

## **Effectively Managing a Medicare Part D Plan by Implementing an Interactive User Interface and Drill-Anywhere Metrics and Analysis.**

Each sponsor of Medicare Prescription Drug Benefit plans (Part D plans) is required to report to the Centers for Medicare & Medicaid Services (CMS) certain statistics describing their Part D plan operations. Those required statistics include:

- Service utilization patterns
- Service availability, accessibility and acceptability
- Cost of operations
- Fiscal soundness of operations
- And other matters as required by CMS.

This paper demonstrates how to effectively and efficiently manage such reporting. Assuming mass data storage solutions are in place, this paper focuses on methods of that use the data to examine past, current, and probable future trends of a given Medicare Part D population.

Described below are simple data interface solutions made possible by SAS and Futrix Health tools. Thanks to graphical user interface, key metrics can be available to all level of users in out-of-the-box solutions that are easy-to-use, eliminate unwanted reporting, and make a small footprint on IT resources.

## **One: Why is new technology important to Insurance Companies offering Medicare Part D Benefits?**

### **Management of the Technology Challenge:**

When the development and implementation of an “interoperable health information technology infrastructure” was introduced as a key initiative, companies offering Medicare Part D coverage had to react with new technology to meet upcoming demands for information. A new facet to Health Data Management and Analytics needed to be developed. To facilitate this, in April 2004, the President issued Executive Order 13335, which established the position of the National Health Information Technology Coordinator and outlined incentives for the use of health information technology.

According to the order, “The National Coordinator shall, to the extent permitted by law, develop, maintain, and direct the implementation of a strategic plan to guide the nationwide implementation of interoperable health information technology in both the public and private health care sectors that will reduce medical errors, improve quality, and produce greater value for health care expenditures.”

No longer would Claims data associated with Government programs such as Medicare or Medicaid be used only as a means by which to reimburse providers. Data was becoming information which necessitated development of infrastructure to handle new processes that would be required.

### **Medicare and Medicaid Health Information Technology**

In a 2007 report on State Medicaid agencies’ initiatives on health IT and health information exchange, it was found that almost a quarter of State Medicaid agencies have implemented health IT initiatives, and over three quarters of States are developing similar health IT initiatives. Additionally, a number of Medicaid agencies are involved in the planning of statewide health information exchange networks and are incorporating the Medicaid Information Technology Architecture into their health IT and health information exchange planning.

Based on these findings, The Office of the Inspector General recommended that the Centers for Medicare and Medicaid Services (CMS) continue to support the goals of Medicaid/Medicare Information Technology Architecture to help facilitate future State Medicaid health IT and health information exchange initiatives. The Office of the Inspector General also recommended that CMS, in collaboration with other Federal agencies and offices, assist State Medicaid/Medicare agencies with developing privacy and security policies as well as continue to work with the National Coordinator for Health Information Technology for health IT to ensure that State Medicaid/Medicare initiatives are consistent with national goals.

In order to stay competitive, Payer Organizations were faced with a need to continue to develop internal systems which would allow for reimbursement, analytics, actuarial and underwriting improvements, and mandated reporting requirements.

Additionally, there remains a need to ensure adherence to general controls. The Office of the Inspector General's work indicates that the Medicare payment errors are due more often to the input by people of incorrect information than due to computer system or programming errors. For example, for the 7 years during which The Office of the Inspector General produced the Medicare fee-for-service error rate, the overwhelming majority (more than 95 percent) of the improper payments identified were detected through medical reviews. When these claims were submitted for payment to Medicare contractors, they contained no visible errors. Clearly this represents a challenge to implement controls that ensure progressive improvement with respect to data integrity.

The volume of data which a large Medicare Payer Organization must capture, validate, pay and keep track of has from the onset been underestimated. Only recently are these organizations realizing the full extent of the information gathered and the need to quickly and accurately provide insight into the data. This is creating a need for faster response time and easier tools with which larger numbers of Analysts can review and interpret meaning in data.

### **Security and Privacy Issues**

Allowing more analysts into the data to assist with identifying errors and interpreting meaning did not come without a backlash. The recent expansion of Health and Human Service programs, such as Medicare Part D benefit, significantly increases the programmatic and system demands on health care payers offering Medicare Part D and creates new relationships or expands existing relationships with business partners. In turn, these new or expanded relationships create the potential for new system security exposures that have to be evaluated and, if need be, mitigated to ensure the confidentiality, integrity, and availability of critical assets.

Part of the Department of Health and Human Services responsibility is to protect critical data assets and to ensure privacy. They oversee and endorse the Health Insurance Portability and Accountability Act (HIPAA) Security Rule. HIPAA specifies a series of administrative, technical, and physical security procedures required for covered entities to use to ensure the confidentiality of electronic protected health information. Again, the identification of potential risks outlined by HIPAA sent Payer IT Organizations into areas of data privacy and control that they had not ever considered.

The development and expansion of Payer IT systems brings new focus to additional areas of risk. For instance, over the past several years, the importance of protecting personal data has become much more visible, as illustrated by media attention to data breaches and personal data lost by accounting firms, credit bureaus, universities, direct marketing companies and insurance companies. The Office of Management and Budget has recently reemphasized Federal agency responsibilities under the law as well as enacted policies to appropriately safeguard sensitive, personally identifiable information and train Federal employees regarding their responsibilities in this area.

The Office of the Inspector General has also identified that the human factor is a critical component of an effective security program. This may be overlooked in the development of technical solutions to address weaknesses in entity wide security,

access controls, service continuity, application controls and development, and segregation of duties. Overly complex and/or antiquated systems for managing data no longer have a place in this space. Likewise, building solutions in-house often take longer to build and implement and likely may exceed budget and do not provide flexibility to keep up with changing demands for data analysis.

Therefore, The Office of the Inspector General continues its efforts to monitor HHS oversight of its vital IT systems to ensure that all necessary technical and policy measures are being taken to protect sensitive information, the systems that store information, and the physical or electronic transport of that information. The Office of the Inspector General has placed new emphasis on controls designed to ensure the protection of personal data. In addition, they continue to review the controls to ensure the integrity of data for Medicare Part D programs because of the critical systems that depend upon this for accurate payment of billions of dollars funded by the programs.

The Office of the Inspector General will also review CMS's activities related to the enforcement of the HIPAA Security Rule. The review will focus on an internal control assessment at CMS headquarters as well as include vulnerability assessments at a sample of covered entities.

### **Managing Risk and Compliance**

Medicare Advantage products and Medicare prescription drug plans (Part D) have provided profitable growth for many payers. However, keeping current with requirements from CMS in addition to keeping products innovative and cost competitive present formidable administrative and strategic challenges for insurers.

CMS has also changed the way it monitors and enforces compliance and plans will need to be adjusted accordingly. For example CMS:

- Now employs a more data-driven approach to oversight. Rather than reviewing all plans on all audit elements, they use data submitted by plans and focus regulatory efforts on outliers.
- Has stepped up their identification of non-compliance
- Has imposed more intermediation sanctions and civil monetary penalties than in the past, and has published that information on its website.
- Has also held plans more directly accountable for their vendors' compliance with delegated duties.

Designing and implementing Medicare Part D plans requires special care so they are profitable, compliant and valuable to members. The necessary Infrastructure is key to allow analysts:

- Access to the information that is required to accurately and completely managing a population.
- To remain compliance with the rules and regulations that govern the use of the necessary data
- Access that is easy, fast, and reliable.

Such a cross-functional tool brings together professional knowledge, sophisticated data manipulation with the experience in the industry that you have grown.

## **Two: The Data**

### **Prescription Drug Event (PDE)**

The Centers for Medicare and Medicaid Services ([www.cms.gov](http://www.cms.gov)) is the source for data pertaining to Medicare Part D event data. Every time a beneficiary fills a prescription under Medicare Part D, a prescription drug plan sponsor must submit a summary record called the prescription drug event (PDE) data to CMS. The PDE data are not the same as individual drug claim transactions, but are summary extracts using CMS-defined standard fields. The PDE record contains prescription drug cost and payment data that enables CMS to make payments to plans and otherwise administer the Part D benefit. Both stand-alone prescription drug plans and Medicare Advantage prescription drug plans (MA-PDs) are required to submit PDE data.

The Medicare prescription drug benefit is a voluntary insurance program and PDE records are only available for Medicare beneficiaries who are enrolled in a Part D plan. About 25 million Medicare beneficiaries are enrolled in Part D plans. PDE data for beneficiaries who receive their drug coverage from other sources such as employers or unions with the Medicare Retiree Drug Subsidy, Veterans Administration, TRICARE, or FEHBP are not part of the PDE data at CMS.

For the purposes of this paper and subsequent research and application design, actual PDE data was not used. However the data elements collected as the PDE source structure were developed in a database and random data was generated to create a workable dataset. Though this data does not represent actual patterns within Medicare Part D participants, it can be used to demonstrate functionality.

### **Medicare Enrollment Data (MMR)**

The Centers for Medicare and Medicaid Services ([www.cms.gov](http://www.cms.gov)) is the source for data pertaining to Medicare Part D Enrollment. CMS offers many types of enrollment files related to Medicare Part D. For the purposes of this paper, the Monthly enrollment at the contract/plan/state/county level for all organization types was chosen because of its breadth and depth of information.

For the purposes of this paper and subsequent research and application design, actual Medicare Enrollment data was not used. However the data elements collected as the Enrollment Data source structure were developed in a database and random data was generated to create a workable dataset. Though this data does not represent actual patterns within Medicare Part D participants, it can be used to demonstrate functionality.

## Creating Useable Data

Between the Prescription Drug Event and the Membership Enrollment data, specific care was taken to create a representative data warehouse containing realistic information on a fictitious regional Medicare Part D Plan. Controlled random number generation within SAS was used to create all variables. The controls allowed to programmatically containing the range and spread of each variable which then was matched to an existing source of information in the data warehouse.

For example to create a realistic distribution within a Three Region Nine State Geographic area, a data step implementing “ $x=a+(b-a)*\text{ranuni}(6);$ ” was used for several iterations to assign Age, Gender, State, County, Benefit Plan Member ID, and so on. When necessary, randomly assigned numbers were mapped back to a format assigning character values such as “1=Female” and “2=Male” for gender. The ease of assigning formats within the Futrix Application allowed for what theoretically could be a Star Schema to be managed as a Flat File saving time and space as the formats do not need to be part of the summaries created by Futrix when building out the proprietary Indexed Data Sets.

The process of randomly assigning numeric values for all variables was repeated in the creation of the Prescription Drug Event data. All cost information and drug type utilizations are the result of chance. However it should be noted that whenever and wherever possible, consistency between a specific drug and its cost variables as well as a member and specific utilization patterns were made consistent.

The resulting data warehouse created in SAS is as follows:

Table Name	Row / Column Count	Compressed Size
MMR	45,714,768 / 14	3,355,225 KB
PDE	2,838,582 / 22	490,193 KB
Summary	85,570 / 15	6,777 KB

All SAS Coding and data manipulation was completed using SAS 9.2 in Enterprise Guide 4.3. Processing was done on a Toshiba Satellite A660 Series running Windows 7 Professional.

Although every precaution was taken to make the data as realistic as possible, it in no way represents any actual population or Medicare Part D providing company. The information is for demonstration purposes only and all results and insights gained from the research done exist completely by coincidence.

### **Three: Solving the Technology and Analytic problem?**

#### **Futrix + SAS as the solution**

The concept of creating an environment that is not only powerful, but offers simplistic access to valuable information is not a new concept. As an industry, Business Intelligence tools have typically fallen into one of two categories; code-driven research applications used for sophisticated analytics or simplistic tools used to manipulate predefined data. Only recently have a subset of tools come into the market trying to bridge this gap. And thus far, there have been limitations ranging from;

1. Difficulty to integrate and expensive to deploy
2. Maintenance reliant on strapped IT departments
3. Difficulty for the end user to operate.

Futrix Health Power Suite has bridged this gap with a unique user interface reliant on visualizations and a drill-anywhere capability coupled with an administrative console that requires no programming knowledge to master. It is an ideal tool for the sophisticated user to quickly and easily identify areas within the data for further study. Additionally, for the analyst, Futrix Health Power Suite brings the powerful analytic and complex data manipulations and summaries to an easy to use front end. Finally, this innovative tool allows executives access to a completely customizable dashboard environment focusing on exactly what they need to know.

Fully integrated with SAS, users of data are able to review extremely large volumes of data without the previously predefined confines of summary data. For Medicare Part D, this becomes extremely important when making key business decisions. When asking questions that assist with profitability, fraud and finance, such as:

- What populations are profitable / not profitable?
- Where are our more saturated counties?
- How does one county compare to another among various utilization metrics?
- What is the likely trend of a plan, county, state, cohort given current utilization?
- What are prescribing patterns of specific provider groups or individual providers?
- Who is near or in the Doughnut Hole?

Likewise, the same data needs to be used to identify Medical Care Management issues to boost the efforts associated with cost containment and patient satisfaction. Questions related to:

- What medical conditions are most closely associated with a particular drug?
- What providers prescribe drugs that are potentially dangerous when taken together?
- Are there cohorts of members who have a like condition but different medications and why?
- How do different provider specialties react to new drugs on the market?

In addition, the ability to track the Medicare Part D membership enrolment over time provides valuable insight when looking at an overall strategy in planning future risk in various markets. These questions and the audience asking them can be as wide

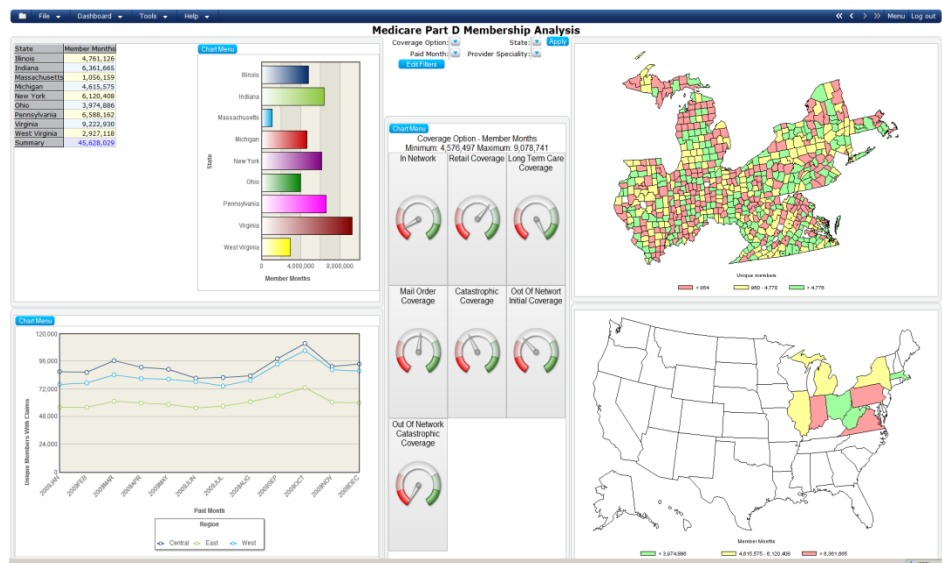
ranging as the data itself. For these reasons, Futrix has built in specific functionality designed to make answering these questions quick and easy regardless of Technical abilities. For example;

- Interactive Geographic Analysis – Apply any measure to any detail of geography available and surface it with a variety of traffic lighting options.
- Health Specific Linked Measures - Access disparate health data sources, dynamically create healthcare measures (PMPM, provider utilization, patient utilization), and drill across all relevant data without having to recalculate numerators and denominators.
- Cohort Analysis Groups - Create subset populations of individuals or categories from any source and analyze that group against any other related source of information.
- Dynamic Grouping - Create groups relative to any dimension/values uniquely outside of traditional groupings.
- Dynamic Benchmarking- Create benchmarks from any source data and compare to control data such as geography, time period, providers, population groups, industry, etc.
- Privacy Drill Control - Comprehensive functionality to ensure privacy protection, data confidentiality, and HIPAA compliance.

## Examining Part D Membership

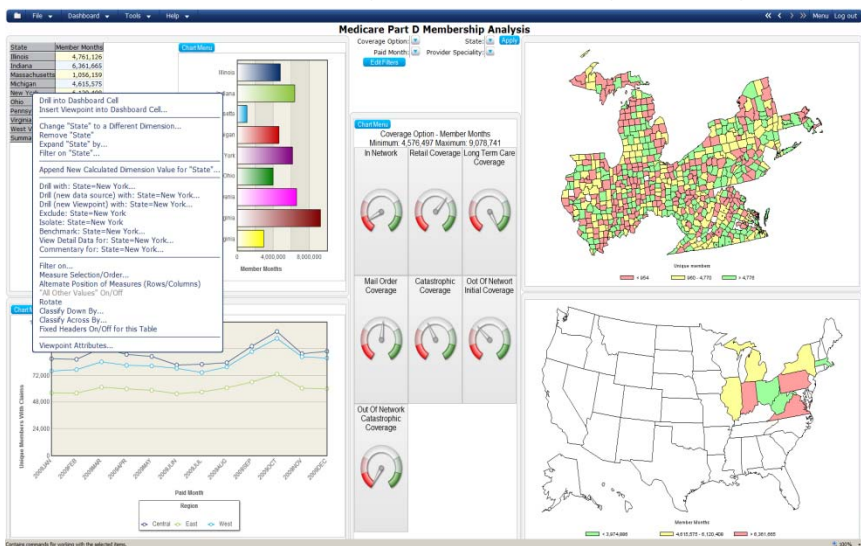
CMS provides Membership information to payer organizations on a monthly schedule. These data are typically housed on a central warehouse as a single table being appended to. IT Resources using SAS or another RDBMS Tool validate the information and make it available for analysts to begin reviewing. Standardized reporting begins and specific analysis based on these reports takes place. In the best scenarios, analysts have direct access to properly modeled data with a tool they are proficient enough with to make accurate insights. At worst case, analysts wait for IT to provide downloads or extracts of data based on assumptions from high level summaries. With

Futrix Health Power Suite, the time to delivery of all MMR data is only dependent on the time it takes for IT to handle the incoming data. With completely customizable Dashboards and viewpoints that can either be built on the fly or refreshed monthly



by an analysts, or shared by a team of analysts, who use the interactive visualizations to access summary to detailed information. In the above screenshot, the concept of member months are being reviewed from state to county level, over time using a combination of Geographic, Line and Bar Charts, as well as Dials and Tables. Each is interactive and customizable to the user's preference. In addition, the entire dashboard can be customized using a series of pull down menu options located at the top middle of the screen.

With this data in hand, it is easy to see that for the year 2009, the state of Virginia had the highest number of member months, but the East Region had the fewest over the year. In addition the Long Term Care Drug Coverage had the most members. In the



Futrix Health Power Suite, each of these variables is an opportunity for further investigation. For example, when reviewing the table of member months by state, it may be necessary to look further into the state of New York to gain an understanding of why New York is not the most saturated state as may expected. Futrix Health

Power Suite imbeds the ability to review any cell or part of a dashboard with a right click of the mouse. The pull down menu provides many options to investigate this anomaly including creating benchmarks, filtering on any dimension, creating additional calculations on the fly, creating commentary and even drilling into the raw data associated with the viewpoint in question.

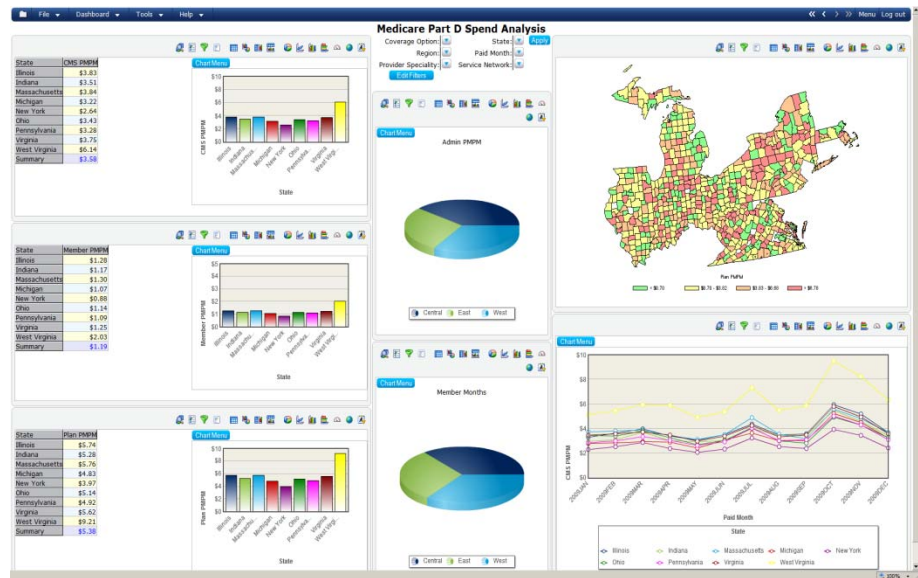
All variables, regardless of if a Measure or Dimension from the MMR can become a filter or drillable measure within Futrix Health Power Suite using the same right click method.

## Examining Part D Spend

Tracking membership is only part of the necessary analytics. It is equally if not more important to understand the spend patterns of the population. Normalization of the cost data is key to understanding the differences between a profitable and unprofitable subset of a population, When tracking county-by-county, it becomes even more important to be able to quickly and easily drill anywhere in the data and not lose the normalization methods applied. Specific measurements such as per member per month (PMPM) and per/1,000 are a cornerstone to comparing cost and utilization both over time as well as from one entity to another.

Within the Futrix Health Power Suite, once a relationship between variables such as membership and spend are established, regardless of the drill pattern the resulting equations persist. There is no need to calculate numerators and denominators at different drill points and extract to a second tool to compare, as the normalized results are available regardless of which direction in the data the analysis dictates.

Dashboards combining Membership and Spend information can be set up to allow each analyst a common starting point and allow free exploration of the data without having to start with raw data each time. This allows for necessary equations within the data to be established and managed by the analysts using them without an IT Resource. As with the Membership information, Normalized Spend information can be presented in an easy to understand, segmented, and completely customizable front end. Regardless of the analysts choice of using a very graphical interface to review and begin understanding the changes in the data or the variance from an expected value or if they may choose to use a more tabular form of interacting with the data, each can be customized and refreshed to meet the individual's needs.



The flexibility inherent to the Futrix Health Power Suite allows for data to be presented to each user in a manner which is meaningful to them without sacrificing the integrity of



the data or using valuable IT resources to continually model the data to meet ever changing needs within the organization. This tool puts the ability to build and manipulate the data completely in the hands of the users responsible





## **Conclusion**

Managing risk and understanding where potential problems may exist is the cornerstone of productive analytics. The faster, easier and more reliable access to consistent data are the more productive analysts can be. Business Intelligence tools have not kept up with the rapid changes in the analytical world leaving companies scrambling for stop-gap methods to keep up with demand for knowledge based on data. Nowhere is this more evident than in managing Medicare Part D Populations.

Concerns around data privacy, data accuracy, and data availability continue to be a cause of increased administrative costs. Information Technology departments are faced with the challenge of strained budgets and the need to provide a solution that allows for fast, accurate, and repeatable analytics.

This paper was intended to be a brief demonstration of the power leveraged by utilizing SAS and the Futrix Health Power Suite to quickly and easily create standard reporting as well as perform ad-hoc analysis.