

> Detect and Prevent Improper Payments

With the Improper Payments Information Act, your agency faces new challenges in demonstrating financial accountability. Predictive analytics provides a means to more reliably achieve payment accuracy.

The Improper Payments Information Act (IPIA) of 2002, an initiative to improve financial performance and accountability, makes reducing improper or erroneous payments a top priority for a number of federal agencies. How does your agency detect and prevent improper payments so that it can comply with this legislation?

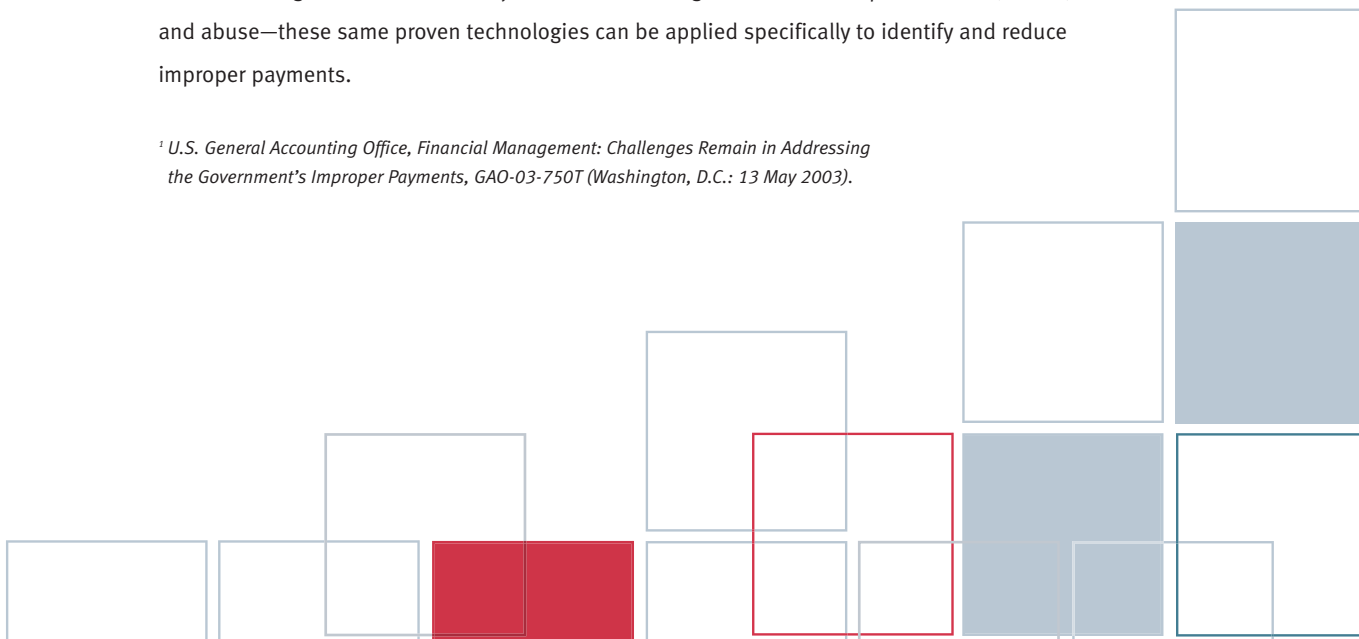
Improper payments are pervasive—they are widespread, affect multiple agency programs, take a number of forms, and occur government-wide. The United States General Accounting Office (GAO) estimates that improper payments disclosed in the early 2000s totaled more than \$20 billion per year, and cautions that this figure is likely higher, as it does not include every agency.¹

Federal agencies need reliable methods to detect and prevent all types of improper payments, so that they can comply with legislation, safeguard funding for legitimate payments, and demonstrate financial accountability.

A powerful way to identify potential improper payments

Gain the insight needed to detect and prevent improper payments, both overpayments and underpayments, by combining predictive analytics from SPSS Inc. with your business knowledge. Government agencies worldwide rely on SPSS' technologies to detect and prevent fraud, waste, and abuse—these same proven technologies can be applied specifically to identify and reduce improper payments.

¹ U.S. General Accounting Office, *Financial Management: Challenges Remain in Addressing the Government's Improper Payments*, GAO-03-750T (Washington, D.C.: 13 May 2003).



With predictive analytics from SPSS, you can identify a variety of potential improper payments that might result from fraud, administrative error, and mismanagement.

Your agency could encounter:

- Duplicate payments and miscalculations
- Payments for unsupported or inadequately supported claims
- Payments for services not rendered
- Payments to ineligible beneficiaries

Using predictive analytics, you can:

- Expose past payment patterns
- Detect improper payments
- Institute pre-payment edits

Identify potential improper payments that rule-based methods miss

You may already use rule-based methods to identify certain behaviors, such as government credit charges made in excess of spending limits. But these techniques can limit your detection efforts. Predictive analytics from SPSS, however, enable you to identify many more instances of improper payments because you can identify behaviors that are “relatively unusual” when compared against the expected action. For example, you can identify outliers, or cases that fall outside the expected range, such as Medicaid reimbursements for specific procedures paid at a rate lower than most other payments for that procedure.

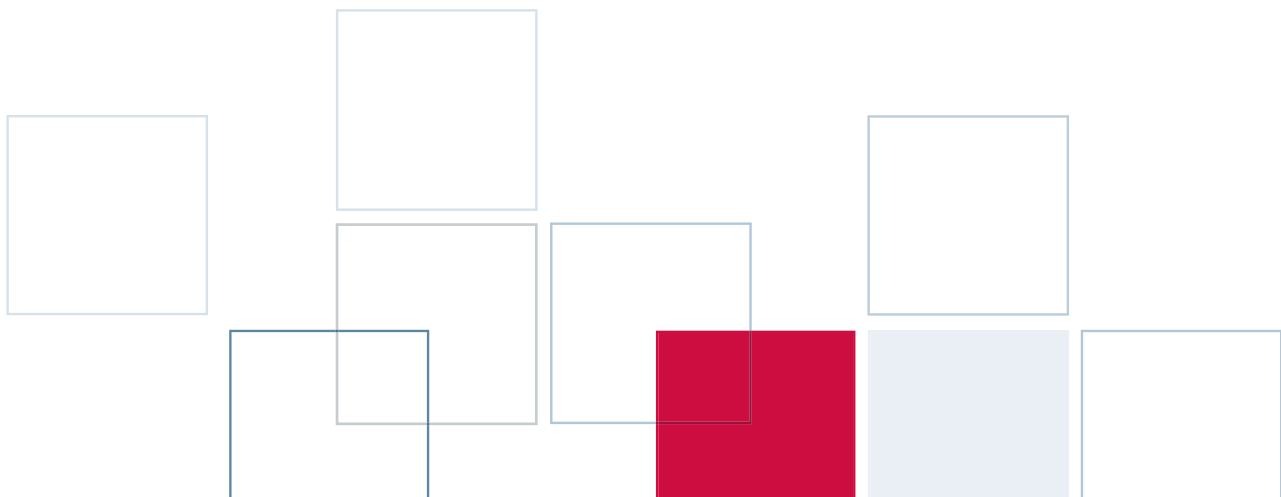
Uncover patterns and target your investigations

SPSS technologies detect unusual behavior by examining patterns in your data. Using sophisticated data mining algorithms, you can build multi-dimensional profiles, incorporating many different characteristics. Data visualization techniques enable you to better understand key relationships in your data. Clustering and association techniques group common behaviors and detect relatively unusual patterns, such as:

- Patient-specific sequences of events preceding and following diagnosis or prescription
- Volumes of claims for food stamps
- Clusters of contractors whose billing patterns are similar
- Geographical patterns of miscalculated payments

You can more quickly identify potential improper payments—even those with subtle differences. The ability to isolate outliers makes SPSS’ predictive analytics ideal for creating blueprints, or models, of nominal transaction activity.

Once you identify a potential improper payment, you can set aside the case for further examination. Using predictive analytics helps you to winnow tens of thousands of records to a few cases for targeted and cost-effective investigation. It also helps your staff make more informed decisions, rather than relying solely on rule-based systems or hunches.



Detect improper payments before they occur

Recovering funds after your agency has made an improper payment is difficult. How can you more proactively prevent improper payments? You might consider implementing a pre-payment check system using SPSS' predictive analytics.

A pre-payment check system helps your agency establish what constitutes an appropriate payment. You begin by taking data from reimbursements for similar types of payments, so that the system can identify patterns of a relatively normal claim.

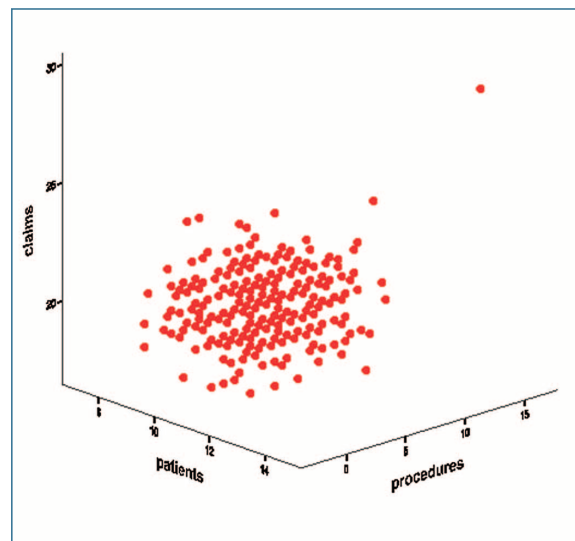
Next, the system creates characteristic sets, or profiles, for specific claim types. For example:

- The diagnosis of a stage-two lung cancer patient
- A typical reimbursement for a category-four hurricane victim
- A representative bill for a roofing contractor in the Southeast

To keep the profiles fresh and incorporate new payment patterns your agency detects, you can update characteristic sets as needed.

Finally, before issuing payments, your agency can compare new claims against the characteristic sets.

A variety of deployment options enable the right people in your agency to easily access data or read reports your agency might create to summarize results. You can automatically deliver results to an individual's desktop through a Web browser or customized portal. This enables people throughout your agency to access information through intuitive, interactive interfaces in real time. Information can be kept secure through passwords and distribution groups.



You can detect unusual billing behavior using SPSS' predictive analytics. When examining data from Medicaid claims, you might use a technique called clustering to group providers based on the number of claims filed, number of patients treated, and number of procedures billed. The graph shows results from one such clustering analysis. A sparsely populated group, such as the single provider evident in the graph, indicates unusual—and perhaps fraudulent—behavior.

Success story

Global strategy and technology firms partner with SPSS to assist U.S. federal government agencies in reducing non-compliance, erroneous payments, abuse, and fraud.

One federal agency turned to an SPSS partner when it faced an increasing backlog of collections. This SPSS partner developed predictive models using Clementine®, SPSS' data mining workbench, to recommend a collection priority scheme that optimized the agency's limited resources and aligned its operations with new strategic goals.

The project resulted in an estimated \$1.8 billion in additional annual revenue, representing a 600:1 first-year return on investment for the agency.

The SPSS logo is displayed in white text on a red square background.

About SPSS Inc.

SPSS Inc. (NASDAQ: SPSS) is the world's leading provider of predictive analytics software and services. The company's predictive analytics technology connects data to effective action by drawing reliable conclusions about current conditions and future events. More than 250,000 commercial, academic, and public sector organizations rely on SPSS technology to

help increase revenue, reduce costs, improve processes, and detect and prevent fraud. Founded in 1968, SPSS is headquartered in Chicago, Illinois. To learn more, please visit www.spss.com. For SPSS office locations and telephone numbers, go to www.spss.com/worldwide.

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