that had blank doctor's names and verified that the doctors entered in the Simplified i3368 transmitted correctly into EDCS. We found no discrepancies.

Status of Cases Affected by the Error

During the 5.5 months between the limited release of the Simplified i3368 (December 2009) and the Agency's implementation of a systems fix (May 2010), 47,343 adult disability claims were entered through the Simplified i3368.[6] SSA categorized these potentially affected cases into two groups, or "buckets," based on the availability of data in the i3368 archives. For Bucket 1 cases,[7] SSA would have to contact the claimant or representative to determine whether any doctors' information was missing. For Bucket 2 cases,[8] SSA compared the Simplified i3368 archive data to the data transmitted into EDCS. SSA entered any missing doctor information into EDCS.

As of May 2010, SSA had denied 12,875 of the 47,343 disability claims. For the purpose of our review, we focused on the denied claims, which represented the claims most likely impacted by the systems error. SSA transferred claims[9] that had missing doctors' information to the adjudicating component for additional development and determination. According to SSA, the review of new medical evidence led the Agency to reverse its original decision on 94 claims. These reversals account for about 0.2 percent of the total claims entered through the Simplified i3368 between December 2009 and May 2010.

Ensuring Future Development Efforts Did Not Contain Similar Errors

According to SSA, the underlying cause for the error was that the i3368 no longer required that applicants enter a doctor's name. During the design of the Simplified i3368, SSA did not realize that changing this requirement affected the data transmission into EDCS.

Since the Simplified i3368 software error discovery, SSA began testing multiple data input scenarios. SSA stated that it designed additional tests to capture all possible errors. The Agency entered different data combinations and transmitted these combinations into EDCS. However, SSA did not see a need to change its systems development procedures or policies so that this practice would become an integral part of future development efforts.

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[6] During those 5.5 months, applicants filed 3,223,047 claims with SSA. The impacted claims represent 1.5 percent of those claims filed.

[7] Bucket 1 cases were claims submitted through the Simplified i3368 between December 12, 2009 and February 23, 2010, and no archive data existed.

[8] Bucket 2 cases were claims submitted through the Simplified i3368 between February 24 and May 31, 2010, and archive data existed.

[9] These claims include claims pending in the field office (initial claims and appeals), denied claims, partially favorable claims, and new claims filed that were no longer within the appeal period.

KEY CONCERNS THAT MAY AFFECT FUTURE DEVELOPMENT EFFORTS

There are two key concerns that could affect future development efforts. First, SSA should ensure proper validation/reconciliation of data transmitted between two systems. Second, SSA should validate systems before release. We provide details of our concerns below.

Lack of Validation Controls Between i3368 and EDCS

We determined SSA did not have the proper interface[10] processing controls to ensure the doctor information entered into the Simplified i3368 transmitted properly to EDCS. The Federal Information Systems Control Audit Manual (FISCAM)[11] indicates controls for interface processing are necessary to ensure data transfers from one system to another system completely, accurately, and timely. Accordingly, SSA should implement controls to ensure data are accurately processed through the interface and that no data are added, lost, or altered during the process. The Agency should design both the application that is the source of the data and the target application that receives the data with balancing controls such as control totals, record counts, batching run totals, or other data logging techniques. The Simplified i3368 interface to EDCS did not have these controls.

The software error created an additional workload for staff and applicants. In certain situations, SSA had to re-contact applicants to verify doctor information. This required additional time on the part of the applicants, field offices, DDSs, and the other adjudicating components. In turn, the applicant had to spend time answering the same questions submitted on the Simplified i3368. Finally, adjudicating components had to spend time on additional development for the previously denied claims. The Agency indicated that the new workload created by the software error had minimal impact on staff and applicants since re-contacting applicants is often part of the normal claim processing.

Therefore, with future application releases, we recommend SSA develop and implement an interface processing control strategy. The Agency should use this strategy to confirm that all data entered by the user in one system transmit completely to the intended system(s).

Lack of Comprehensive Validation Testing

We found SSA did not appropriately validate how the December 2009 changes to the Simplified i3368 impacted EDCS. The Agency stated that for the Simplified i3368 release, it executed over 8,000 tests, which represented numerous scenarios.

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[10] Interfaces are the structured exchange of data between two applications. Interface processing controls govern the extraction, transformation, and loading of data between two applications.

[11] Government Accountability Office, GAO-09-232G, FISCAM, February 2, 2009, Section 4.3 Interface Controls (pp. 432-433).

Additionally, SSA stated the data used to test the transmission of data from the i3368 to EDCS maximized the use of each field. However, the Agency did not test whether a blank field in the Simplified i3368 affected the transmission of data to EDCS.

FISCAM requires ". . . a comprehensive set of test transactions and data be developed that represents the various activities and conditions encountered in processing." Best business practice[12] recommends that when building test data, an agency should create processing conditions that accurately represent system changes, such as allowing the doctor's name to be blank, as well as unexpected conditions. If data input requirements are added, modified, or removed from an application, the agency should create test data to reflect these changes. While it may not be possible to test every conceivable variation, the test data should use transactions that have a wide range of valid and invalid input data—valid data for testing the expected and invalid data for testing application controls.

If SSA performs data tests that do not reflect real life situations, the Agency risks releasing future enhancements or interfaces with errors. We recommend SSA use comprehensive test data that reflects the system requirement changes to validate the application and all associated systems.

CONCLUSION AND RECOMMENDATIONS

Based on our validation of different scenarios in the test environment and verification of new claims with blank doctor's names, we found that claims transmitted correctly into EDCS. However, we believe that for future Internet software releases, SSA should build interface controls to ensure data entered transmits completely to the appropriate SSA systems and implement more stringent test requirements to validate changes in its systems.

Therefore, we recommend SSA:

1. Develop and implement an interface processing control strategy to confirm that all data entered by the user in one system transmits completely to the intended system(s).

2. Use comprehensive test data that reflects system requirement changes to validate the application and all associated systems.

AGENCY COMMENTS

SSA agreed with both recommendations. See Appendix C for the Agency's comments.

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[12] William Perry, *Effective Methods for Software Testing* (p. 563, 2nd edition, 2000). It should be noted that the author of this authority is founder and executive director of the Quality Assurance Institute, which sponsors certification programs for software testing.

OIG RESPONSE

Although SSA agreed with Recommendation 1, it did not address how it will design the Simplified i3368 and EDCS to implement interface processing controls. The Agency should design both the application that is the source of the data and the target application that receives the data with balancing controls. The Agency stated that it does end-to-end testing;[13] however, end-to-end testing is not an interface processing control. Examples of interface processing controls are control totals, record counts, batching run totals, or other data logging techniques.

Further, SSA agreed with Recommendation 2, but did not address how it will ensure the use of comprehensive test data will incorporate all system requirement changes. Performing end-to-end testing does not ensure that the test data includes conditions that accurately represent the system changes made.

Patrick P. O'Carroll, Jr.

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[13] The Agency stated that end-to-end testing involves testing of a complete application environment in a situation that mimics real-world use.

Appendices

Acronyms

DDS	Disability Determination Services
DI	Disability Insurance
EDCS	Electronic Disability Collect System
FISCAM	Federal Information Security Control Audit Manual
i3368	Internet Adult Disability Report
OIG	Office of the Inspector General
SSA	Social Security Administration
U.S.C.	United States Code

Scope and Methodology

To accomplish our objectives, we:

- Reviewed Federal laws, standards, and guidelines.[1]

- Reviewed the Social Security Administration's (SSA) policies and procedures for system development.[2]

- Obtained information from SSA on the discovery of the software error, actions taken to correct the software error, and actions taken to prevent recurrence.

- Reviewed SSA's Intranet site that monitors the status of impacted claims.

- Reviewed SSA's system documentation for the December 2009 change to the i3368.

- Interviewed personnel from SSA's Offices of Operations and Systems.

- Ensured system correction by (1) validating six scenarios in the Simplified i3368 test environment transmitted to the Electronic Disability Collect System (EDCS) test environment, and (2) verifying 45 sample claims in the production environment had the same doctors entered in Simplified i3368 transmitted appropriately to EDCS.

We performed our evaluation at SSA's Headquarters in Baltimore, Maryland, between October 2010 and April 2011. The entities reviewed were the Offices of the Deputy Commissioners for Operations and Systems. We conducted our review in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*.

We relied primarily on the disability claims data from the i3368 and EDCS to complete our review and determined that the data were sufficiently reliable to meet our audit objectives.

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[1] The *Social Security Act* §§ 216(i) and 223, 42 U.S.C. §§ 416(i) and 423, Government Accountability Office, GAO-09-232G, *Federal Information Systems Control Audit Manual,* February 2, 2009, and National Institute of Standards and Technology Special Publication 800-53, *Recommended Security Controls for Federal Information Systems and Organizations*, August 2009.

[2] SSA, Project Resource Guide, PRIDE.

Agency Comments

SOCIAL SECURITY

MEMORANDUM

Date: August 4, 2011   Refer To: S1J-3

To: Patrick P. O'Carroll, Jr.
        Inspector General

From: Dean S. Landis /s/
        Deputy Chief of Staff

Subject: Office of the Inspector General Draft Report, "The Social Security Administration's Simplified
         Disability Internet Application" (A-14-11-21137)--INFORMATION

Thank you for the opportunity to review the draft report. Please see our attached comments.

Please let me know if we can be of further assistance. You may direct staff inquiries to
Frances Cord at (410) 966-5787.

Attachment

COMMENTS ON THE OFFICE OF THE INSPECTOR GENERAL DRAFT REPORT, "THE SOCIAL SECURITY ADMINISTRATION'S SIMPLIFIED DISABILITY INTERNET APPLICATION" (A-14-11-21137)

We offer the following responses to your recommendations.

Recommendation 1

Develop and implement an interface processing control strategy to confirm that all data entered by the user in one system transmits completely to the intended system.

Response

We agree. However, as OIG noted in its report, the Office of System (OS) identified the software error and corrected it in May 2010, prior to OIG initiating this audit. During the validation process, OS performs end-to-end testing to ensure data is accurately transmitted between two or more systems.

Recommendation 2

Use comprehensive test data that reflects system requirement changes to validate the application and all associated systems.

Response

We agree. Please see response to recommendation one. OS performed end-to-end testing to ensure data entered into the Simplified 3368 application transmitted correctly to the Electronic Disability Collect system.

OIG Contacts and Staff Acknowledgments

OIG Contacts

Brian Karpe, Director, Information Technology Audit Division

Mary Ellen Moyer, Audit Manager

Acknowledgments

In addition to those named above:

Jan Kowalewski, Auditor in Charge

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