

**Department of Health & Human Services
Centers for Medicare & Medicaid Services**



**Report to Congress
Fraud Prevention System
First Implementation Year**

2012

Fraud Prevention System – First Implementation Year

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Prologue

As required by the Small Business Jobs Act of 2010 (Act) the Centers for Medicare & Medicaid Services (CMS) developed the Fraud Prevention System (FPS) to implement predictive analytics technologies to identify and prevent the payment of improper claims in the Medicare fee-for-service program.

In the first year of the FPS, CMS implemented predictive analytic technology on a nationwide basis in less time than was statutorily required. In fact, the Office of the Inspector General (OIG) finds that the complex analytic models that CMS and its contractors have developed through the FPS produced “valuable data that [CMS contractors] have used in ongoing investigations and to initiate investigations that have identified potential recoveries and costs that could be avoided.”¹ The FPS generated leads for 536 new fraud investigations, provided new information for 511 pre-existing investigations, and triggered thousands of provider and beneficiary interviews to verify legitimate items and services were provided to beneficiaries.

This is the first time predictive analytic technology has been used by the government on such a large scale for the purpose of identifying health care fraud, waste, and abuse, and it is the first time CMS has calculated actual and projected savings for a specific tool such as the FPS. CMS believes that we have developed the appropriate measures needed to estimate savings with respect to both improper payments recovered and improper payments avoided through the FPS.

On September 27th, 2012, we received OIG’s report providing the results of its review of the use of the FPS and our calculations of actual and projected savings. We appreciate OIG’s recommendations to revise the methodology used to calculate actual and projected savings and, in the intervening months, explored ways to ameliorate certain concerns raised by the OIG associated with CMS’ savings methodology. Based on the review of the concerns and discussions with OIG, improvements to the savings methodology will be incorporated into the Report to Congress for the second implementation year. CMS has already begun to address OIG’s comments, including the following activities:

- Improving the tracking of overpayment recoveries by the source of the overpayment determination and developing more accurate estimates of law enforcement recoveries.
- Developing options for new data collection and reporting requirements that would minimize or eliminate deficiencies currently observed in the manual reporting.
- Evaluating the application of a corrective factor that would systematically account for legitimate services and claims overturned on appeal.
- Taking into account costs identified by OIG in its return on investment calculation.

¹ *The Department of Health and Human Services Has Implemented Predictive Analytics Technologies But Can Improve Its Reporting on Related Savings and Return on Investment (A-17-12-53000)*, page 8.

Fraud Prevention System – First Implementation Year

We strongly agree with OIG that, “continuing to use the FPS will strengthen the Department’s efforts to combat fraud, waste, and abuse in the Medicare fee-for-service program.”² Over the next year, CMS will continue to use the FPS as part of its broader strategy to prevent fraud, waste, and abuse and we will work to enhance our approach to estimating future savings and incorporate these changes into the Second Year Report to Congress. We look forward to improving our methodology in the coming year. While placing a value on fraud prevention actions that result in cost avoidance is challenging, the cost avoidance estimates included in this Report to Congress reflect the results of the most sophisticated and accurate analysis possible at present, and CMS believes they are a conservative representation of the significant value that has already been realized.

² *Ibid.* page 8.

Executive Summary

The Department of Health & Human Services (HHS) and the Centers for Medicare & Medicaid Services (CMS) launched an ambitious national effort in 2010 to obstruct criminals at every step in the act of committing fraud. Since enactment of the Affordable Care Act, CMS implemented new anti-fraud tools provided by Congress and also designed and implemented large-scale, innovative improvements to the Medicare and Medicaid program integrity strategy to shift beyond a “pay-and-chase” approach to a more effective strategy that identifies fraud before payments are made. Simultaneously, CMS is using the same innovative tools to further enhance collaboration with its law enforcement partners in detecting and preventing fraud.

The Fraud Prevention System (FPS) is the state-of-the-art predictive analytics technology required under the Small Business Jobs Act of 2010 (SBJA). Since June 30, 2011, the FPS has run predictive algorithms and other sophisticated analytics nationwide against all Medicare fee-for-service (FFS) claims prior to payment. For the first time in the history of the program, CMS is systematically applying advanced analytics against Medicare FFS claims on a streaming, nationwide basis.

This report covers the FPS’s first implementation year. It is important to note that the results reported here are limited to those that can be traced directly and entirely to the FPS during its first year. During this period, CMS realized the following FPS accomplishments:

- Met and exceeded legislative requirements and timeline
- Implemented the FPS nationwide, better coordinating fraud-fighting efforts across program integrity contractors’ jurisdictions
- Developed complex and sophisticated FPS models as a result of nationwide implementation, strong stakeholder partnerships, and a rigorous governance process
- Achieved a positive return on investment (ROI), saving an estimated \$3 for every \$1 spent in the first year
- Prevented or identified an estimated \$115.4 million in payments
- Generated leads for 536 new investigations by CMS’s program integrity contractors and augmented information for 511 pre-existing investigations.

The FPS complements a broad array of anti-fraud activities carried out by CMS. The FPS is one of the “Twin Pillars” in CMS’s approach to fraud prevention in

Medicare. The pillars represent an integrated approach to program integrity—preventing fraud before payments are made, keeping ineligible providers and suppliers and other bad actors out of Medicare in the first place, and quickly taking administrative actions to stop payments to and/or remove wrongdoers from the program once they are detected. The Automated Provider Screening (APS) system, the other pillar, identifies ineligible providers and suppliers prior to their enrollment and when eligibility status changes.

Leveraging leads from the FPS, CMS and its contractors performed reviews and have stopped claims before payment and identified improper payments postpayment. To evaluate the impact of the FPS, the full range of actions and tools available for fraud fighting must be considered. Using the FPS, these proactive measures increasingly take place before payment is made. Within the first year of implementing the FPS, CMS stopped, prevented, or identified an estimated \$115.4 million in payments. Although it is not typical for information technology investments to achieve a positive return on investment within just 12 months of implementation, the FPS produced an estimated \$3 for every \$1 spent in its very first year. These savings will continue to grow. In its first year, the FPS also generated leads for 536 new investigations by CMS's program integrity contractors and augmented information for 511 pre-existing investigations.

CMS uses the FPS to target investigative resources to suspect claims and providers and swiftly impose administrative action when warranted. When FPS predictive models identify egregious, suspect, or aberrant activity, the system automatically generates and prioritizes leads for review and investigation. CMS and its program integrity contractors use the FPS to identify, prevent, and stop potentially fraudulent claims. The FPS helps CMS target fraudulent providers, reduce the administrative and compliance burdens on legitimate ones, and prevent fraud so that funds are not diverted from providing beneficiaries with access to quality health care.

CMS is well ahead of the statutory implementation schedule, which called for phasing in the technology in the 10 highest fraud states in the Medicare FFS program by July 1, 2011, and nationwide by 2014. CMS launched the FPS in one step as a robust, nationwide system evaluating claims in real time. Nationwide implementation of the technology maximizes the benefits of the FPS and permits CMS to efficiently integrate the technology into the Medicare FFS program and train its anti-fraud contractors.

CMS designed the FPS with several key processes and attributes to fully leverage the system. Key attributes include the FPS's flexibility. When CMS receives new information, it can adjust the FPS models and test them for accuracy, and CMS

has the capacity to make FPS models more sophisticated over time. In addition, CMS established a rigorous and structured governance process to provide oversight, management, and control of selecting and developing new models, model enhancements, and system changes to improve the FPS. Finally, the FPS has engaged CMS's stakeholders who combat fraud in the field. They leverage the FPS's prepayment nationwide data and respond to prioritized potential fraud leads to investigate schemes and take appropriate action. Moreover, they have provided numerous suggestions to improve the FPS as well as to add features to help field investigators work more effectively.

The FPS also is fully integrated into CMS's collaborative mission rotations, which convene regularly in a central environment. CMS's Center for Program Integrity (CPI), law enforcement, program integrity contractors, and other stakeholders collaborate on cases and models during these rotations, leveraging information from the FPS and other sources.

In the FPS's second year of operation, CMS plans to build on its first-year progress. CMS will enhance the integration of the FPS and the Medicare claims processing system. The agency also plans to more than double the number of models currently in the FPS and will continue to enhance the current models, making them more sophisticated and incorporating more and better data. In addition, CMS will continue to actively identify specific FPS algorithms relevant to Medicaid and share the results as appropriate.

The administration has made a firm commitment to be a strong steward of taxpayer funds. Today, CMS has more tools than ever before to move beyond a "pay-and-chase" approach and implement strategic changes in pursuing and detecting fraud, waste, and abuse. In its first year, the FPS has demonstrated its benefits as a fraud prevention tool, and it will continue to evolve for even greater impact going forward.

Table of Contents

1. Preventing and Detecting Medicare Fraud with the New Fraud Prevention System	1
1.1. SBJA Requirements	2
1.2. Tackling Health Care Fraud in the 21st Century	3
1.3. The Fraud Prevention System	4
2. Implementation and Benefits of the Fraud Prevention System in Combating Fraud: First Implementation Year	7
2.1. CMS Exceeded SBJA Requirements	7
2.2. Stakeholder Collaboration Enhances the FPS	13
2.3. Leveraging Comprehensive Data and Growing in Sophistication	16
2.4. Collaborative Mission Rotations: Where Field Investigation Meets Predictive Analytics	20
3. FPS Outcomes	23
3.1. FPS Actual and Projected Savings	23
3.2. FPS Return on Investment	28
3.3. FPS Complements Other Strategies to Detect Medicare Fraud	30
3.4. Impact on Medicare Beneficiaries and Providers	33
4. Beyond the First Year: More Models and More Data to Combat Fraud	36
Appendix A. Inspector General of the Department of Health & Human Services: Certification of the <i>Report to Congress: Fraud Prevention System – First Implementation Year</i>	41
Appendix B. SBJA Section 4241. Use of Predictive Modeling and Other Analytics Technologies to Identify and Prevent Waste, Fraud, and Abuse in the Medicare Fee-for-Service Program (P.L. 111-240 §4241(b); 42 U.S.C. §1320a-7m(b))	42
Appendix C. SBJA Requirements in the <i>FPS First Implementation Year Report</i>	48
Appendix D. Definitions of CMS Administrative Actions and FPS Measures	50
Acronyms and Abbreviations	53

List of Figures

Figure 1. CMS’s Innovative “Twin Pillars” Strategy for Fraud Prevention	3
Figure 2. Overview of the FPS Process for Fraud Prevention and Medicare Savings	5
Figure 3. The FPS Contractors’ Roles	9
Figure 4. Overview of the FPS Development Timeline	10
Figure 5. Data Streaming through the FPS.....	11
Figure 6. Overview of the FPS Governance Process	14
Figure 7. Map of the ZPIC Regions	15
Figure 8. Four FPS Model Types Allow Flexibility and Robustness	17
Figure 9. Mission Rotations Facilitate Collaboration	21
Figure 10. Claims Analysis Process Leverages the FPS.....	31
Figure D-1. Example of Actual and Projected Cost Avoidance, Based on Date of Action	52

List of Tables

Table 1. Estimated FPS Savings by Savings Category	24
Table 2. Summary of Estimated FPS Savings	29
Table 3. Estimated FPS Costs	30
Table 4. Calculation of Estimated Return on Investment	30
Table D-1. Definitions of CMS Administrative Actions	50
Table D-2. Definitions of FPS Savings Measures	51
Table D-3. Definitions of FPS Process Measures.....	52

1. Preventing and Detecting Medicare Fraud with the New Fraud Prevention System

Preventing fraud in Medicare involves striking an important balance: carrying out the core responsibility to protect beneficiary access to necessary health care services and reducing the administrative burden on legitimate providers and suppliers,³ while ensuring taxpayer dollars are not lost to fraud, waste, and abuse. The Department of Health & Human Services (HHS) and its Centers for Medicare & Medicaid Services (CMS) are using the new anti-fraud authorities provided in the Affordable Care Act (ACA) (P.L. 111-148 and P.L. 111-152) and the Small Business Jobs Act (SBJA) of 2010 (P.L. 111-240) to strategically combat fraud, waste, and abuse.

On June 30, 2011, CMS's Center for Program Integrity (CPI) launched a state-of-the-art predictive analytics technology—the Fraud Prevention System (FPS)—to identify and prevent fraud, waste, and abuse in the Medicare fee-for-service (FFS) program. Since its launch, the FPS has run sophisticated analytics nationwide against all Medicare FFS claims prior to payment to identify aberrant and suspicious billing patterns, enabling CMS to work toward stopping payments as soon as problems are detected. Based on FPS findings, CMS stopped, prevented, or identified an estimated \$115.4 million in payments in its first year.⁴

During the FPS's first implementation year, CMS realized the following FPS accomplishments:

- Met and exceeded legislative requirements and timeline
- Implemented the FPS nationwide, better coordinating fraud-fighting efforts across program integrity contractors' jurisdictions
- Developed complex and sophisticated FPS models as a result of nationwide implementation, strong stakeholder partnerships, and a rigorous governance process
- Achieved a positive return on investment (ROI), saving an estimated \$3 for every \$1 spent in the first year
- Prevented or identified an estimated \$115.4 million in payments

³ For ease of reference, the term “provider(s)” will be used throughout this report to encompass both providers and suppliers enrolled in the Medicare fee-for-service program.

⁴ See Section 3.1 and Table 1 for an explanation of FPS savings.

- Generated leads for 536 new investigations by CMS’s program integrity contractors and augmented information for 511 pre-existing investigations.

CMS has made important strides in reducing fraud, waste, and abuse in Medicare. Since enactment of the Affordable Care Act, CMS has implemented new anti-fraud tools provided by Congress and also designed and implemented large-scale, innovative improvements to the Medicare and Medicaid program integrity strategy. The result is that CMS is shifting beyond a “pay-and-chase” approach with these new tools designed to prevent fraud. Simultaneously, CMS is using the same innovative tools to further enhance collaboration with law enforcement partners in detecting and preventing fraud.

1.1. SBJA Requirements

The SBJA identifies specific functional requirements of the predictive analytics technologies. These include the following capabilities:

- Provide a comprehensive view of Medicare FFS provider and beneficiary activities to identify and analyze provider networks, billing patterns, and beneficiary utilization patterns and identify and detect patterns that represent a high risk of fraudulent activity
- Integrate fully with the Medicare FFS claims flow
- Analyze large datasets for unusual or suspicious patterns or anomalies before payment and prioritize suspicious activity
- Capture outcome information to continually refine and enhance the system
- Prevent payment of fraudulent claims.

As this report discusses, CMS implemented the predictive modeling provisions of the SBJA aggressively and efficiently, meeting all of the functional requirements only nine months after the bill was signed into law.

The SBJA requires the Secretary of HHS to submit reports for each of the first three years of FPS implementation. This first implementation year report complies with the first-year reporting requirements outlined in the SBJA. The SBJA also requires the HHS Office of Inspector General (OIG) to certify certain components of the report. Appendix A contains the OIG certification, Appendix B provides the SBJA legislation for the FPS and the *FPS First Implementation Year Report*, and Appendix C cross-references the report sections to the SBJA reporting requirements.

1.2. Tackling Health Care Fraud in the 21st Century

Building upon CMS’s traditional program integrity efforts detecting and referring cases of potential fraud to law enforcement, the agency developed and implemented a “twin pillars” approach to Medicare fraud prevention. This new approach forms the foundation of CMS’s robust fraud prevention strategy, creating a comprehensive national program that addresses fraud on multiple levels. One pillar is the new FPS, which applies predictive analytics technologies to claims prior to payment to identify aberrant and suspicious billing patterns. The other pillar is the Automated Provider Screening (APS) system, which identifies ineligible providers prior to their enrollment or revalidation (Figure 1). The APS allows CMS to systematically screen all current and prospective providers against thousands of data sources, including provider licensing and criminal records.

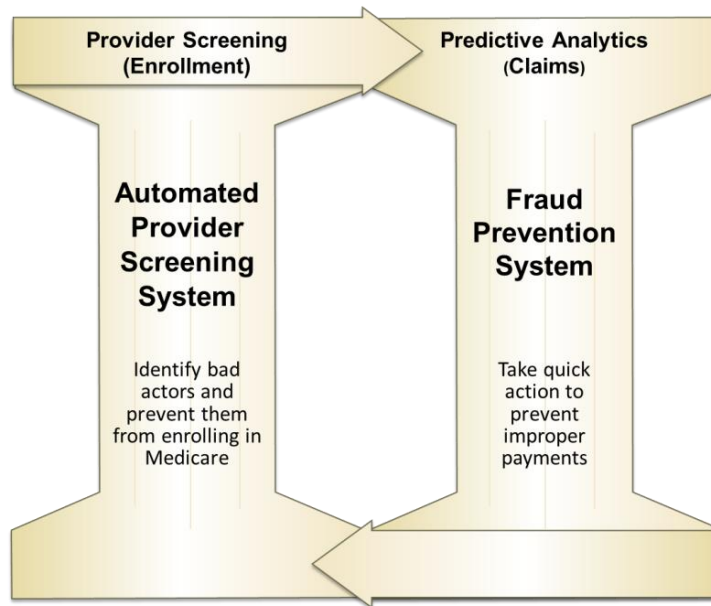


Figure 1. CMS’s Innovative “Twin Pillars” Strategy for Fraud Prevention

Together, these two innovative, comprehensive systems are growing in their capacity to protect patients and taxpayers from those intent on defrauding CMS’s programs. These pillars represent an integrated approach to program integrity and support other CMS activities to:

- Prevent fraud before payments are made
- Keep ineligible providers and other bad actors out of Medicare in the first place

- Take administrative actions to stop payments to and/or remove wrongdoers quickly once they are detected.

The FPS, APS, and other enrollment enhancements tie together CMS’s program integrity activities. For example, the ACA requires CMS to revalidate all Medicare providers. Based on FPS leads, CMS identified specific providers as top priorities for revalidation. As a result of screening providers that pose an elevated risk as identified by the FPS, CMS has deactivated the billing privileges and enrollment records of providers that do not meet current Medicare enrollment requirements. By leveraging sophisticated analytics tools in claims processing and provider enrollment, CMS is now better able to identify potentially fraudulent claims and prevent payment on those claims until they are verified as proper.

1.3. The Fraud Prevention System

Since June 30, 2011, CMS has been screening all Medicare FFS claims— nationwide and prepayment—with the predictive analytics technology of the new FPS. Through procedures under the Federal Acquisition Regulation, CMS

“The new Fraud Prevention System has changed the equation for any criminal.”

– HHS Secretary Kathleen Sebelius
Chicago Fraud Prevention Summit
April 4, 2012

partnered with industry-leading private-sector contractor teams to adapt existing telecommunications and banking industry anti-fraud technology to the unique requirements of fighting Medicare fraud. CMS and its contracting partners met or exceeded all SBJA requirements, implementing the FPS ahead of schedule, on a nationwide scale, and with greater capabilities than the SBJA required.

FPS Leads Are Linked to Action

The FPS uses predictive analytics—sophisticated mathematical and statistical algorithms and models—to identify suspicious behavior. The FPS analyzes information from multiple Medicare and other data sources to predict whether observed billing patterns or trends are likely to be fraudulent, similar to the way the credit card industry evaluates the consistency of a cardholder’s new charges against past transactions as a way of identifying potential fraud. The FPS runs predictive models against all Medicare Part A and Part B claims nationwide prior to payment to detect aberrant billing patterns and other potential vulnerabilities.

When FPS predictive models identify egregious, suspect, or aberrant activity, the system automatically generates and prioritizes leads for review and investigation. Automatic prioritization efficiently targets CMS’s investigative resources on the most urgent leads for immediate attention and response. CMS may take a variety of administrative actions based on the results of investigating an FPS lead, including implementation of claims processing edits, claim denials, prepayment review, payment suspensions, revocation of Medicare billing privileges, and referral to law enforcement. These actions result in savings to the Medicare Trust Funds (Figure 2). Appendix D defines these administrative actions and the FPS savings measures.

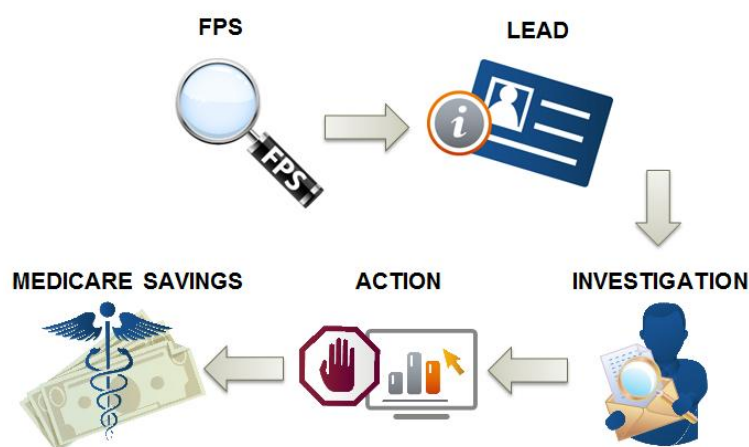


Figure 2. Overview of the FPS Process for Fraud Prevention and Medicare Savings

Role of FPS Stakeholders

CMS has made the FPS tools and information available to its investigative stakeholders and provided them with FPS training. These stakeholders include the OIG Office of Investigations, the CPI field offices, and the Zone Program Integrity Contractors (ZPIC).⁵ Under the direction of CMS, ZPICs investigate leads generated by the FPS; perform regional data analysis to identify cases of suspected fraud, waste, and abuse; make recommendations to CMS for appropriate administrative actions to protect Medicare Trust Funds; refer cases to law enforcement for potential prosecution; provide support for ongoing investigations; and identify improper payments for recovery.

⁵ At the end of the FPS first implementation year, CMS had awarded ZPIC contracts in six of seven zones. In the seventh zone, legacy Program Safeguard Contractors (PSC) continued to perform the ZPIC functions. For ease of reference, the term “ZPIC” will be used throughout this report to indicate both ZPICs and PSCs.

The information available from the FPS gives CMS's investigative and law enforcement colleagues improved access to more timely and useful data and analytic tools. These partners also collaborate with CMS to enhance the FPS, under the direction of CPI's Analytics Lab Division. Staffed by experts in data analysis, statistics, and behavioral and other social sciences, the Analytics Lab directs the advancements of FPS models, maintaining and refining existing FPS models and guiding the development of new ones.

FPS Stakeholders Collaborate during Mission Rotations

CMS conducts a series of meetings known as mission rotations in a collaborative environment for FPS stakeholders and end users to learn the system, confer with colleagues and decision-makers, and develop and refine FPS models to effectively address the most current realities of Medicare fraud. These collaborative rotations facilitate information sharing among the ZPICs, law enforcement officials, and other stakeholders and engage ZPICs in the process of FPS model development and refinement. These meetings enhance CMS's communications with the ZPICs, allowing CMS to learn and share ZPICs' best practices, including ZPICs' business processes for investigating and resolving leads. The ZPIC rotations have also facilitated fast work and collaboration on cases.

2. Implementation and Benefits of the Fraud Prevention System in Combating Fraud: First Implementation Year

The substantial progress of the FPS in its first implementation year reflects the concerted efforts of many stakeholders. With passage of the ACA and the SBJA, Congress provided the impetus for initiating the FPS and momentum for its continuing development. CMS's contracting strategy resulted in multiple contractors contributing to a single predictive modeling solution, allowing the FPS implementation to exceed SBJA requirements. Coordinating many stakeholders and contractors, CMS effectively integrated the FPS into its overall fraud prevention strategy, reducing implementation costs and ensuring synergies with other fraud prevention components.

2.1. CMS Exceeded SBJA Requirements

CMS met and surpassed the SBJA legislative requirements by implementing the FPS nationwide in the first year and integrating multiple data sources. The agency accomplished these requirements by building on its existing research efforts and selecting FPS contractors that have proven experience with CMS data infrastructure, fraud detection technology, and Medicare policies and procedures.

Nationwide Implementation from Day One Maximizes the FPS's Impact

The first-year legislative requirements for the FPS included evaluating claims in the 10 states identified by the Secretary as having the highest risk of fraud, waste, or abuse in the Medicare FFS program. CMS decided to implement the

Nationwide implementation better coordinates fraud-fighting efforts across program integrity contractors' jurisdictions.

FPS nationwide in the first year—more than two years ahead of the statutory requirement for nationwide expansion by January 1, 2014—to maximize the benefit from predictive models as soon as possible. The agency carefully considered the tradeoffs between phased and nationwide implementation, and several factors contributed to its decision to implement the FPS nationwide in the first year:

- Nationwide implementation ensured analysis with a national perspective rather than the traditional regional data and analysis silos, allowing CMS to uncover fraud schemes operating with similar patterns across state lines.

- Nationwide implementation helped CMS integrate the technology into the Medicare FFS program efficiently and effectively across ZPICs.
- The 10 states with the highest risk of fraud are not conveniently located in a single or limited set of ZPIC regions. Using the FPS in only these states would have required the involvement of the majority of the ZPICs in the first year. Medicare Fraud Strike Force team locations are evidence of the geographic dispersion of Medicare fraud, with current operations in the identified fraud hot spots of Baton Rouge, Brooklyn, Chicago, Dallas, Detroit, Houston, Los Angeles, Miami-Dade, and Tampa Bay.
- Implementation of the FPS nationwide from the start ensured that all ZPICs had immediate access to this new fraud-fighting tool and minimized the duration of system introduction.
- Input from all ZPICs and other stakeholders was critical to the development of the most efficient and effective system possible, since the FPS required significant changes in the overall fraud detection and prevention processes.

CMS recognized that the benefits from immediate nationwide implementation far outweighed any potential short-term issues. In particular, given the lack of overlap between ZPIC coverage areas and any set of 10 high-fraud states, CMS would not have been able simply to pilot the FPS and train investigators in one area as a learning experience for CMS and ZPICs before implementing nationwide. In addition, the affected ZPICs would have had to function with the FPS in parts of their areas and without it in other parts. A fragmented regional approach, moreover, would have diminished the utility of the FPS. For example, before the FPS, regional data segregation created challenges in identifying suspect cases that crossed regional boundaries. Prior to the FPS, regional data silos allowed providers to continue submitting fraudulent claims in one region even after suspect claims were identified in another.

FPS Implementation Strategy

CMS designed the FPS around a key component: a single platform that processes all Medicare FFS claims prior to payment. A single system avoids the constraints of regionally fragmented Medicare fraud detection and prevention efforts and reduces costs by interacting with complex legacy claims processes at only one point. A single system also ensures data integrity, consistency, and security when investigators and analysts access data, while at the same time eliminating redundant data storage. Using a consistent set of complete information within

the fraud-fighting community improves detection and prevention of potentially fraudulent activities.

To meet the SBJA requirement for at least two contractors, CMS solicited both a Development Contractor and a Modeling Contractor. Working closely with CMS to integrate the technology into the existing claims process, the Development Contractor designed, built, and implemented the predictive analytics solution, including the data reduction engine, model integration engine, and user interface. The Development Contractor also creates, tests, and refines new predictive models and other sophisticated data analytics and incorporates models from other sources. The Modeling Contractor solely creates, tests, and refines new predictive models that complement the existing models (Figure 3).

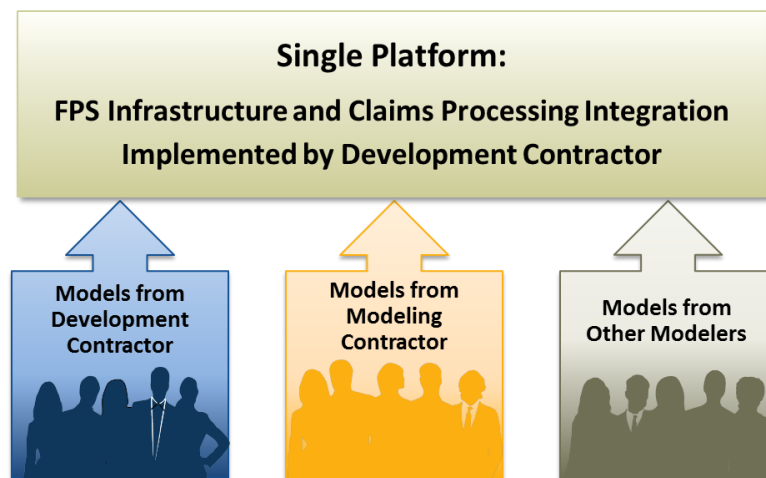


Figure 3. The FPS Contractors' Roles

The SBJA required CMS to solicit contractors no later than January 1, 2011, and to implement the FPS no later than July 1, 2011. The agency released a solicitation on December 16, 2010, awarded the development and modeling contracts in April and July 2011, respectively, and implemented the FPS on June 30, 2011 (Figure 4). At every milestone, CMS met or exceeded the SBJA requirements without introducing risk or eliminating critical steps in the information technology development life cycle.

The FPS met or exceeded every SBJA implementation milestone.

Fraud Prevention System – First Implementation Year

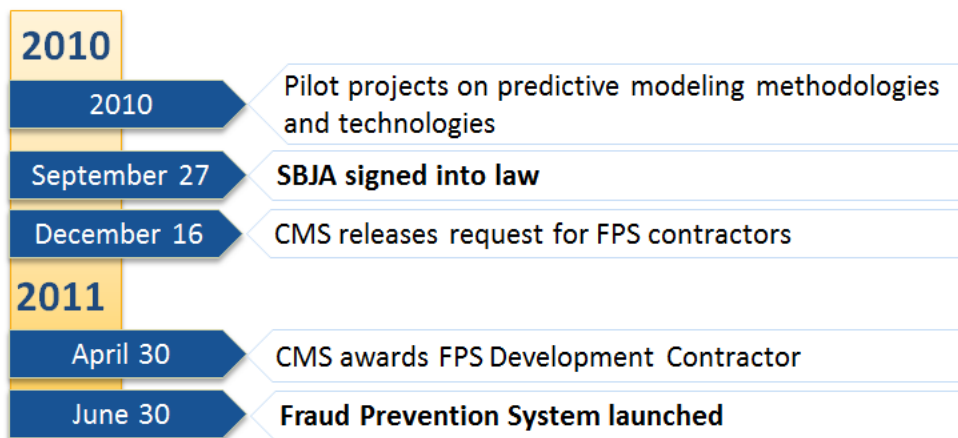


Figure 4. Overview of the FPS Development Timeline

Through a competitive solicitation and award process, CMS selected Northrop Grumman, a global provider of advanced information solutions, as the FPS Development Contractor. Northrop Grumman partnered with Verizon’s Federal Network Systems, owner of a proven predictive analytics technology solution, and National Government Services, a Medicare Administrative Contractor (MAC) with significant depth of relevant experience in Medicare policy and data. The Northrop Grumman team combined Medicare expertise with Verizon’s proven, state-of-the-art technology to adapt predictive analytics to the demands and complexities of the Medicare anti-fraud environment. After refining its software product over many years in its own fraud detection programs, Verizon was able to adapt this software into the FPS within CMS’s aggressive, 60-day implementation timeframe. By using an existing, proven technology, CMS was able to build on private industry’s knowledge with similar technologies, saving time and money.

For the FPS Modeling Contractor, CMS selected IBM, a global technology and innovation company, to leverage its extensive experience with predictive analytics modeling in a variety of industries, including health care. IBM brought a library of potential algorithms as well as Medicare and Medicaid expertise. IBM partnered with Health Integrity, a long-time Medicare program integrity contractor. The IBM team develops innovative models using advanced methodologies and works with CMS and Northrop Grumman to integrate these models into the FPS.

Integrating Multiple Data Sources into the FPS

All Medicare Part A and Part B claims stream prior to payment through the FPS, which runs each claim against multiple algorithms as mandated by the SBJA. FPS algorithms are built and processed using data from multiple sources (Figure 5). Integrating this supplemental information makes the FPS analyses more accurate, the prioritized leads more exact, and the investigators' information more useful and timely. The FPS's flexibility allows CMS to adjust FPS models and test them for accuracy whenever new information arises. Using these capabilities, CMS continually explores new data sources and methods of incorporating data into the FPS.

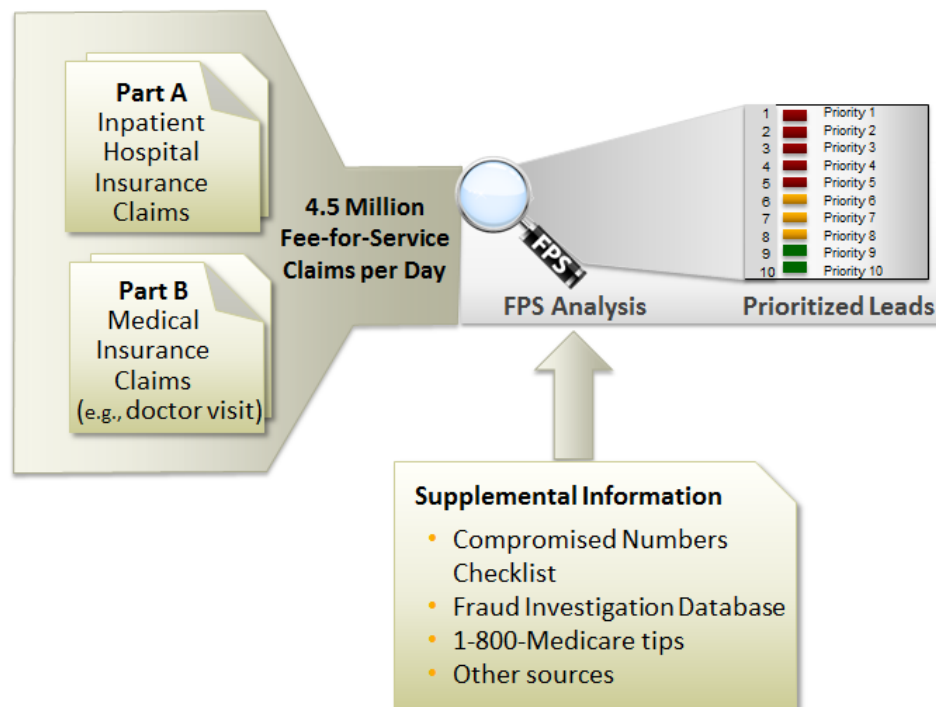


Figure 5. Data Streaming through the FPS

In addition to streaming Medicare FFS claims prior to payment, the FPS utilizes the following data sources to build algorithms and analyze claims:

- **Historical Medicare Part A and Part B claims data in the Integrated Data Repository (IDR)**

To develop and test more comprehensive models more quickly, analysts use historical claims from the national IDR to analyze patterns and develop models for the FPS. In turn, FPS models screen the IDR's aggregate, nationwide, historical information about billing behavior, creating more effective analytics using historical national data in both the

development and implementation of models. See Section 2.3 for more information about the IDR.

- **Supplemental data sources**

Incorporating supplemental data sources into the FPS helps identify the characteristics of potentially fraudulent providers. Some examples of these data sets include tips acquired from 1-800-MEDICARE and other sources, the Fraud Investigation Database, and the Compromised Numbers Checklist. CMS screens every complaint from a Medicare beneficiary or caregiver, an employee, or a concerned citizen received at its national 1-800-MEDICARE Contact Centers for information indicating suspicious behavior or potential fraud. In 2011 alone, nearly 50,000 complaints of potential fraud reported by beneficiaries and others to 1-800-MEDICARE passed initial screening and were evaluated further. The Fraud Investigation Database includes information on all investigations developed by CMS's program integrity contractors. The Compromised Numbers Checklist stores compromised physician and beneficiary identification numbers obtained through fraud investigations, security breach reports, and complaints from providers or beneficiaries.

- **FPS feedback on model outcomes**

The FPS complements its many prepayment claims analyses with the functionality to capture outcome information from FPS leads. Investigators and analysts review the results of FPS analytics to refine, enhance, and build new models. This feedback cycle allows CMS to continually expand and hone its analytics models based on changes in patterns of behavior and actual outcomes.

One Fraud Scheme's Cascading Impact

The FPS flagged a provider based on suspicious attributes. This flagged claim resulted in an investigation revealing that the provider was ineligible to enroll in Medicare. Subsequent data analysis uncovered other providers with similar characteristics, resulting in additional investigations and identifying a pattern of behavior suggesting a potential fraud scheme. Based on the investigation, CMS implemented a claims denial edit, preventing an estimated \$11.1 million in payments.

2.2. Stakeholder Collaboration Enhances the FPS

CMS continuously improves the FPS by enhancing existing predictive analytics models and adding new ones to the system. A rigorous governance process ensures that new ideas and innovations build on existing knowledge to produce critical and efficient targeting algorithms, which then can be incorporated quickly into the FPS. The FPS’s user community has rich knowledge and experience to apply to the system, and CMS has established an operational structure that encourages these partners to contribute ideas and innovations to make the FPS even stronger. Additionally, CMS has expanded its internal analytics team to create FPS models within the coordinated governance process and to monitor contractors effectively.

Governing FPS Innovation

CMS established a rigorous and structured governance process to provide oversight, management, and control of selecting and developing new models, model enhancements, and system changes to improve the FPS. This structure allows CMS to examine innovative ideas from multiple stakeholders and move

CMS developed complex and sophisticated FPS models as a result of nationwide implementation, strong stakeholder partnerships, and a rigorous governance process.

approved ideas into production to enhance the FPS. When the OIG, Government Accountability Office, and other investigators across the stakeholder community identify vulnerabilities or schemes, the FPS’s governance process enables CMS to address these vulnerabilities via effective fraud-detection models. The governance process converts modeling and analytics ideas from CMS’s community of fraud-

fighting stakeholders into models vetted for impact and effectiveness before they enter the FPS. CMS’s governance process is ongoing, with review timelines aligned with the FPS’s quarterly release cycles.

The governance process compels rigorous review of FPS models and model improvements before they enter the system (Figure 6).



Figure 6. Overview of the FPS Governance Process

The FPS Steering Committee champions the governance process and sets priorities for the FPS in the context of CMS’s overall fraud prevention efforts. The FPS Operations Board prioritizes vulnerabilities for predictive modeling and approves promotion of effective models and enhancements to production in the FPS. The Analytics Lab oversees rigorous phased testing to confirm new or enhanced models’ effectiveness and reports to the Operations Board before implementation in the FPS. The FPS Change Control Board assesses the level of effort required to implement each FPS model, model improvement, and system change and determines which ones to include in each quarterly release.

Multidisciplinary Expertise: CPI Analytics Lab

To provide effective oversight and input to the FPS, CMS assembled an expert, multidisciplinary team in the CPI Analytics Lab. These social science analysts are economists, statisticians, and programmers who research fraud indicators to uncover current and emerging fraud schemes. Supported by contractors, these CMS experts analyze the ways bad actors modify their behavior in response to national and regional fraud prevention efforts. The CPI Analytics Lab’s in-house experts perform business and statistical analyses of fraud-related data and FPS results, allowing the rapid development of FPS models.

Interaction between the FPS and the Field

FPS users—including CPI and other CMS components, law enforcement officials, CPI field offices, and the ZPICs—use the FPS in combination with other tools and systems to fight fraud. These stakeholders initiate innovative model concepts, which transition into the CPI governance structure for vetting and implementation. Moreover, CMS uses analysts’ and investigators’ reports of

fraud patterns, as well as results from previous FPS leads, to train and enhance FPS models. In turn, those who combat fraud in the field leverage the FPS's nationwide prepayment data and prioritized potential fraud leads to investigate schemes and take appropriate action.

Two of the major stakeholders regularly interacting with the FPS are the ZPICs and OIG's Office of Investigations.

- **Zone Program Integrity Contractors**

Once suspect behavior or billing activity is identified, CMS relies on ZPICs to perform specific program integrity functions for the Medicare FFS program. In addition to their existing sources, ZPICs now use the FPS as a primary source of leads to prevent, identify, and investigate fraud. The FPS screens claims data before payment is made, allowing ZPICs to rapidly implement a potential administrative action, such as prepayment review, revocation, or payment suspension, as appropriate. The FPS generates a prioritized list of leads for ZPICs to review and investigate

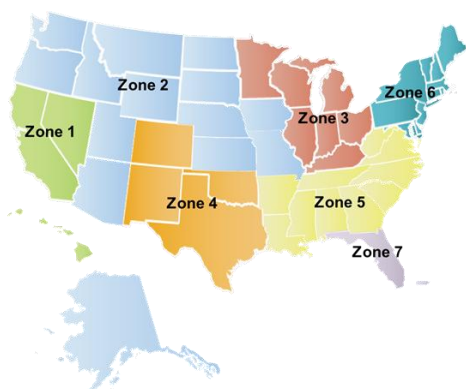


Figure 7. Map of the ZPIC Regions

and compiles details regarding a provider's behavior in a consolidated view. This enables the ZPICs to target their resources on suspect claims and providers and take administrative action when warranted. ZPICs use the FPS to more efficiently and effectively fulfill their responsibility to investigate Medicare fraud in their designated region (Figure 7). The FPS also gives CMS a provider-level view of ZPIC activities and administrative actions, making it a useful management tool.

- **HHS OIG Office of Investigations**

The HHS OIG Office of Investigations “conducts criminal, civil, and administrative investigations of fraud and misconduct related to HHS programs, operations, and beneficiaries.”⁶ The OIG Office of Investigations enhances its data analysis capabilities with direct access to the FPS. Furthermore, the OIG Office of Investigations participates in and supports a variety of CMS collaborative mission rotations. OIG fraud investigators are involved with discussing new FPS models, establishing

⁶ For more information about the HHS OIG Office of Investigations, see <http://oig.hhs.gov/about-oig/about-us/office-of-investigations.asp>.

investigative best practices, pursuing cases in real time with other stakeholders, and attending FPS-related training sessions.

Improving the FPS with User Feedback

Law enforcement entities, ZPICs, and CPI field offices are fraud investigation partners in both the field application of the FPS and in its improvement. The Analytics Lab coordinates collaboration with ZPICs and members of law enforcement. CMS meets with users biweekly to solicit ideas and apprise them of changes. In addition, CMS supports proactive communication with FPS users in guidance documents, collaborative mission rotations, and other forums. For example, the Analytics Lab meets with users monthly through a Vulnerabilities Workgroup to solicit ideas and describe upcoming models. During model development, model owners from the Analytics Lab invite partners with expertise in the relevant areas to participate in regular model workgroups and review model specifications. CMS incorporated many FPS enhancements ZPIC users had requested, often in the quarterly release cycle immediately following the request.

2.3. Leveraging Comprehensive Data and Growing in Sophistication

CMS can adapt the FPS to changing fraud schemes and the evolving health care environment. Flexible, scalable, and rapid technology solutions are necessary to keep pace with the new and varying fraud schemes criminals employ to circumvent existing fraud prevention and detection methods. CMS has demonstrated that it can add FPS model attributes quickly to identify and potentially prevent payment to fraudulent providers.

Adapting to Shifting Fraud Schemes with Sophisticated FPS Models

CMS designed the FPS to accommodate a variety of model types and thus to address multiple kinds of fraud schemes. FPS models build on one another in a continuum of sophistication, and models have the ability to evolve from one type to another as CMS collects more information and updates models. The four types of models, described below, are rules-based, anomaly detection, predictive, and social network analysis (Figure 8).

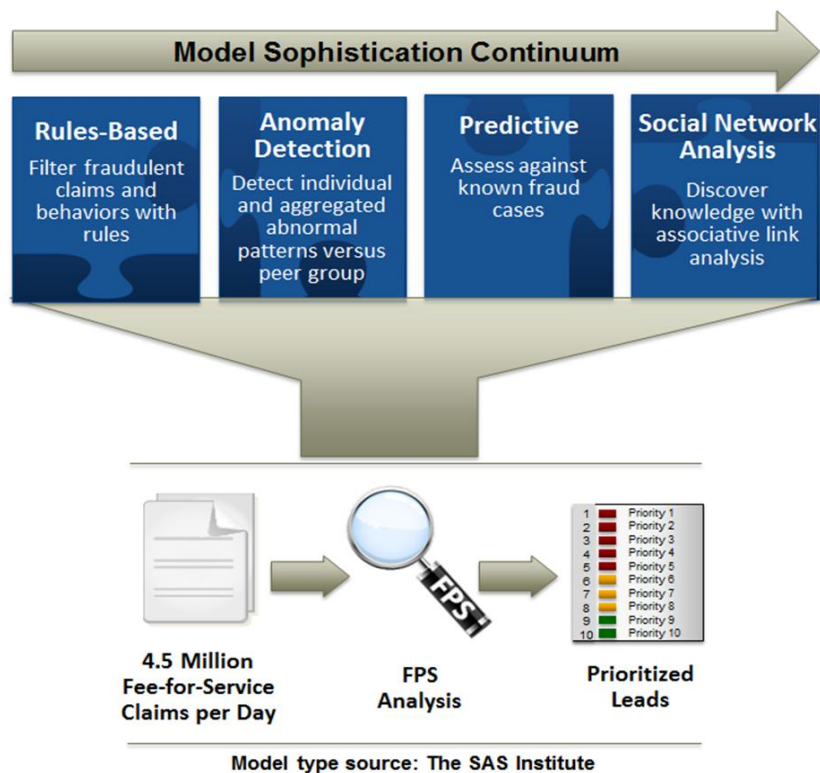


Figure 8. Four FPS Model Types Allow Flexibility and Robustness

- **Rules-based models**

Rules-based models are based on known patterns of fraud. They are simple yet robust screens filtering all claims for known types of fraud and patterns of potentially fraudulent behavior.
- **Anomaly detection models**

Sophisticated anomaly detection models define thresholds of acceptable behavior. They identify claims submission abnormalities by comparing an individual provider's behavior patterns through time and against aggregated patterns of a peer group. The complexities of medical claims mean that detecting and stopping fraud may require more sophisticated analyses than the rules-based models' simple "yes/no" decisions. Certain behaviors and characteristics that indicate potential fraud may also be indications of acceptable behavior. For example, if a provider bills for many more services than are normally performed by similar providers in a defined time period, the FPS can alert an investigator to inspect the claim prior to payment.

- **Predictive models**

CMS develops advanced predictive models based on past known fraud cases. Given the volume of fraud and the rapidly changing fraud environment, however, it can be challenging to find sufficient known cases with similar patterns, and models may need to start with limited information and develop or “learn” over time. The FPS can implement complex predictive models leveraging the common characteristics of providers in known fraud cases. Developing predictive models requires advanced analysis because a fraudulent claim may become apparent only when factors are considered in combination; whereas independently, those factors may not be suspicious.

- **Social network analysis models**

CMS built early “social network” capabilities into the FPS that have already identified linkages among potentially fraudulent subjects. Substantial improvements in sophistication are coming soon, when CMS will leverage the FPS to conduct even higher-level social network link analysis. The ability to link providers through their social networks helps CMS and its law enforcement partners unravel the complex relationships among fraudulent providers and between providers and beneficiaries.

Continuously Enhancing FPS Capabilities

The FPS was planned as a continuously improving system, expanding and growing in sophistication over time. CMS designed the FPS to incorporate improvements to both the models’ and the system’s functionality and required its contractor to implement 40 new or significantly improved models in the first year. This requirement was met with the implementation of 37 new or significantly improved models and 6 significant enhancements in the first year. Several of the new or significantly improved models were sophisticated predictive models for single-service areas that incorporated multiple risk factors within the single model. Through the governance process, CMS decided to add significant enhancements to the FPS’s functionality that allow users to more efficiently and effectively employ the results of the models. Examples of significant FPS functionality enhancements in the first year include:

- **Providing access to providers’ historical information** – Investigators can now view provider-specific aggregate information describing the provider’s past year of billing, referring, and enrollment characteristics. This access significantly reduced the investigation time as each ZPIC

previously had to pull this information from internal systems before starting investigative activities.

- **Improving business processes to support cross-zone investigations in new ways** – CMS redesigned many ZPIC processes, including the way ZPICs record accountability for following up leads and report outcomes from their work. The ZPICs now report provider-level activities and outcomes directly into the FPS, providing CMS real-time access to outcomes data rather than relying on aggregate monthly outcome submissions.
- **Building a dashboard to support ZPIC management** – The FPS now has a near real-time dashboard that presents critical metrics to CMS and ZPICs.

CMS makes these changes to the FPS through quarterly releases of major FPS enhancements as well as significant off-cycle developments as needed. The agency has the capacity to make existing FPS models more sophisticated over time; modelers can transform one type of FPS model into a more sophisticated model as data accumulate and reveal new patterns of potential fraud.

Leveraging the Integrated Data Repository to Enhance the FPS

The FPS streams, screens, and reduces large amounts of live claims data to identify suspicious patterns. A key resource that supports the FPS in analyzing nationwide claims and building models is the IDR, an existing and continuously expanding repository of nationwide Medicare claims data. CMS established the IDR in 2006 to provide a comprehensive view of data, including claims, beneficiary data, and drug information. The IDR is currently populated with seven years of historical Medicare Part A and Part B paid claims as well as Part D encounter data, and CMS is now integrating prepayment claims data. Just as important, the IDR combines both historical and current data, allowing CMS and FPS analysts to track patterns of fraud over time and to see how those patterns evolve.

The IDR can be accessed through multiple fraud analytics tools. For FPS model building, contractors and CMS analysts use a robust set of tools with broad analytics capabilities. This environment puts analysis and data mining capabilities in the hands of the modelers and stakeholders developing the FPS, allowing experts to explore data to develop and test predictive models, prototype future models, and identify ineffective models that are then removed from the system. The IDR enables contractors to work effectively, without incurring the expense of building another claims database for analytics.

The IDR can also be accessed through One Program Integrity (One PI), a centralized, Web-based portal that allows in-house CMS specialists, supporting contractors, and law enforcement to leverage sophisticated tools and methodologies to analyze program integrity data. One PI provides investigators with information critical to their work. CMS has been working closely with its law enforcement colleagues to provide One PI training and support. From October 2010 through the end of the FPS first implementation year, CMS has trained a total of 698 program integrity contractors and CMS staff, including 90 law enforcement personnel, to use the tools in One PI to access and analyze the data in the IDR.

2.4. Collaborative Mission Rotations: Where Field Investigation Meets Predictive Analytics

CMS strives for excellence in fraud detection and investigation and drives continuous innovation and improvement. Multidisciplinary teams, including ZPICs and law enforcement, join CPI in face-to-face collaborative mission rotations to develop consistent approaches for investigation and action.

“Participating in the mission rotations is extremely helpful to understand the FPS model development process. These rotations help me learn how to best pursue leads and allow me to collaborate with colleagues.”
– ZPIC Investigator

In the past, the process of investigating fraud situations and taking administrative actions required significant time and numerous handoffs. By bringing experts and decision-makers together in a pilot command center, CMS has proven that the cycle time for making decisions on payment suspensions, for example, can be reduced significantly.

During the FPS’s first implementation year, the regular stakeholder mission rotations proved integral to developing the FPS, building and refining predictive models, and implementing innovative, effective, consistent, and preventive approaches to fighting fraud (Figure 9). The clear value of the first-year collaborative mission rotations led CMS to implement a permanent Command Center in July 2012 to allow CPI data experts, “boots-on-the-ground” investigators, and other stakeholders to fight fraud in real time from a centralized location.



Figure 9. Mission Rotations Facilitate Collaboration

The centralized environment serves the purpose of continual enhancement of the FPS by allowing CMS to work closely with the ZPICs and other investigators and analysts. Rotating specialists, including CPI analysts and investigators from the central office and field offices; law enforcement analysts and investigators from the OIG, Federal Bureau of Investigation (FBI), and the Department of Justice (DOJ); clinical specialists; and CMS policy specialists, participate in analytics, investigative, operational, and training missions. The team-oriented approach supports development of models and investigative techniques and serves as a central resource for investigators and analysts working the operational missions. The FPS’s predictive analytics empowers teams to rapidly identify, share, and resolve suspect and fraudulent cases during the mission rotations.

Some collaborations during the first-year rotations resulted in new methods to identify and monitor FPS leads and ways to use the FPS to prioritize provider investigations. During one rotation, participants researched approximately 150 cases and captured more than 60 new FPS model ideas. In another rotation, participants collaboratively discussed more than 140 cases, directly resulting in two provider revocations, one of which included payment suspension. The rotations allow ZPICs to share best practices and inform their colleagues in other ZPICs about their fraud detection and prevention processes. CMS opened a permanent Command Center location in July 2012 to enhance the collaborative mission rotations and build upon progress from the first year.

The Value of Collaboration

A lead from a new FPS predictive model flagged a company as high priority for further investigation. Eighty percent of the company's Medicare reimbursements constituted highly suspicious activity, and the company was providing significantly more services for beneficiaries compared to similar companies. Interviews confirmed that beneficiaries did not receive the services billed. Furthermore, Medicare policy does not cover the type or frequency of service.

After collaboration with the OIG, CMS determined that the best action would be to impose a payment suspension. CPI consulted with OIG staff in the course of a mission rotation to establish that the suspension criteria had been met. Consequently, CMS implemented the payment suspension and subsequently revoked the company's billing privileges. CMS anticipates that preventing this fraudulent behavior will lead to savings to the Medicare Trust Funds.

3. FPS Outcomes

CMS's program integrity strategy is moving away from a "pay-and-chase" approach toward a more effective strategy that identifies fraud before payments are made, keeps ineligible providers and other bad actors out of Medicare in the first place, and uses administrative actions to stop payments to and/or remove wrongdoers from the program quickly once they are detected. Leveraging leads from the FPS, CMS and its contractors performed reviews and have stopped claims before payment and identified improper payments postpayment. To evaluate the impact of the FPS, the full range of actions and tools available for fraud fighting must be considered. Using the FPS, these proactive measures increasingly take place before payment is made.

Within the first year of implementing the FPS, CMS took administrative action against providers based solely on FPS leads. Through these actions, CMS saved an estimated \$115.4 million in payments, comprising \$31.8 million in estimated actual savings and \$83.6 million in estimated projected savings. The FPS also generated leads for 536 new ZPIC investigations, augmented information for 511 pre-existing investigations, and prompted 617 provider interviews and 1,642 beneficiary interviews to verify legitimate provision of Medicare services and supplies.

3.1. FPS Actual and Projected Savings

CMS leverages existing tools and FPS leads to accomplish important cost-saving objectives, removing bad actors from the system and taking away their ability to file claims. This action prevents improper disbursements of Medicare Trust Funds and enhances the quality of health care for Medicare beneficiaries. This move from "pay and chase" to prevention and detection necessitated a transition of the metrics used to determine savings.

The "pay-and-chase" model has been valued using the dollar value of recoveries. Providing a dollar value for a fraud prevention program, however, presents a new paradigm. When payments are never sent out and bad actors are prevented from future billings, the principal indicator of savings becomes cost avoidance. There are complex and evolving ways to measure cost avoidance used across many industries whenever payment preventive actions are required. Some of these methods help CMS answer the question: "What would have been paid, now and in the future, if the FPS had not flagged this claim?"

The SBJA requires that savings from the FPS be reported as "actual" and "projected." In this report, actual savings are those dollars avoided (never paid)

Fraud Prevention System – First Implementation Year

or recovered and returned to the Medicare Trust Funds during the first implementation year due to actions taken on FPS leads during that year. Projected savings are also realized from actions taken on FPS leads during the first implementation year, but they are not expected to be returned to the Medicare Trust Funds or anticipated to be avoided until a subsequent period. The estimated actual and projected savings of the CMS tools and FPS leads are shown in Table 1.

Table 1. Estimated FPS Savings by Savings Category

Category	\$ (Millions)	
	Actual Savings	Projected Savings
Cost Avoidance from Revoking Provider Billing Privileges*	\$7.3	\$6.6
Cost Avoidance from Changes in Behavior*	6.7	4.4
Amount Denied by Prepayment Edits	11.5	–
Billed Amount Denied by Auto-Denial Edits	4.7	–
Payment Suspensions	1.6	–
Sentinel Effect	Not estimated	Not estimated
Amount of Overpayments Referred for Recovery	–	4.4
Value of Law Enforcement Referrals	–	68.2
Estimated Savings	31.8	83.6
Total Estimated Savings	\$115.4	

* Avoided costs are estimated and reported as actual and projected savings. Industry-established models and standards for measuring cost avoidance as a preventive tool are challenging and continue to develop. Cost avoidance is an estimate of the amount that would have been paid to a provider during the 12 months following an administrative action, had that action not taken place. Examples of these actions include revocation of a provider’s billing privileges or changes in provider behavior following an administrative action such as an auto-denial edit or payment suspension. Capturing the value associated with these actions is critical to capturing the ROI of a prevention system like the FPS. Estimates, by their very nature, require both assumptions and a defined set of limitations. Cost avoidance estimations have additional complexities since they estimate the value of activity that did not take place, but would have occurred if CMS had not implemented an action.

Actual Savings

Actual savings are those dollars avoided (never paid) or recovered and returned to the Medicare Trust Funds during the first implementation year due to actions taken on FPS leads during that year.

“Actual savings with respect to improper payments avoided” include costs avoided due to revoking providers’ billing privileges, costs avoided due to clear changes in providers’ billing behaviors, claims denied through prepayment edits and auto-denial edits, and dollars held due to payment suspensions. These dollars total an estimated \$31.8 million for the FPS’s first implementation year.

The most effective prevention tool is revoking the billing privileges of providers who are known bad actors. Removing bad actors from the Medicare program accomplishes the goal of preventing future improper payments rather than chasing potentially fraudulent or ineligible providers after payment has been made. When CMS revokes a provider’s billing privileges, additional fraudulent claims are never attempted. Therefore, cost avoidance is calculated in terms of estimated savings after a revocation becomes effective. The value is estimated based on a conservative cost avoidance calculation methodology using claims history to project costs as if providers had continued their existing billing patterns or behavior. These savings correspond with the common-to-leading practices used by many commercial plans.⁷

The cost avoidance methodology used in the *FPS First Implementation Year Report* is comparable to methodologies used by commercial payers. Commercial payers’ prevention savings calculations focus on estimating the difference between actual claim payments and what would have been paid if errant claims were not identified and corrected.⁸ For this *FPS First Implementation Year Report*, CMS is calculating cost avoidance for administrative actions that revoked billing privileges or significantly and measurably altered billing behaviors for particular items.

During the first year of FPS implementation, CMS avoided actual costs of an estimated \$14.0 million, of which \$7.3 million were saved by provider revocations based on FPS leads and \$6.7 million were due to changes in behavior. Cost avoidance is the amount that would have been paid to a provider during the 12 months following an administrative action. Avoided costs included in the category “actual savings” are the portion of the cost avoidance realized during the first implementation year.

For prepayment and auto-denial edits, MACs may deny payment for submitted claims based on a variety of system edits. Auto-denial edits automatically deny

⁷ Information on commercial payers’ common-to-leading cost avoidance methodologies derives from discussions with Accenture, a management consulting and technology services leader that works with companies across the health care industry, including 21 of the 25 largest health care payers in the United States.

⁸ Information on commercial payers’ prevention savings calculations derives from discussions with Accenture and is based on its experience working with health plans to calculate and measure the savings.

all or part of a claim. Prepayment edits can be put in place to automatically flag all or part of a claim or automatically hold payment of all or part of a claim. Claims flagged by the edit are set aside so a trained clinician or claims analyst can review the claim and associated documentation. Once the review is complete, the claim is either paid or denied based on medical review. For example, in one situation, an FPS lead resulted in a national edit on a specific billing practice. As a result of the auto-denial edit, providers immediately ceased the fraudulent billing practice; thus, a savings calculation is used to assess the full impact of the edit.

The savings for auto-denial edits represent the billed amount denied during the reporting period by auto-denial edits implemented based on FPS leads. Only the portion of the claim that was denied is reported. The savings for prepayment edits represent the total amount denied during the reporting period by prepayment edits implemented based on FPS leads. If only a portion of a claim is denied by an edit, only the portion that is denied is included in the dollar amount.

Based on investigations triggered by FPS leads, CMS stopped payments worth an estimated \$16.2 million using auto-denial and prepayment edits in the first FPS implementation year.

For payment suspensions, CMS stops payments for a specified time period, encompassing claims that may have been processed but not yet paid. CMS and its contractors may initiate a payment suspension based on two separate payment suspension authorities: suspension of Medicare payments pending investigation of credible allegations of fraud⁹ and reliable evidence of overpayment.¹⁰ Based solely on FPS leads, CMS implemented payment suspensions that stopped an estimated \$1.6 million in payments during the first implementation year.

Manual reporting processes by contractors to CMS of auto-denial edits, prepayment edits, and payment suspension measures may introduce risk to accuracy and timeliness. CMS will develop options for new data collection and reporting requirements during the second year of FPS implementation.

“Actual savings with respect to improper payments recovered” are those dollars returned to the Medicare Trust Funds by overpayment recoveries or resolution

⁹ Affordable Care Act (P.L. 111-148 and P.L. 111-152, §6402(h)(1); 42 U.S.C. §1395y(o)). A suspension under this basis lasts for up to 18 months and can be extended under certain circumstances if “good cause” is shown.

¹⁰ 42 C.F.R. § 405.371(a)(1). A suspension under this basis lasts for an initial period of 180 days and may be extended in 180-day increments under certain circumstances.

of cases referred to law enforcement. While CMS has recovered funds from providers, the agency does not currently track recoveries by overpayment determination source; therefore CMS is currently unable to report actual recoveries specific to FPS leads. Further, savings attributable to law enforcement referrals require resolution of the cases, which is ongoing; therefore, CMS is currently unable to report actual recoveries from resolution of law enforcement cases.

An additional benefit of the FPS is the positive sentinel effect caused by its implementation. Sentinel effect measures the deterrence or reduction in fraudulent behavior across the provider population resulting from awareness of the FPS program and any perceived increased risk of detection. Since this type of behavior change is difficult to measure, no dollar value can be assessed in the first year to account for the sentinel effects of this benefits category.

Furthermore, given the scope and breadth of the fraud prevention efforts CMS has launched, it is difficult to isolate the sentinel effect attributable solely to the FPS. Although CMS cannot estimate the dollar-value savings of benefits for this category, the FPS is a significant part of fraud-fighting efforts that undoubtedly deters some who might consider attempting to defraud Medicare.

Projected Savings

Like actual savings, projected savings also derive from FPS-based actions that occurred in the first implementation year, but the savings are anticipated to be returned to the Medicare Trust Funds or anticipated to be avoided at some point beyond the first year.

“Projected savings due to improper payments recovered” include dollars expected to be returned to the Medicare Trust Funds. These include overpayment determinations referred to the MACs for recovery and the estimated value of law enforcement referrals.

An overpayment is the value of excess payments made to a provider for items or services determined to be medically unnecessary or incorrectly billed. The value of the payments is based on Medicare-approved amounts and the actual payments made. ZPICs report both the number of providers and the dollar value of overpayments referred to the MACs for recovery. The associated dollar value includes all overpayments referred during the reporting period. ZPICs calculate the overpayments based on guidance in the *CMS Medicare Program Integrity Manual*. For future years, CMS will explore ways to track actual recovery dollars. Such changes to CMS’s processes and systems will improve HHS’s ability to more

accurately report recoveries by each identified source across CMS, including from FPS leads.

When a ZPIC refers a case to law enforcement for criminal or civil investigation, it calculates the estimated value of the case and reports it to CMS. The estimate of the case value is based on claims data associated with the case. To avoid double-counting, the dollar value reported here does not include overpayment amounts referred to the MACs for recovery. CMS will work closely with law enforcement to refine this measure and its associated methodology for future years' reporting. This will require analysis of historical data to estimate the proportion of claims associated with referrals to law enforcement that are recovered.

“Projected savings due to improper payments avoided” include an estimated \$83.6 million in payments avoided due to revocations and changes in provider behavior. Actions taken in the first implementation year could prevent payments that otherwise might be paid in a subsequent period. Leveraging the first-year experience, CMS will continue to refine the cost avoidance methodology and approach to improve estimates.

3.2. FPS Return on Investment

The SBJA requires that return on investment for the FPS be calculated as the actual and projected savings compared to the costs expended to achieve these savings. For every dollar spent on the FPS in its first implementation year, CMS estimates that more than three dollars were saved.

FPS Benefits and Savings

As detailed above in Section 3.1, FPS benefits and savings included in the ROI calculation result from revocation of billing privileges, edits, payment suspensions, overpayment determinations, and referrals to law enforcement. As discussed, savings are calculated in two categories: actual savings and projected savings. The total savings attributed to the FPS analytics technology in the first year of implementation are an estimated \$115.4 million, as shown in Table 2.

Table 2. Summary of Estimated FPS Savings

Category	\$ (Millions)
Actual Savings	\$31.8
Projected Savings	83.6
Total Estimated Savings	\$115.4

FPS Costs

Costs incurred in the first year of FPS implementation fall into three primary categories: FPS contractor costs, FPS-related CMS management costs, and ZPIC costs incurred in investigating and acting upon FPS-generated leads.

- FPS contractor costs**

Contract costs for the Development Contractor and the Modeling Contractor cover the periods from contract start through the end of the first implementation year. Costs included in the calculation are contractually committed amounts.
- CMS management costs**

Management costs cover CMS staff supporting the FPS during its first implementation year. These costs include the estimated salaries and benefits for 15.25 full-time equivalents (FTE) at \$129,157 per FTE, along with an associated overhead factor of 15 percent representing office expenses, training, travel, and other expenditures, for a total of \$148,531 per FTE. The total CMS management costs are an estimated \$2.3 million, or \$148,531 each times 15.25 FTEs.
- Investigation costs**

An estimated portion of the ZPIC costs is included since a portion of their time is spent acting upon FPS leads. These costs are estimated by calculating the percentage of total ZPIC investigations created from new FPS leads and multiplying that percentage by their total investigator costs.¹¹ Compared to their duties enrolling providers and processing CMS’s 4.5 million claims per day, the MACs’ workload processing FPS-generated edits and revocations is negligible.

Total costs associated with the FPS in the first implementation year are an estimated \$34.7 million, as shown in Table 3.

¹¹ The category “Investigation Costs” is an estimate of FPS-related investigative costs for ZPICs. ZPICs continued to work FPS leads through the FPS first implementation year as part of their investigative workload and did not report costs directly related to leads generated by this system.

Table 3. Estimated FPS Costs

Category	\$ (Millions)
FPS Contractor Costs	
Development Contractor Costs	\$26.9
Modeling Contractor Costs	3.6
CMS Management Costs	
Salaries (Government FTE) with Benefits and Other Indirect Costs, Including Training and Travel	2.3
Investigation Costs	1.9
Total Estimated Costs	\$34.7

CMS will consider additional costs, including administrative and indirect costs, in future years.

ROI Calculation

In accordance with the SBJA, the FPS’s return on investment is calculated as the actual and projected savings compared to the costs expended to achieve the savings. An ROI greater than 1 indicates that benefits or savings outweigh the costs—for example, \$30/\$15 is an ROI of 2 to 1, or \$2 saved for every \$1 expended. Typically, the ROI in the early years of a system’s implementation is expected to be lower than in future years due to the inherent up-front costs that normally outweigh the realized benefits whenever a new system such as the FPS is implemented.

For its first implementation year, the FPS reported saving an estimated \$115.4 million through FPS activities with an estimated cost of \$34.7 million, for an estimated ROI of 3.3 to 1, as summarized in Table 4.

Table 4. Calculation of Estimated Return on Investment

Category	(\$ Millions)
Actual and Projected Savings	\$115.4
Total Costs	\$34.7
Estimated Return on Investment: 3.3 to 1	

3.3. FPS Complements Other Strategies to Detect Medicare Fraud

CMS designed the FPS to complement and enhance existing programs and technologies that fight fraud. CMS’s traditional fraud-fighting methods focused

primarily on postpayment and regional efforts by law enforcement and investigators. Now, the FPS fills a critical void in the existing claims analysis process, enhancing the efforts of existing fraud-fighting teams by working regionally as well as nationally, and both prior to and after payment (Figure 10).

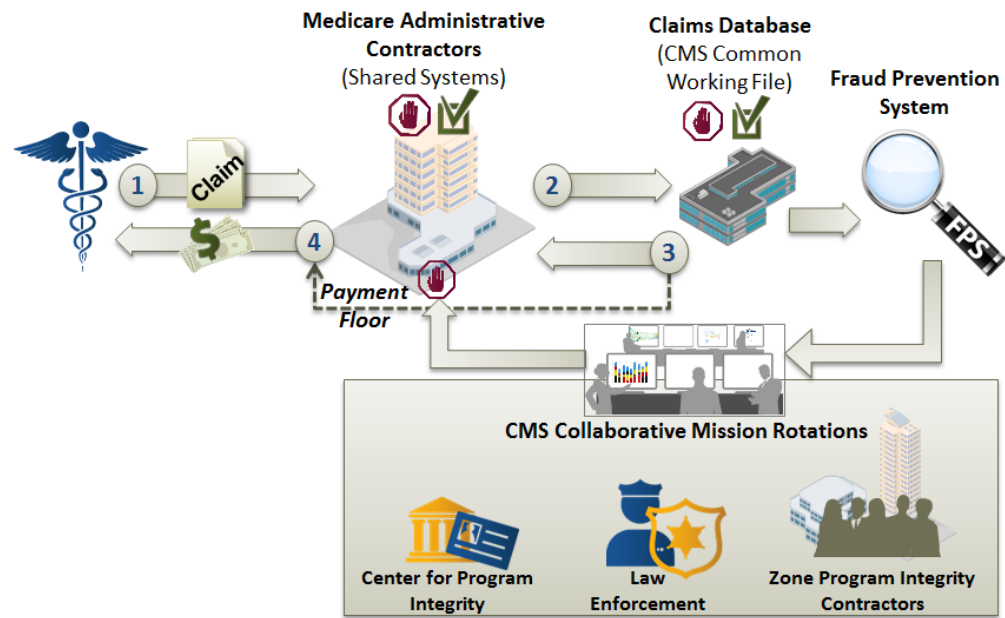


Figure 10. Claims Analysis Process Leverages the FPS

Expanding Law Enforcement and Investigator Capabilities

CMS has always supported effective investigations by its law enforcement partners. Now, the FPS enhances this support by providing investigators with the ability to access additional supporting information and analytic tools. Moreover, using the FPS during mission rotations has increased the ongoing collaboration of law enforcement officials and investigators.

In addition to law enforcement, CMS has multiple regional contractors who screen for fraud as part of their tasking. MACs use several types of edits to evaluate a claim's medical necessity prior to payment. MACs, however, lack the ability to perform nationwide claims analysis to identify fraud prepayment. Postpayment, Medicare's Recovery Audit Contractors (RAC) also work at the regional level. When they identify fraud, they refer cases to ZPICs for investigation. Historically, the bulk of ZPIC activities had been postpayment and regionally dispersed.

The FPS significantly expands CMS’s abilities to fight fraud nationally and with a prepayment focus—in the domains where traditional tools were not fully adequate.

Enhancing Dollar Impact

In the past, the government was often two or three steps behind fraud perpetrators, quickly paying out nearly every apparently proper claim and then later trying to track down the bad actor after receiving a tip or identifying a problem. When CMS prevents fraud prepayment, it eliminates the arduous, time-consuming, and costly recovery process. Experience shows that recovering disbursed funds in fraudulent situations is expensive and challenging and that only a fraction of disbursed funds is ever recovered. Fraud prevention averts the distribution of Medicare Trust Funds, and the FPS helps CMS prevent fraud and avoid the high costs, losses, and effort inherent in the recovery process.

FPS Compares Favorably to Other Fraud-Fighting Efforts

As required under the SBJA, CMS has sought to compare the FPS’s actual and projected savings to savings attributable to other strategies or technologies used to prevent and detect fraud, waste, or abuse in the Medicare FFS program. Because the FPS’s predictive analytics technology is CMS’s first technology systematically preventing and detecting fraud in the prepayment domain, direct comparisons are difficult to identify. During the FPS’s first year of operation, CMS expended approximately \$34.7 million and achieved an estimated \$115.4 million in actual and projected savings, for an ROI of \$3.3 for every dollar invested. The agency compared the FPS’s ROI to ROIs of other strategies and technologies in their first year of implementation. This methodology ensures an appropriate comparison, as the first year of a new strategy or technology is likely to produce a lower ROI than in future years due to start-up time and costs.

In its first implementation year, the FPS’s ROI was comparable to or outperformed at least one major strategy or technology used to prevent and detect fraud, waste, or abuse in the Medicare FFS program, when measured across its first year of implementation. That is, the first-year ROI for the Health Care Fraud and Abuse Control (HCFAC) program was \$1.3 for every dollar invested. In that program, the government invested \$104 million and realized

\$131 million in return. Returns included judgments, settlements, and administrative impositions in health care fraud cases and proceedings.¹²

3.4. Impact on Medicare Beneficiaries and Providers

CMS is committed to providing quality health care services to beneficiaries while reducing fraud to save money for taxpayers. CMS is also committed to reducing administrative and compliance burdens on legitimate providers. The FPS governance process ensures that the system’s predictive models and other sophisticated analytics minimize impact on beneficiaries and legitimate providers and do not adversely affect the quality of health care.

Fraud’s Negative Impact on Beneficiaries

Reducing fraud contributes to ensuring that beneficiaries have access to quality health care. Fraud can inflict real harm to Medicare patients. When fraudulent

Fraudulent Behavior Harms Beneficiaries

A dermatologist surgically removed benign skin lesions from numerous patients and fraudulently billed insurers for these medically unnecessary services. The dermatologist also re-used sutures on multiple patients. In this example, patients endured the risks and trauma of unnecessary surgery. Moreover, this fraudulent supplier put patients at risk of transmissible diseases, including HIV and hepatitis C.

Source: HCFAC Report for FY 2011

providers give unnecessary or substandard care, Medicare beneficiaries do not receive the quality health care they deserve. When fraudulent providers prescribe dangerous drugs without thorough examinations or medical necessity, Medicare beneficiaries are at risk. When fraudulent providers steal a beneficiary’s identity and bill for services or goods never received, the beneficiary may later have difficulty accessing needed and legitimate care. When fraudulent providers perform medically unnecessary tests, treatments, procedures, or surgeries, Medicare beneficiaries suffer real, tangible harm. While not all cases of fraud cause direct harm to beneficiaries, when harm occurs, there are direct human costs.

By preventing health care fraud, the FPS ensures that beneficiaries across the

¹² HCFAC program FY 1997 ROI calculated by CMS from investment and return figures in U.S. Department of Health & Human Services and U.S. Department of Justice, *Health Care Fraud and Abuse Control Program: Annual Report For FY 1997*, January 1998; available at <http://oig.hhs.gov/publications/docs/hcfac/HCFAC%20Annual%20Report%20FY%201998.htm#b>.

Medicare system are less exposed to risks and harm from fraudulent providers, providing them reliable access to quality health care from legitimate providers.

Medical Identity Theft a Real Risk

Medical identity theft victims are often targeted by people known to them.

One man was victimized by his own brother. In 2011, a man was convicted of stealing his brother's medical information and using it for surgery covered under his brother's insurance.

In addition to the fraud, the victim's medical records incorrectly included his brother's HIV-positive status, putting the victim at risk of receiving medically unnecessary drugs or procedures.

Medical identity theft cases illustrate how the FPS safeguards Medicare beneficiaries from the potential harm fraudulent providers may inflict. A patient whose medical identity has been stolen may suffer from a range of financial and social harms common to any type of identity theft. But medical identity theft can also have life-threatening consequences. If a beneficiary's medical records are stolen and merged with the thief's, the beneficiary may be at risk for serious medical consequences such as erroneous blood type, allergic reactions, or refusal of needed medical services.

The FPS directly addresses one form of medical identity theft by organizing data

to quickly show when two providers on opposite ends of the country are billing Medicare on behalf of the same beneficiary, rooting out potential compromised beneficiary numbers and other fraudulent activity. The FPS ensures that all claims are compared to existing sources of compromised medical identities. By rapidly spotting claims submitted under a compromised number, the FPS enables CMS's law enforcement partners to move quickly against medical identity theft and reduces beneficiary risk of harm from this type of health care fraud.

Focusing on Fraudulent Providers

CMS is committed to ensuring that fraud prevention efforts do not place unnecessary administrative and compliance burdens on legitimate providers nor interfere with their business operations. The FPS is

Fraud Puts Patients at Risk

A physician in Nevada carried out a fraud scheme to upcode radiation services and unbundle procedure codes to receive larger reimbursement amounts. These medically unjustified procedures subjected patients unnecessarily to the risks of radiation and put some at risk for complications from contrast dyes used in the procedures.

Source: HCFAC Report for FY 2011

Fraud Prevention System – First Implementation Year

designed to function within the congressionally mandated Medicare payment window of 14 to 30 days, preventing payment delays to legitimate practitioners. Providers have expressed their appreciation for CMS's judicious approach of seeking to achieve important anti-fraud objectives while supporting legitimate providers and eliminating unnecessary compliance burdens.

4. Beyond the First Year: More Models and More Data to Combat Fraud

CMS implemented the FPS as a key component of a comprehensive and innovative program integrity strategy to focus efforts on preventing fraud. To continue building the FPS, CMS, anti-fraud investigators and analysts, and other stakeholders have identified FPS enhancements for CMS to implement over the next year.

Enhancements planned for the second year of FPS operations will continue expanding FPS capabilities and targeting fraudulent providers and claims. As the FPS evolves, investigators will have even more data at their fingertips to stop payment and revoke bad actors more quickly. This section describes the enhancements planned for the FPS in its second year and years to come.

Enhancing FPS Integration with the Medicare Claims Processing System

CMS intends to enhance the integration of the FPS and the claims processing system. Currently, the FPS receives data directly from the claims processing system before payments are made. This direct data receipt allows ZPICs to implement a payment suspension or establish an edit to stop payments through their existing processes with other Medicare contractors. In the second year, CMS expects the FPS to stop payment of certain improper claims, without human intervention, by communicating a denial message to the claims payment system. Through this enhanced integration, CMS will deny certain improper claims, such as those that are medically unbelievable. Unlike CMS's current claim edit modules, the FPS is uniquely capable of evaluating claims for episodes of care that span multiple legacy claims processing systems as well as those that span multiple visits over a period of time.

Monitoring FPS Leads

CMS will continue its critical role of monitoring the process of investigating and taking action on FPS leads. Measures of these processes are grouped into categories of interviews and results of FPS leads. Interviews include numbers of beneficiary interviews and provider interviews. Results of FPS leads include number of FPS leads in program integrity contractors' workloads for resolution, number of FPS leads resulting in new investigations, number of FPS leads supporting existing investigations, number of FPS leads resulting in administrative action, and number of FPS leads resolved without administrative action. These process measures, summarized in Appendix D, Table D-3, will be

refined and tracked by geographic area to monitor program integrity contractors' workloads based on FPS leads. Improved tracking of FPS process measures and FPS leads, including those referred to law enforcement, will allow CMS to better estimate program savings in future years.

Integrating the Twin Pillars

CMS will further integrate the FPS and APS fraud-fighting tools. As described in Section 1, the APS system identifies ineligible providers prior to their enrollment or revalidation. Even though CMS developed the FPS and APS separately, it designed them as complementary systems that would be integrated into one overall program and work in tandem. The FPS and the APS will interact and feed information into one another regarding suspect providers or claims, creating a truly integrated data management and analysis capability. Results from FPS-generated leads will provide training data for sophisticated models that support provider screening rules. In turn, APS screening results will inform both FPS models and investigators using the system, providing rich, additional information about a provider's background and relationships. Together, these innovative systems are growing in their capacity to protect patients and taxpayers from those intent on defrauding Medicare.

Expanding and Enhancing FPS Models

In the second year, CMS expects to nearly double the number of models currently in the FPS. It will continue to enhance the current models, making them more sophisticated and incorporating more and better data. During the FPS's first year, anti-fraud experts analyzed FPS data to uncover new information about known fraud patterns and indicators. As this knowledge increases, CMS will refine many of the existing models and use more complex algorithms to more accurately target providers with aberrant billing patterns.

The improved models will provide more precise categorization of top-priority leads, allowing investigators to make the most efficient use of their time and resources. CMS will develop these model enhancements using ideas refined as stakeholders collaborate to brainstorm innovative ways to detect fraud. Model enhancements will also rely upon expert analyses of the FPS's first year of data and outcomes to reveal new patterns of fraud. CMS and contractors will build the models using the same rigorous and structured governance process described in Section 2.

Improving ZPIC Reporting

The FPS provides CMS and investigators with a highly improved management reporting system that can provide real-time information on a nationwide basis at the provider level. The system enhances overall case management and provides centralized dashboard reporting. Neither capability previously existed.

In the upcoming year, the FPS will facilitate the ZPICs' reporting process by capturing details surrounding the ZPICs' administrative actions. CMS has been working closely with the ZPICs as they transition to using the FPS to manage their investigation workloads. The FPS provides tremendous value beyond its analytics capabilities with its highly improved reporting capability that captures real-time counts of activities and actions ZPICs take at the provider level. Additional detail associated with the ZPICs' actions will allow CMS to gain quick access into near real-time activity of the ZPICs and inform management decisions. The FPS will also enhance the case management the ZPICs perform. Capturing more detail in the FPS at a system-wide level will allow CMS and the ZPICs to better coordinate their fraud-fighting activities, improve communication among the investigators, monitor the process of implementing actions, and lead to more precise understanding and measures of the investigations' effectiveness.

Expanding Collaboration

CMS will expand its collaboration with OIG in the second year through OIG participation in Command Center missions and exploration of enhanced data integration. CMS will invite OIG to participate in all types of missions, including model development, investigative approach best practices, operational missions, and training. CMS will also work with OIG to determine how to better leverage the FPS and the APS to efficiently accomplish their joint goals.

Going forward, CMS will continue to communicate with the provider community through fraud prevention summits, existing coordination calls, and presentations. CMS will also explore ways to collaborate with providers on the identification of new fraud trends.

Exploring Predictive Analytics in Medicaid

CMS is actively pursuing ways to apply advanced data analytics technology, including predictive analytics, to the Medicaid program. Under the SBJA, CMS is required to complete an analysis of the cost-effectiveness and feasibility of expanding predictive analytics technology to Medicaid and the Children's Health Insurance Program (CHIP) after the third implementation year of the FPS. Based on this analysis, the law requires CMS to determine whether to expand

predictive analytics to Medicaid and CHIP by April 1, 2015. Although Medicaid is administered and organized in a distinctly different way than Medicare, CMS anticipates that there are opportunities to transfer the knowledge and lessons learned about Medicare through the FPS to states for uses applicable to Medicaid. Currently, CMS is working to identify specific FPS algorithms relevant to Medicaid and planning to conduct an analysis of one state's Medicaid claims data using the identified algorithms. Once this analysis is complete, CMS will share the results with that state.

Summary

Medicare provides health insurance to millions of Americans who depend on the program to receive the essential health care they need. To support the momentum gained in the first implementation year of the FPS, CMS will continue to implement a wide range of enhancements and refinements to the FPS aimed at eliminating payments to fraudulent actors through aggressive actions to prevent and detect their activities. As an innovative prevention and detection anti-fraud tool, the FPS will provide increasing program integrity protections to Medicare and its beneficiaries for a long time to come.

**Appendix A. Inspector General of the Department of Health
& Human Services: Certification of the *Report to Congress:*
*Fraud Prevention System – First Implementation Year***



DEPARTMENT OF HEALTH AND HUMAN SERVICES

OFFICE OF INSPECTOR GENERAL

WASHINGTON, DC 20201



SEP 27 2012

TO: Marilyn Tavenner
Acting Administrator
Centers for Medicare & Medicaid Services

FROM: Daniel R. Levinson *Daniel R. Levinson*
Inspector General

SUBJECT: *OIG Final Report: The Department of Health and Human Services Has Implemented Predictive Analytics Technologies But Can Improve Its Reporting on Related Savings and Return on Investment (A-17-12-53000)*

The attached final report provides the results of our review of the Department of Health and Human Services' (the Department) use of predictive modeling and other analytics technologies (predictive analytics technologies) to (1) identify improper Medicare fee-for-service claims that providers submit for reimbursement and (2) prevent the payment of such claims. The Small Business Jobs Act of 2010 requires the Inspector General of the Department to certify the actual and projected improper payments recovered and avoided and the return on investment related to the Department's use of predictive analytics technologies in the Medicare fee-for-service program.

Section 8L of the Inspector General Act, 5 U.S.C. App., requires that the Office of Inspector General (OIG) post its publicly available reports on the OIG Web site. Accordingly, this report will be posted at <http://oig.hhs.gov>.

If you have any questions or comments about this report, please do not hesitate to call me, or your staff may contact Kay L. Daly, Assistant Inspector General, at (202) 619-1157 or through email at Kay.Daly@oig.hhs.gov. Please refer to report number A-17-12-53000 in all correspondence.

Attachment

cc:

Ellen G. Murray
Assistant Secretary for Financial Resources and
Chief Financial Officer
Department of Health and Human Services

Peter Budetti
Deputy Administrator for Program Integrity
Centers for Medicare & Medicaid Services

Department of Health and Human Services
**OFFICE OF
INSPECTOR GENERAL**

**THE DEPARTMENT OF HEALTH AND
HUMAN SERVICES HAS
IMPLEMENTED PREDICTIVE
ANALYTICS TECHNOLOGIES BUT
CAN IMPROVE ITS REPORTING ON
RELATED SAVINGS AND
RETURN ON INVESTMENT**

*Inquiries about this report may be addressed to the Office of Public Affairs at
Public.Affairs@oig.hhs.gov.*



Daniel R. Levinson
Inspector General

September 2012
A-17-12-53000

Office of Inspector General

<http://oig.hhs.gov>

The mission of the Office of Inspector General (OIG), as mandated by Public Law 95-452, as amended, is to protect the integrity of the Department of Health and Human Services (HHS) programs, as well as the health and welfare of beneficiaries served by those programs. This statutory mission is carried out through a nationwide network of audits, investigations, and inspections conducted by the following operating components:

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The Office of Audit Services (OAS) provides auditing services for HHS, either by conducting audits with its own audit resources or by overseeing audit work done by others. Audits examine the performance of HHS programs and/or its grantees and contractors in carrying out their respective responsibilities and are intended to provide independent assessments of HHS programs and operations. These assessments help reduce waste, abuse, and mismanagement and promote economy and efficiency throughout HHS.

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The Office of Evaluation and Inspections (OEI) conducts national evaluations to provide HHS, Congress, and the public with timely, useful, and reliable information on significant issues. These evaluations focus on preventing fraud, waste, or abuse and promoting economy, efficiency, and effectiveness of departmental programs. To promote impact, OEI reports also present practical recommendations for improving program operations.

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The Office of Counsel to the Inspector General (OCIG) provides general legal services to OIG, rendering advice and opinions on HHS programs and operations and providing all legal support for OIG's internal operations. OCIG represents OIG in all civil and administrative fraud and abuse cases involving HHS programs, including False Claims Act, program exclusion, and civil monetary penalty cases. In connection with these cases, OCIG also negotiates and monitors corporate integrity agreements. OCIG renders advisory opinions, issues compliance program guidance, publishes fraud alerts, and provides other guidance to the health care industry concerning the anti-kickback statute and other OIG enforcement authorities.

EXECUTIVE SUMMARY

BACKGROUND

The Small Business Jobs Act of 2010 (the Act) requires the Department of Health and Human Services (the Department) to use predictive modeling and other analytics technologies (predictive analytics technologies) to (1) identify improper Medicare fee-for-service claims that providers submit for reimbursement and (2) prevent the payment of such claims. To implement predictive analytics technologies, the Centers for Medicare & Medicaid Services (CMS), which administers Medicare, developed the Fraud Prevention System (FPS). In the Department's *Report to Congress: Fraud Prevention System First Implementation Year* (the first implementation report), mandated by the Act, CMS reported that it uses the FPS to review in real time all Medicare fee-for-service claims before payment. The FPS reviews claims processed nationwide.

Not later than 3 months after the completion of the first implementation year (July 1, 2011, through June 30, 2012), the Office of Inspector General (OIG) of the Department must certify the actual and projected improper payments recovered and avoided and the return on investment related to the Department's use of predictive analytics technologies in the Medicare fee-for-service program. OIG must do this for the first 3 implementation years. OIG must also recommend whether the Department should continue, expand, or modify its use of predictive analytics technologies.

OBJECTIVES

Our objectives were to determine whether the Department: (1) complied with the requirements of the Act for reporting actual and projected improper payments recovered and avoided in the Medicare fee-for-service program and its return on investment related to its use of predictive analytics technologies and (2) should continue, expand, or modify its use of the FPS to increase savings or mitigate any adverse impact on Medicare beneficiaries or providers.

SUMMARY OF FINDINGS

In the first year of its implementation of the Act's requirements, the Department has implemented predictive analytics technologies, but it did not fully comply with the requirements for reporting actual and projected improper payments recovered and avoided in the Medicare fee-for-service program and its return on investment related to its use of predictive analytics technologies. Reporting such amounts in accordance with the requirements is inherently challenging because, primarily, it is a new venture and because of the decentralized nature of the FPS business processes. The Department did not report some of the amounts required and had inconsistencies in its data; in addition, its methodology for calculating other reported amounts included some invalid assumptions that may have affected the accuracy of those amounts. In these cases, we could not determine the accuracy of the Department's information, which impeded our ability to quantify the amount of the inaccuracies noted in this report.

Although we could not determine whether the savings-related information that the Department reported was accurate, using the FPS will help the Department combat fraud, waste, and abuse in the fee-for-service program. The Department has integrated the FPS into its overall fraud prevention strategy, and the FPS now covers all 50 States, the District of Columbia, and the territories. In its first implementation report, the Department has described its plans to expand and enhance the FPS. We expect to analyze any modifications or refinements in future implementation years.

RECOMMENDATIONS

Developing initial year measurements for actual and projected savings and cost avoidance that have accrued from the use of predictive analytics is inherently difficult, and we recognize that refining such measures will be challenging. To help the Department address this challenge and improve its reporting on these measures, we recommend that the Department:

- require contractors to track recoveries that result from FPS leads;
- coordinate with law enforcement to enhance reporting of investigative and prosecutorial outcomes in cases predicated on referrals from the FPS;
- revise the methodology used to calculate projected savings with respect to improper payments avoided to recognize that
 - some of the services associated with prior-year claims submitted by a revoked provider may be legitimate and
 - claims denied on the basis of edits may ultimately be paid;
- revise the methodology used to calculate costs avoided from edits and payment suspensions to include verifying that the information in the Department's records is consistent with that maintained by the Zone Program Integrity Contractors and the Program Safeguard Contractors; and
- include all costs associated with the FPS, including reporting costs, indirect costs, and projected costs, in its return on investment calculation.

DEPARTMENT COMMENTS

In written comments on our draft report, the Department concurred with our recommendations and noted it is committed to working with OIG to ensure that the recommendations are incorporated into future FPS reports. In response to the Department's technical comments, we made changes to the report as appropriate.

The Department's comments are included as the Appendix of this report.

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
BACKGROUND	1
Use of Predictive Analytics Technologies in the Medicare Program	1
The Centers for Medicare & Medicaid Services Fraud Prevention System	1
Office of Inspector General Certification of Actual and Projected Savings to the Medicare Fee-for-Service Program.....	1
OBJECTIVES, SCOPE, AND METHODOLOGY	2
Objectives	2
Scope.....	2
Methodology	3
FINDINGS AND RECOMMENDATIONS	3
THE DEPARTMENT DID NOT FULLY COMPLY WITH REPORTING REQUIREMENTS	4
Federal Requirements	4
Improper Payments Recovered: Actual Savings.....	4
Improper Payments Recovered: Projected Savings	5
Improper Payments Avoided: Actual Savings.....	5
Improper Payments Avoided: Projected Savings	7
Return on Investment for the Use of Predictive Analytics Technologies: Actual and Projected Savings	7
Return on Investment for the Use of Predictive Analytics Technologies in Comparison to Other Strategies or Technologies: Actual and Projected Savings.....	8
THE DEPARTMENT’S USE OF THE FRAUD PREVENTION SYSTEM	8
RECOMMENDATIONS	9
DEPARTMENT COMMENTS	9
APPENDIX	
DEPARTMENT COMMENTS	

INTRODUCTION

BACKGROUND

Use of Predictive Analytics Technologies in the Medicare Program

Section 4241 of the Small Business Jobs Act of 2010 (the Act) (P.L. No. 111-240) requires the Department of Health and Human Services (the Department) to use predictive modeling and other analytics technologies (predictive analytics technologies) to (1) identify improper Medicare fee-for-service claims that providers submit for reimbursement and (2) prevent the payment of such claims. The Act required the Department to issue, no later than January 1, 2011, requests for proposals on how to implement predictive analytics technologies. The Act required the Department to implement predictive analytics technologies by July 1, 2011, in the 10 States that the Secretary of the Department (Secretary) identified as having the highest risk of Medicare fee-for-service fraud, waste, and abuse. Congress appropriated \$100 million to the Department to carry out the requirements of the Act.

The Centers for Medicare & Medicaid Services Fraud Prevention System

To implement predictive analytics technologies, the Centers for Medicare & Medicaid Services (CMS), which administers Medicare, developed the Fraud Prevention System (FPS). In its *Report to Congress: Fraud Prevention System First Implementation Year*¹ (the first implementation report), CMS reported that it uses the FPS to review in real time all Medicare fee-for-service claims before payment. The FPS reviews claims processed in all 50 States, the District of Columbia, and the territories. The FPS detects both patterns and aberrancies² (referred to as “leads” in this report) that CMS provides to Zone Program Integrity Contractors (ZPIC) and Program Safeguard Contractors (PSC)³ for investigation. These investigations can result in administrative actions, including payment suspensions, provider/supplier revocations, and referrals to law enforcement. Investigations can also result in the introduction of programming that screens claims automatically for specific problems (payment edits).

Office of Inspector General Certification of Actual and Projected Savings to the Medicare Fee-for-Service Program

The Act requires that not later than 3 months after the completion of the first implementation year,⁴ the Secretary submit to Congress and make available to the public a report that includes information about the Department’s use of predictive analytics technologies. In addition, the Act requires the Office of Inspector General (OIG) of the Department to certify the actual and projected improper payments recovered and avoided and the return on investment related to the

¹ CMS, *Report to Congress: Fraud Prevention System First Implementation Year*, September 2012.

² Aberrancies are claims that deviate from the norm.

³ Both ZPICs and PSCs are responsible for performing program integrity activities for CMS.

⁴ The first implementation year was July 1, 2011, through June 30, 2012.

Department's use of predictive analytics technologies in the Medicare fee-for-service program for the first 3 implementation years (section 4241(e) of the Act). The Act also requires that OIG recommend whether the Department should continue, expand, or modify its use of predictive analytics technologies.

OBJECTIVES, SCOPE, AND METHODOLOGY

Objectives

Our objectives were to determine whether the Department: (1) complied with the requirements of the Act for reporting actual and projected improper payments recovered and avoided in the Medicare fee-for-service program and its return on investment related to its use of predictive analytics technologies and (2) should continue, expand, or modify its use of the FPS to increase savings or mitigate any adverse impact on Medicare beneficiaries or providers.

Scope

We reviewed the first implementation report, as of September 27, 2012. Our report is based on the data and information provided to us as of that date and does not reflect any subsequent revisions to the Department's report, if any such changes have been made. Specifically, we reviewed section 3, "FPS Outcomes." Our review was limited to this section because it contained the information that we were required to certify. We did not audit information reported in other sections and therefore do not provide any assurance about the information in those sections. The first implementation report covered CMS's use of predictive analytics technologies from July 1, 2011, through June 30, 2012.

As stated earlier, the Act requires us to certify the amounts that the Department reported as actual and projected savings to the Medicare fee-for-service program and the Department's return on investment. However, the term "certification" is not defined in the Act or in generally accepted government auditing standards. To satisfy the Act's certification requirement, we have conducted a performance audit to evaluate the accuracy of the savings and return on investment figures that the Department reported. We have defined the term "certification" as a determination that the actual and projected savings and return on investment figures reported by the Department are accurate.

Because the OIG certification date and the Department reporting date are the same (90 days after the end of the first implementation year), we limited our procedures to those necessary to evaluate the accuracy of the information reported by the Department. We did not perform procedures to quantify errors in that information.

The first implementation report included the Department's determination of actual and projected savings and return on investment. The Department's underlying assumptions for determining projected savings were based on current events and circumstances. Because future events and circumstances frequently do not occur as expected, projected and actual results often differ. Those differences may be material. We have no responsibility to update this report for events and circumstances that occur after the date of this report. Our audits of subsequent

implementation years will provide a perspective on these projections.

We performed our fieldwork from March through August 2012.

Methodology

To accomplish our objectives, we:

- reviewed the Act to gain an understanding of the Department's and OIG's responsibilities,
- met with Department officials to learn about the Department's implementation of the FPS,
- evaluated the first implementation report and the Department's supporting documentation to determine the accuracy of the estimated actual and projected savings and return on investment figures reported,
- analyzed the Department's methodologies for calculating actual and projected savings to determine whether the underlying assumptions were valid,
- reviewed the Department's methodology for calculating return on investment to determine whether it would include all costs and savings associated with the FPS and whether the underlying assumptions were valid,
- visited a ZPIC and a PSC to review case files and to compare their data to the Department's data,
- reviewed the Department's actual and planned activities to expand and modify or refine the FPS, and
- discussed the results of our audit with Department officials.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

FINDINGS AND RECOMMENDATIONS

In the first year of its implementation of the Act's requirements, the Department has implemented predictive analytics technologies, but it did not fully comply with the requirements for reporting actual and projected improper payments recovered and avoided in the Medicare fee-for-service program and its return on investment related to its use of predictive analytics technologies. Reporting such amounts in accordance with the requirements is inherently

challenging because, primarily, it is a new venture and because of the decentralized nature of the FPS business processes. The Department did not report some of the amounts required and had inconsistencies in its data; in addition, its methodology for calculating other reported amounts included invalid assumptions that may have affected the accuracy of those amounts. In these cases, we could not determine the accuracy of the Department's information, which impeded our ability to quantify the amount of the inaccuracies noted in this report.

Although we could not determine whether the savings-related information that the Department reported was accurate, using the FPS will help the Department combat fraud, waste, and abuse in the fee-for-service program. The Department has integrated the FPS into its overall fraud prevention strategy, and the FPS now covers all 50 States, the District of Columbia, and the territories. In its first implementation report, the Department has described its plans to expand and enhance the FPS. We expect to analyze any modifications or refinements in future implementation years.

THE DEPARTMENT DID NOT FULLY COMPLY WITH REPORTING REQUIREMENTS

Federal Requirements

Subsections (i) and (ii) of sections 4241(e)(1)(B) of the Act require the Department to report the following information:

- actual savings with respect to improper payments recovered,
- projected savings with respect to improper payments recovered,
- actual savings with respect to improper payments avoided,
- projected savings with respect to improper payments avoided,
- actual and projected savings relative to the return on investment for the use of predictive analytics technologies, and
- actual and projected savings relative to the return on investment for the use of predictive analytics technologies in comparison to other strategies or technologies.

Improper Payments Recovered: Actual Savings

In its first implementation report, the Department could not present actual savings with respect to improper payments recovered. The Department acknowledged in the first implementation report that it did not report this information because it does not require contractors to track recoveries by source (i.e., the entity that identified the improper payment). Departmental officials advised us that this problem, related to the attribution of the sources, affects other CMS recoveries and that they are considering corrective actions that may address this issue.

Improper Payments Recovered: Projected Savings

In its first implementation report, the Department reported estimated projected savings of \$72.6 million with respect to improper payments recovered. This amount consisted of the following:

- \$4.4 million in overpayments that the ZPICs and PSCs had referred to other contractors for collection after they had investigated leads and
- \$68.2 million related to the ZPICs' and PSCs' referrals to law enforcement.

The Department cannot track the collection of overpayments resulting from leads because it does not require contractors to track recoveries by source. Without this information, the Department cannot develop an accurate estimate of the funds referred for collection that will be collected. Therefore, we could not determine whether the \$4.4 million that ZPICs and PSCs had referred to other contractors was an accurate projection of savings.

We also could not determine whether the \$68.2 million in projected savings from law enforcement referrals was an accurate projection of savings. This amount represents the total value of claims identified during the investigation of leads. The Department's methodology assumes that 100 percent of the amount referred to law enforcement will be recovered. The Department did not provide any support for this assumption, such as historical data. The methodology does not reasonably account for known variables that may impede the 100-percent recovery of the amount referred. For example, law enforcement has discretion not to pursue a case based on a referral or a referral might result in a case that is settled before it goes to trial. Both examples would likely decrease the total percentage of actual recoveries based on law enforcement referrals. Furthermore, amounts collected resulting from law enforcement referrals may be higher than 100 percent of improper payments recovered in some cases because supplemental amounts, such as treble damages and additional fines or penalties that can be levied by the judicial system, may be returned to the Medicare trust fund. These amounts would not be accounted for in the presentation of projected savings from improper payments recovered as they are not improper payments identified by the FPS. Department officials advised us that they will have to work with law enforcement officials to develop a more accurate estimate of recoveries from law enforcement referrals.

Improper Payments Avoided: Actual Savings

In its first implementation report, the Department reported \$31.8 million in estimated actual savings with respect to improper payments avoided. This amount consisted of the following:

- Cost avoidance from revoking provider billing privileges: \$7.3 million,
- Cost avoidance from changes in provider behaviors:⁵ \$6.7 million,

⁵ This refers to a national prepayment edit that CMS implemented in 2012.

- Amount denied by prepayment edits:⁶ \$11.5 million,
- Amount denied by autodenial edits:⁷ \$4.7 million, and
- Payment suspensions: \$1.6 million.

Developing a methodology and accumulating data for these reported amounts for the initial implementation year was an inherently challenging process. Some of these amounts may not represent actual savings with respect to improper payments avoided in the first implementation year.

Cost Avoidance From Revoking Provider Billing Privileges

We could not determine whether the \$7.3 million reported as actual costs avoided by revoking provider billing privileges was accurate because the Department's methodology assumes that not one of the claims submitted by the provider was a legitimate claim that would have been paid if the beneficiary had received the services from another provider. The Department did not provide support for this assumption, and we found evidence that it may not be valid. We examined the prior-year claims submitted by one provider whose billing privileges had been revoked and found that some of the beneficiaries treated by that provider received the same type of services from other providers following the revocation. The Department's methodology assumes that 100 percent of the prior-year claims submitted by a revoked provider were not proper.

Cost Avoidance From Changes in Provider Behaviors

We could not determine whether the \$6.7 million reported as actual costs avoided from changes in provider behaviors was accurate. The Department's methodology is based on an edit added to the MACs' Medicare fee-for-service claims processing system. We examined the payments to one provider affected by this edit after it was implemented and found that the provider received payment for some services that this edit was designed to deny. Our concern is that the Department's methodology assumes that 100 percent of the claims denied by the edit were improper. If any of these payments were proper, the \$6.7 million reported as actual costs avoided by this edit would be overstated.

Amounts Denied by Edits and Payment Suspensions

We could not determine whether the \$17.8 million reported as actual costs avoided through edits and payment suspensions was accurate. The supporting information maintained by the Department was not consistent with the supporting information provided and certified by the

⁶ Prepayment edits automatically flag all or part of a claim for further CMS review or automatically hold payment for all or part of a claim (the first implementation report, section 3.1). Prepayment edits, unless otherwise specified, are applied by individual Medicare administrative contractors (MAC) (i.e., a local edit). MACs are companies that process and pay Medicare fee-for-service claims.

⁷ Autodenial edits automatically deny all or part of claims; no review is necessary (the first implementation report, section 3.1).

ZPICs and PSCs. Specifically, the information provided by the ZPIC and PSC we visited included the names of sanctioned providers that were not included in the information maintained by the Department. The Department's methodology for determining costs avoided from edits and payment suspensions did not include obtaining a list of sanctioned providers and associated costs avoided from the ZPICs and PSCs and verifying that this information was consistent with the Department's information. Instead, the Department relied on ZPIC and PSC certification of the data that ZPICs and PSCs provided. The \$17.8 million that the Department reported reflects adjustments it made in response to those errors that we identified during our review.

Improper Payments Avoided: Projected Savings

In its first implementation report, the Department reported \$11 million in projected savings with respect to improper payments avoided. This amount consisted of the following:

- cost avoidance from revoking provider billing privileges: \$6.6 million and
- cost avoidance from changes in provider behaviors: \$4.4 million.

These amounts represent the portion of estimated avoided costs that are expected to occur in the second implementation year.⁸ We could not determine whether the \$11 million was accurate because, similar to the issues noted with the Department's reporting of actual costs avoided by revoking provider billing privileges and changing provider behavior, the Department's methodology here also assumes that 100 percent of the claims were improper. Performing an in-depth analysis of historical data used in developing the assumptions that affect billing privilege revocation and the propriety of claims denied by certain edits could provide useful information to be able to project savings with more precision.

Return on Investment for the Use of Predictive Analytics Technologies: Actual and Projected Savings

In the first implementation report, the Department reported an estimated return on investment of \$3.30 for every dollar spent on the FPS in its first implementation year. This figure was not accurate because it was calculated by dividing the total of both actual and projected savings that were reported by a summary of the costs used to implement the FPS during its first year, and, as previously discussed, there were inconsistencies and unverified assumptions in the methodology used to accumulate the actual and projected savings. In addition, the Department did not include all costs associated with the FPS in its calculation. Specifically, the Department did not include the cost of the contract for preparing the first implementation report and the first-year indirect costs (e.g., office space, furnishings, and equipment) that should have been allocated among the various fraud-fighting programs, including the FPS. Finally, because the Department used both actual and projected savings to calculate return on investment, it should also have reported actual

⁸ The estimates from which these projections are derived were based on actions taken in the first implementation year. Thus, the amounts projected for the second implementation year do not include any estimates of improper payments avoided that are related to revocations or edits made in the second implementation year.

and projected costs to ensure that all costs were properly included in the return on investment calculation.

Return on Investment for the Use of Predictive Analytics Technologies in Comparison to Other Strategies or Technologies: Actual and Projected Savings

In its first implementation report, the Department compared the return on investment from the FPS to the first-year return on investment for the Health Care Fraud and Abuse Control program⁹ and concluded that the FPS outperformed the Health Care Fraud and Abuse Control program. We could not determine whether this comparison was accurate because of our concerns, noted in the previous section, with the Department's calculation of return on investment for the FPS.

THE DEPARTMENT'S USE OF THE FRAUD PREVENTION SYSTEM

Section 4241(e)(1)(B)(iii) of the Act requires OIG to recommend whether the Department should continue to use predictive analytics technologies, whether the use of such technologies should be expanded,¹⁰ and whether any modifications or refinements should be made to increase the amount of actual or projected savings or mitigate any adverse impact on Medicare beneficiaries or providers. OIG recognizes that the use of new technologies has tremendous potential for enhancing fraud-fighting efforts and has adopted certain information technology and analytics to better identify potentially fraudulent activities and target our oversight efforts.

Although we noted some inaccuracies in the savings-related information that the Department reported, continuing to use the FPS will strengthen the Department's efforts to combat fraud, waste, and abuse in the Medicare fee-for-service program. In the first implementation year, the Department has integrated the FPS into its overall fraud-prevention strategy. The FPS has provided ZPICs and PSCs with valuable data that they have used in ongoing investigations and in initiating investigations that have identified potential recoveries and costs that could be avoided.

CMS has expanded the use of predictive analytics technologies to all 50 States, the District of Columbia, and the territories. CMS was required only to implement predictive analytics technologies in 10 States identified by the Secretary as having the highest risk of waste, fraud, or abuse in the Medicare fee-for-service program. Instead, CMS implemented the FPS nationwide.

In its first implementation report, the Department describes a number of modifications or refinements it has planned to enhance the FPS, such as enhancing FPS integration with the Medicare Claims Processing System and expanding and enhancing FPS models. The Department did not indicate whether these modifications or refinements were designed to increase the amount of actual projected savings or to mitigate any adverse impact on Medicare beneficiaries or providers. We have not performed a detailed analysis of the Department's plans because the data from the first

⁹ The Health Care Fraud and Abuse Control program was implemented in 1997 by the Department and the US Department of Justice.

¹⁰ "Expansion" under the Act means the incremental implementation of predictive analytics beyond the initial 10 States.

implementation year were not sufficient. However, we expect to analyze any modifications or refinements made by CMS in future implementation years.

RECOMMENDATIONS

Developing initial-year measurements for actual and projected savings and cost avoidance that have accrued from the use of predictive analytics is inherently difficult, and we recognize that refining such measures will be challenging. To help the Department address this challenge and improve its reporting on these measures, we recommend that the Department:

- require contractors to track recoveries that result from FPS leads;
- coordinate with law enforcement to enhance reporting of investigative and prosecutorial outcomes in cases predicated on referrals from the FPS;
- revise the methodology used to calculate projected savings with respect to improper payments avoided to recognize that
 - some of the services associated with prior-year claims submitted by a revoked provider may be legitimate and
 - claims denied based on edits may ultimately be paid;
- revise the methodology used to calculate costs avoided from edits and payment suspensions to include verifying that the information in the Department's records is consistent with that maintained by the ZPICs and PSCs; and
- include all costs associated with the FPS, including reporting costs, indirect costs, and projected costs, in its return on investment calculation.

DEPARTMENT COMMENTS

In written comments on our draft report, the Department concurred with our recommendations and noted it is committed to working with OIG to ensure that the recommendations are incorporated into future FPS reports. In response to the Department's technical comments, we made changes to the report as appropriate.

The Department's comments are included as the Appendix of this report.

APPENDIX

APPENDIX: DEPARTMENT COMMENTS



DEPARTMENT OF HEALTH & HUMAN SERVICES

Centers for Medicare & Medicaid Services

Administrator
Washington, DC 20201

DATE: SEP 21 2012

TO: Daniel R. Levinson
Inspector General

FROM: Marilyn Tavenner
Acting Administrator *Marilyn Tavenner*

SUBJECT: Office of Inspector General (OIG) Draft Report: "The Department of Health and Human Services Has Implemented Predictive Analytics Technologies But Can Improve Its Reporting on Related Savings and Return On Investment" (A-09-11-02016)

Thank you for the opportunity to review and provide comments on the Office of Inspector General's (OIG) report entitled, "The Department of Health and Human Services Has Implemented Predictive Analytics Technologies But Can Improve Its Reporting on Related Savings and Return On Investment." As required by the Small Business Jobs Act of 2010 (Act), the Centers for Medicare & Medicaid Services (CMS) developed the Fraud Prevention System (FPS) in order to implement predictive analytics technologies to identify and prevent the payment of improper claims in the Medicare fee-for-service program.

The CMS appreciates OIG's finding that "continuing to use the FPS will strengthen the Department's efforts to combat fraud, waste, and abuse in the Medicare fee-for-service program" and agrees with its recommendation that the FPS continue. In the first year of the FPS, CMS implemented predictive analytic technology on a nationwide basis in less time than statutorily-required without adversely impacting providers, suppliers, or beneficiaries. CMS and its contractors have developed complex analytic models that the OIG points out have led to "valuable data that [CMS fraud contractors] have used in ongoing investigations and to initiate investigations that have identified potential recoveries and costs that could be avoided."

In its first year, the FPS generated leads for 536 new fraud investigations, provided new information for 511 pre-existing investigations, and triggered thousands of provider and beneficiary interviews to verify legitimate items and services were provided to beneficiaries. Such data have also helped the Office of Inspector General, Office of Investigations (OIG/OI) and the Federal Bureau of Investigations (FBI) in developing stronger cases against fraudulent providers and suppliers.

However, we recognize that there remain challenges in evaluating the FPS and over the next year we will continue to enhance our ability to estimate savings with respect to both improper payments recovered and improper payments avoided. Because of the inherent difficulties with estimating savings from fraud prevention, we fully appreciate that this creates a significant

OIG Note: The report number has since been updated.

Page 2 – Daniel R. Levinson

challenge for an outside entity such as OIG to validate and certify actual and projected savings from the FPS as the statute requires. We note that this is the first time predictive analytic technology has been used by the government on such a large scale for the purpose of identifying health care fraud, and it is the first time both CMS and OIG have been required by law to calculate actual and projected savings for a specific fraud prevention tool such as the FPS.

The CMS believes that we have developed the appropriate measures needed to estimate savings with respect to both improper payments recovered and improper payments avoided. We appreciate OIG's recommendations to revise the methodology used to calculate actual and projected savings and are committed to working with OIG to ensure that its recommendations are appropriately incorporated into our next FPS report.

Our response to each of OIG's recommendations follows.

OIG Recommendation 1

Require contractors to track recoveries that result from FPS leads.

CMS Response

The CMS concurs with OIG's recommendation. While the agency tracks the amount of overpayments collected overall, there are inherent systemic challenges associated with the tracking of overpayment recovery by the source responsible for identifying the overpayment, e.g., FPS lead. CMS is evaluating corrective actions to track overpayment recoveries made by the Medicare Administrative Contractors (MACs) by the source of the overpayment determination. Once this corrective action is in place, overpayment recoveries can be accurately measured based on each identifying source, including FPS leads.

OIG Recommendation 2

Work with law enforcement to obtain the data necessary to estimate the proportion of claims associated with referrals to law enforcement that will be recovered.

CMS Response

The CMS concurs with OIG's recommendation. CMS is committed to working with law enforcement officials in an effort to develop accurate estimates of recoveries associated with referrals to law enforcement.

OIG Recommendation 3

Revise the methodology used to calculate projected savings with respect to improper payments avoided to recognize that: (1) some of the services associated with prior-year claims submitted by a revoked provider may be legitimate; and (2) claims denied based on edits may ultimately be paid.

Page 3 – Daniel R. Levinson

CMS Response

The CMS generally concurs with OIG's recommendation to refine the methodology for estimating cost avoidance. CMS will evaluate applying a corrective factor that would systematically account for legitimate services and claims overturned on appeal.

OIG Recommendation 4

Revise the methodology used to calculate costs avoided from edits and payment suspensions to include verifying that the information in the Department's records is consistent with that maintained by the Zone Program Integrity Contractors (ZPICs) and Program Safeguard Contractors (PSCs).

CMS Response

The CMS concurs with OIG's recommendation. CMS recognizes that there are some inconsistencies between the information submitted through the FPS by the ZPICs and PSCs and the actual business records maintained by these contractors due to challenges in how data are collected and reported. CMS will be making changes to ensure consistency and accuracy of information reported by the contractors. As part of that effort, CMS is developing options for new data collection and reporting requirements that would minimize or eliminate deficiencies currently observed in the manual reporting.

OIG Recommendation 5

Include all costs associated with the FPS, including reporting costs, indirect costs, and projected costs, in its return on investment calculation.

CMS Response

The CMS concurs with OIG's recommendation and will consider taking into account such costs in its return on investment calculation in future years.

Appendix B. SBJA Section 4241. Use of Predictive Modeling and Other Analytics Technologies to Identify and Prevent Waste, Fraud, and Abuse in the Medicare Fee-for-Service Program (P.L. 111-240 §4241(b); 42 U.S.C. §1320a-7m(b))

SEC. 4241 [42 U.S.C. 1320a-7m]. Use of Predictive Modeling and Other Analytics Technologies to Identify and Prevent Waste, Fraud, and Abuse in the Medicare Fee-for-Service Program.

(a) Use in the Medicare Fee-for-Service Program. The Secretary shall use predictive modeling and other analytics technologies (in this section referred to as “predictive analytics technologies”) to identify improper claims for reimbursement and to prevent the payment of such claims under the Medicare fee-for-service program.

(b) Predictive Analytics Technologies Requirements. The predictive analytics technologies used by the Secretary shall—

- (1) capture Medicare provider and Medicare beneficiary activities across the Medicare fee-for-service program to provide a comprehensive view across all providers, beneficiaries, and geographies within such program in order to—
 - (A) identify and analyze Medicare provider networks, provider billing patterns, and beneficiary utilization patterns; and
 - (B) identify and detect any such patterns and networks that represent a high risk of fraudulent activity;
- (2) be integrated into the existing Medicare fee-for-service program claims flow with minimal effort and maximum efficiency;
- (3) be able to—
 - (A) analyze large data sets for unusual or suspicious patterns or anomalies or contain other factors that are linked to the occurrence of waste, fraud, or abuse;
 - (B) undertake such analysis before payment is made; and
 - (C) prioritize such identified transactions for additional review before payment is made in terms of the likelihood of potential waste, fraud, and abuse to more efficiently utilize investigative resources;
- (4) capture outcome information on adjudicated claims for reimbursement to allow for refinement and enhancement of the predictive analytics technologies on the basis of such outcome information, including post-payment information about the eventual status of a claim; and
- (5) prevent the payment of claims for reimbursement that have been identified as potentially wasteful, fraudulent, or abusive until such time as the claims have been verified as valid.

(c) Implementation Requirements.

(1) Request for Proposals. Not later than January 1, 2011, the Secretary shall issue a request for proposals to carry out this section during the first year of implementation. To the extent the Secretary determines appropriate—

(A) the initial request for proposals may include subsequent implementation years; and

(B) the Secretary may issue additional requests for proposals with respect to subsequent implementation years.

(2) First Implementation Year. The initial request for proposals issued under paragraph (1) shall require the contractors selected to commence using predictive analytics technologies on July 1, 2011, in the 10 States identified by the Secretary as having the highest risk of waste, fraud, or abuse in the Medicare fee-for-service program.

(3) Second Implementation Year. Based on the results of the report and recommendation required under subsection (e)(1)(B), the Secretary shall expand the use of predictive analytics technologies on October 1, 2012, to apply to an additional 10 States identified by the Secretary as having the highest risk of waste, fraud, or abuse in the Medicare fee-for-service program, after the States identified under paragraph (2).

(4) Third Implementation Year. Based on the results of the report and recommendation required under subsection (e)(2), the Secretary shall expand the use of predictive analytics technologies on January 1, 2014, to apply to the Medicare fee-for-service program in any State not identified under paragraph (2) or (3) and the commonwealths and territories.

(5) Fourth Implementation Year. Based on the results of the report and recommendation required under subsection (e)(3), the Secretary shall expand the use of predictive analytics technologies, beginning April 1, 2015, to apply to Medicaid and CHIP. To the extent the Secretary determines appropriate, such expansion may be made on a phased-in basis.

(6) Option for Refinement and Evaluation. If, with respect to the first, second, or third implementation year, the Inspector General of the Department of Health and Human Services certifies as part of the report required under subsection (e) for that year no or only nominal actual savings to the Medicare fee-for-service program, the Secretary may impose a moratorium, not to exceed 12 months, on the expansion of the use of predictive analytics technologies under this section for the succeeding year in order to refine the use of predictive analytics technologies to achieve more than nominal savings before further expansion. If a moratorium is imposed in accordance with this paragraph, the implementation dates applicable for the succeeding year or years shall be adjusted to reflect the length of the moratorium period.

- (d) Contractor Selection, Qualifications, and Data Access Requirements.
 - (1) Selection.
 - (A) In General. The Secretary shall select contractors to carry out this section using competitive procedures as provided for in the Federal Acquisition Regulation.
 - (B) Number of Contractors. The Secretary shall select at least 2 contractors to carry out this section with respect to any year.
 - (2) Qualifications.
 - (A) In General. The Secretary shall enter into a contract under this section with an entity only if the entity—
 - (i) has leadership and staff who—
 - (I) have the appropriate clinical knowledge of, and experience with, the payment rules and regulations under the Medicare fee-for-service program; and
 - (II) have direct management experience and proficiency utilizing predictive analytics technologies necessary to carry out the requirements under subsection (b); or
 - (ii) has a contract, or will enter into a contract, with another entity that has leadership and staff meeting the criteria described in clause (i).
 - (B) Conflict of Interest. The Secretary may only enter into a contract under this section with an entity to the extent that the entity complies with such conflict of interest standards as are generally applicable to Federal acquisition and procurement.
 - (3) Data Access. The Secretary shall provide entities with a contract under this section with appropriate access to data necessary for the entity to use predictive analytics technologies in accordance with the contract.
- (e) Reporting Requirements.
 - (1) First Implementation Year Report. Not later than 3 months after the completion of the first implementation year under this section, the Secretary shall submit to the appropriate committees of Congress and make available to the public a report that includes the following:
 - (A) A description of the implementation of the use of predictive analytics technologies during the year.
 - (B) A certification of the Inspector General of the Department of Health and Human Services that—
 - (i) specifies the actual and projected savings to the Medicare fee-for-service program as a result of the use of predictive analytics technologies, including estimates of the amounts of such savings with respect to both improper payments recovered and improper payments avoided;

- (ii) the actual and projected savings to the Medicare fee-for-service program as a result of such use of predictive analytics technologies relative to the return on investment for the use of such technologies and in comparison to other strategies or technologies used to prevent and detect fraud, waste, and abuse in the Medicare fee-for-service program; and
 - (iii) includes recommendations regarding—
 - (I) whether the Secretary should continue to use predictive analytics technologies;
 - (II) whether the use of such technologies should be expanded in accordance with the requirements of subsection (c); and
 - (III) any modifications or refinements that should be made to increase the amount of actual or projected savings or mitigate any adverse impact on Medicare beneficiaries or providers.
 - (C) An analysis of the extent to which the use of predictive analytics technologies successfully prevented and detected waste, fraud, or abuse in the Medicare fee-for-service program.
 - (D) A review of whether the predictive analytics technologies affected access to, or the quality of, items and services furnished to Medicare beneficiaries.
 - (E) A review of what effect, if any, the use of predictive analytics technologies had on Medicare providers.
 - (F) Any other items determined appropriate by the Secretary.
- (2) Second Year Implementation Report. Not later than 3 months after the completion of the second implementation year under this section, the Secretary shall submit to the appropriate committees of Congress and make available to the public a report that includes, with respect to such year, the items required under paragraph (1) as well as any other additional items determined appropriate by the Secretary with respect to the report for such year.
- (3) Third Year Implementation Report. Not later than 3 months after the completion of the third implementation year under this section, the Secretary shall submit to the appropriate committees of Congress, and make available to the public, a report that includes with respect to such year, the items required under paragraph (1), as well as any other additional items determined appropriate by the Secretary with respect to the report for such year, and the following:
- (A) An analysis of the cost-effectiveness and feasibility of expanding the use of predictive analytics technologies to Medicaid and CHIP.
 - (B) An analysis of the effect, if any, the application of predictive analytics technologies to claims under Medicaid and CHIP would have on States and the commonwealths and territories.

- (C) Recommendations regarding the extent to which technical assistance may be necessary to expand the application of predictive analytics technologies to claims under Medicaid and CHIP, and the type of any such assistance.
- (f) Independent Evaluation and Report.
- (1) Evaluation. Upon completion of the first year in which predictive analytics technologies are used with respect to claims under Medicaid and CHIP, the Secretary shall, by grant, contract, or interagency agreement, conduct an independent evaluation of the use of predictive analytics technologies under the Medicare fee-for-service program and Medicaid and CHIP. The evaluation shall include an analysis with respect to each such program of the items required for the third year implementation report under subsection (e)(3).
- (2) Report. Not later than 18 months after the evaluation required under paragraph (1) is initiated, the Secretary shall submit a report to Congress on the evaluation that shall include the results of the evaluation, the Secretary's response to such results and, to the extent the Secretary determines appropriate, recommendations for legislation or administrative actions.
- (g) Waiver Authority. The Secretary may waive such provisions of titles XI, XVIII, XIX, and XXI of the Social Security Act, including applicable prompt payment requirements under titles XVIII and XIX of such Act, as the Secretary determines to be appropriate to carry out this section.
- (h) Funding.
- (1) Appropriation. Out of any funds in the Treasury not otherwise appropriated, there is appropriated to the Secretary to carry out this section, \$100,000,000 for the period beginning January 1, 2011, to remain available until expended.
- (A) Independent Evaluation. The Secretary shall reserve not more than 5 percent of the funds appropriated under paragraph (1) for purposes of conducting the independent evaluation required under subsection (f).
- (B) Application to Medicaid and CHIP. The Secretary shall reserve such portion of the funds appropriated under paragraph (1) as the Secretary determines appropriate for purposes of providing assistance to States for administrative expenses in the event of the expansion of predictive analytics technologies to claims under Medicaid and CHIP.
- (i) Definitions. In this section:
- (1) Commonwealths and Territories. The term "commonwealth and territories" includes the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and any other territory or possession of the United States in which the Medicare fee-for-service program, Medicaid, or CHIP operates.
- (2) CHIP. The term "CHIP" means the Children's Health Insurance Program established under title XXI of the Social Security Act (42 U.S.C. 1397aa et seq.).

- (3) Medicaid. The term “Medicaid” means the program to provide grants to States for medical assistance programs established under title XIX of the Social Security Act (42 U.S.C. 1396 et seq.).
- (4) Medicare Beneficiary. The term “Medicare beneficiary” means an individual enrolled in the Medicare fee-for-service program.
- (5) Medicare Fee-for-Service Program. The term “Medicare fee-for-service program” means the original Medicare fee-for- service program under parts A and B of title XVIII of the Social Security Act (42 U.S.C. 1395 et seq.).
- (6) Medicare Provider. The term “Medicare provider” means a provider of services (as defined in subsection (u) of section 1861 of the Social Security Act (42 U.S.C. 1395x)) and a supplier (as defined in subsection (d) of such section).
- (7) Secretary. The term “Secretary” means the Secretary of Health and Human Services, acting through the Administrator of the Centers for Medicare & Medicaid Services.
- (8) State. The term “State” means each of the 50 States and the District of Columbia.

Appendix C. SBJA Requirements in the *FPS First Implementation Year Report*

Topic	SBJA Reporting Requirements (P.L. 111-240 §4241(e)(1); 42 U.S.C. §1320a-7m(e)(1))	Location
Implementation	(A) A description of the implementation of the use of predictive analytics technologies during the year.	1.3 to 2.4
OIG Certification	(B) A certification of the Inspector General of the Department of Health & Human Services that <ul style="list-style-type: none"> (i) specifies the actual and projected savings to the Medicare fee-for-service program as a result of the use of predictive analytics technologies, including estimates of the amounts of such savings with respect to both improper payments recovered and improper payments avoided (ii) specifies the actual and projected savings to the Medicare fee-for-service program as a result of such use of predictive analytics technologies relative to the return on investment for the use of such technologies and in comparison to other strategies or technologies used to prevent and detect fraud, waste, and abuse in the Medicare fee-for-service program (iii) includes recommendations regarding (I) whether the Secretary should continue to use predictive analytics technologies; (II) whether the use of such technologies should be expanded [nationally and to Medicaid]; and (III) any modifications or refinements that should be made to increase the amount of actual or projected savings or mitigate any adverse impact on Medicare beneficiaries or providers. 	<p>HHS OIG Certification is in Appendix A.</p> <p>Numbers are provided in sections 3.1 and 3.2.</p> <p>Comparisons to other strategies are provided in sections 2.1, 3.1, and 3.3.</p>
Fraud Prevention and Detection	(C) An analysis of the extent to which the use of predictive analytics technologies successfully prevented and detected waste, fraud, or abuse in the Medicare fee-for service program.	3.1 and 3.2

Fraud Prevention System – First Implementation Year

Topic	SBJA Reporting Requirements (P.L. 111-240 §4241(e)(1); 42 U.S.C. §1320a-7m(e)(1))	Location
Beneficiary Impact	(D) A review of whether the predictive analytics technologies affected access to, or the quality of, items and services furnished to Medicare beneficiaries.	3.4
Provider Impact	(E) A review of what effect, if any, the use of predictive analytics technologies had on Medicare providers.	3.4

Appendix D. Definitions of CMS Administrative Actions and FPS Measures

Table D-1. Definitions of CMS Administrative Actions

Administrative Action	Definition
Auto-Denial Edit	An edit that prevents payment for non-covered, incorrectly coded, or inappropriately billed services.
Law Enforcement Referral	Cases of suspected fraud referred to the OIG Office of Investigations.
Overpayment Determination	Medicare payments received by a provider determined to be in excess of amounts due and payable and for which a request is submitted to the MAC for collection.
Payment Suspension	Provider-specific action that suspends Medicare payments pending investigation of credible allegations of fraud or reliable evidence of overpayment.
Prepayment Edit for Medical Review	An edit that prevents processing of claims pending medical review.
Revocation	Termination of a provider’s billing privileges.

Table D-2. Definitions of FPS Savings Measures

Measure	Definition
Amount Denied by Prepayment Edits	Amount denied during the reporting period based on medical review after the implementation of prepayment edits. If only a portion of a claim is denied, only the portion that is denied is included in the dollar amount.
Amount of Overpayments Referred for Recovery	Amount of Medicare payments received by a provider that is in excess of amounts due and payable and that is referred to the MAC for recovery.
Billed Amount Denied by Auto-Denial Edits	Amount denied during the reporting period by auto-denial edits. If only a portion of a claim is denied by an edit, only the portion that is denied is included in the dollar amount.
Cost Avoidance from Changes in Behavior*	Estimated dollar savings that would have been paid to a provider that stopped billing due to administrative actions. The estimated savings are the amount that would have been paid during the 12 months following an administrative action.
Cost Avoidance from Revoking Provider Billing Privileges*	Estimated dollar savings that would have been paid to a provider whose Medicare billing privileges are revoked. The estimated savings are the amount that would have been paid during the 12 months after a revocation becomes effective.
Payment Suspensions	Amounts held due to payment suspensions.
Value of Law Enforcement Referrals	Estimated dollar value of law enforcement referrals.

* Figure D-1 illustrates how actual and projected cost avoidance savings are estimated when an action based on an FPS lead occurred in the first year of implementation, but a portion of the savings would not otherwise have been achieved until a subsequent period.

Fraud Prevention System – First Implementation Year



Figure D-1. Example of Actual and Projected Cost Avoidance, Based on Date of Action

Table D-3. Definitions of FPS Process Measures

Measure	Definition
Beneficiary Interviews	Number of beneficiary interviews conducted based on FPS leads
Provider Interviews	Number of direct provider interviews conducted based on FPS leads
FPS Leads in Contractor Workload	Number of FPS leads in program integrity contractors' workloads for resolution
FPS Leads Resulting in a New Investigation	Number of FPS leads that result in the relevant program integrity contractor opening a new investigation
FPS Leads Supporting Existing Investigations	Number of FPS leads that support existing investigations
FPS Leads Resulting in Administrative Action	Number of FPS leads that result in an administrative action
FPS Leads Resolved without Administrative Action	Number of FPS leads in the program integrity contractors' workloads resolved without administrative action

Acronyms and Abbreviations

ACA	Affordable Care Act
APS	Automated Provider Screening System
CHIP	Children’s Health Insurance Program
CMS	Centers for Medicare & Medicaid Services
CPI	Center for Program Integrity
DOJ	Department of Justice
FBI	Federal Bureau of Investigation
FFS	Fee-for-Service
FPS	Fraud Prevention System
FTE	Full-Time Equivalent
FY	Fiscal Year
HCFAC	Health Care Fraud and Abuse Control Program
HHS	Department of Health & Human Services
IDR	Integrated Data Repository
IT	Information Technology
MAC	Medicare Administrative Contractor
OIG	Office of Inspector General
One PI	One Program Integrity
PI	Program Integrity
PSC	Program Safeguard Contractor
RAC	Recovery Audit Contractor
ROI	Return on Investment
SBJA	Small Business Jobs Act of 2010
ZPIC	Zone Program Integrity Contractor