

Title of Nomination: Using the Medical Data Warehouse to Improve Health Care Services for Seniors

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CATEGORY: Enterprise_Information_Architecture

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State of Illinois Department of Public Aid



*Using the Medical Data Warehouse
To Improve Health Care Services for Seniors*

**NASCIO 2003 Recognition Awards
Category: Enterprise Information Architecture**

Executive Summary

The Illinois Department of Public Aid (IDPA) is one of the state's largest, and arguably, its most critical agency, managing approximately \$8.6 billion in funds (all sources, including federal), the vast majority of which – nearly \$8 billion – provide medical services for the state's neediest citizens under the Medicaid umbrella.

One critical component of IDPA's responsibility is providing pharmacy benefits for Medicaid recipients. But the state wanted to expand this coverage to include low-income senior citizens who might not otherwise qualify for Medicaid. While there have been several federal proposals to provide prescription drugs for senior citizens through a reworking of the *Medicare* program, none of these ideas have reached fruition. Thus, analysts and executives in the IDPA had to devise a Medicaid funded prescription drug benefits program for low-income seniors that the federal government would approve and provide matching funds for (50%). To do this, IDPA had to demonstrate that the new program would be "cost-neutral" for five years (the length of the waiver the state was seeking from the federal government).

To conduct its analysis, IDPA turned to its enterprise data warehouse so staff members could cull data from numerous sources, including Medicaid claims, provider and recipient data, and information about drug codes, procedures, and diagnoses. IDPA then conducted the advanced statistical analysis necessary to get approval and funding for this first-in-the-nation proposal. They succeeded rapidly – just six months from the time the program was announced to its implementation – and Illinois launched the "**SeniorCare**" program on June 1, 2002.

SeniorCare covers senior citizens who were already enrolled in the state's limited pharmacy benefit Circuit Breaker program, **and** whose income was at or below 200% of the federal poverty level (FPL). The Circuit Breaker program was 100% state-funded and consisted only of limited drug prescriptions for the treatment of Alzheimer's disease, arthritis, cancer, diabetes, glaucoma, heart and blood pressure problems, lung disease, and smoking-related illnesses. The break-through **SeniorCare** program, which is expected to cover 225,000 senior citizens by the end of fiscal 2004, provides the same *full pharmacy benefits* that are currently available to Medicaid recipients. As outreach efforts continue, **SeniorCare** could eventually serve up to 495,000 low-income Illinois seniors.

In Fiscal Year 2003 alone, IDPA received \$78 million in federal matching funds for **SeniorCare**, a figure that will increase to \$113 million with projected enrollment increases next year. In fact, IDPA projects that, cumulatively, federal funds for **SeniorCare** will total \$815 million through Fiscal Year 2007, the last year of the waiver. Perhaps more importantly, the *net benefit* to the State of Illinois for the life of the program – even once the cost of a growing **SeniorCare** population is calculated – is expected to exceed \$109 million.

Finally, because of its more advanced drug coverage, the **SeniorCare** program is expected to further reduce medical care costs – and improve the long-term quality of life – for seniors by enabling them to spend more time in their own homes and less time in extended hospital or nursing home stays. Moving forward, IDPA will utilize the enterprise data warehouse to perform the program analysis that will evaluate the effectiveness of this program, and recommend areas of improvement.

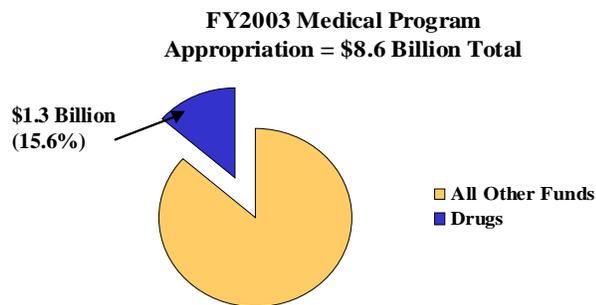
Without the enterprise data warehouse, IDPA would have found it virtually impossible to conduct the in-depth analysis the federal government required to both approve and fund the program under the auspice of Medicaid. By utilizing this advanced technology, IDPA has – in one short year and for the foreseeable future – been able to improve the quality of life for thousands of additional senior citizens at a dramatically reduced cost to Illinois taxpayers.

A. Description of Project

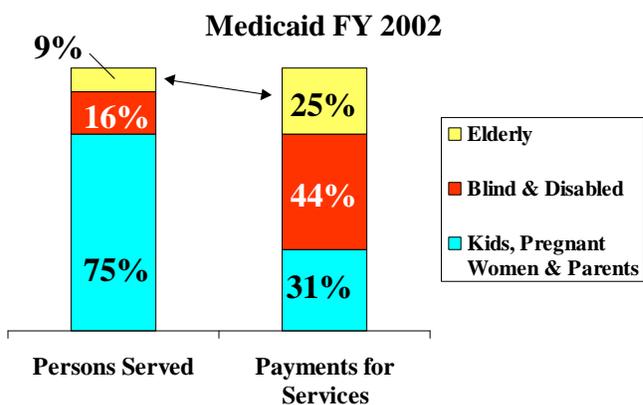
The Illinois Department of Public Aid (IDPA) wanted to implement an enhanced first-in-the-nation pharmacy – or prescription drug – program for low-income senior citizens who might not otherwise qualify for Medicaid. While there have been several federal proposals to provide prescription drugs for senior citizens through a reworking of the *Medicare* program, none of these have reached fruition.

Analysts and executives in IDPA had to devise a Medicaid-funded prescription drug benefits program for low-income seniors that the federal government would approve and provide matching funds for (50%). To do this, IDPA had to demonstrate that the new program would be “cost-neutral” for five years, which was the length of the waiver the state was seeking from the federal government.

The “cost-neutral” aspect of the new program was critical, due both to the overall cost of prescription drugs in the Medicaid program, and the level of services elderly citizens require in proportion to their numbers.



The charts at right demonstrate the importance of achieving a cost-neutral result for the new program. Drug costs in the Illinois Medicaid program account for \$1.3 billion of the \$8.6 billion appropriation, more than 15% of the total. And the elderly, while representing only 9% of the Medicaid population, account for one-quarter of the Medicaid costs. If a new prescription drug program was going to be approved, it simply could not cost any more.



To conduct its analysis, IDPA turned to its enterprise data warehouse, which enabled staff members to cull information from numerous sources, including Medicaid claims, provider and recipient data, and information about drug codes, procedures, and diagnoses. IDPA then conducted the advanced statistical analysis necessary to get

approval and funding for this breakthrough proposal. They succeeded rapidly – just six months from the time the program was announced to its implementation – and Illinois launched “**SeniorCare**” on June 1, 2002.

B. Significance to the Improved Operation of Government

To achieve this “cost-neutral” cap for the 5-year life of the waiver, analysts within IDPA used the data warehouse to pull five years of claim payment data for seniors residing in the general population (not in nursing homes). Per member, per month (PM/PM) calculations were then developed for this population to arrive at the projected cap figure.

IDPA uses a combination of sophisticated hardware and software for its data warehouse solution. Hardware includes a massively parallel processor (MPP) machine with 24 Intel Xeon processors, 5 terabytes of total disk space with 2.4 terabytes of raw disk storage, and a 4-processor symmetrical multi-processor (SMP) machine for data loading. Software includes a relational database, and data access software that includes business intelligence/query tools, statistical software, and geographical information software (GIS).

In large part thanks to the ability of the data warehouse to perform longitudinal studies in a rapid time frame, *IDPA was able to satisfy the requirements of the federal government and become the first state in the nation to be granted a federal waiver of this nature.*

In addition, the data warehouse will also be utilized to perform the program analysis that will evaluate the effectiveness of **SeniorCare** in meeting its stated goal of improving health outcomes for seniors in a cost neutral way.

And perhaps most importantly for IDPA, the value of long-term data retention was dramatically emphasized by this project and has resulted in an effort by the department to expand the capacity of the data warehouse to hold more years of paid claims data. The warehouse currently holds nearly 6 years of claims data (more than 500 million records), and with the proposed expansion, will have the capacity to hold 8 years of data. This will help IDPA better analyze the long-term effectiveness of its programs, project future results of programs based on past outcomes, and conduct long-term cost analyses based on changing demographics and the cost of health care and drugs.

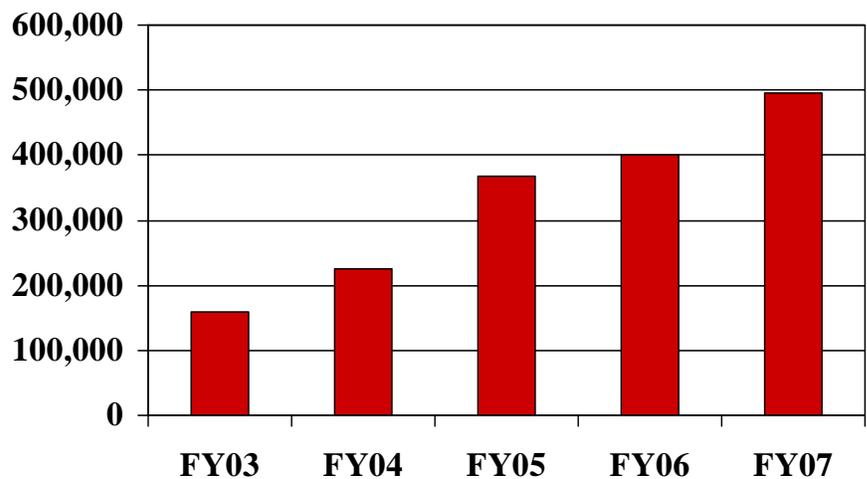
C. Benefits

SeniorCare covers senior citizens who were already enrolled in the state’s limited pharmacy benefit Circuit Breaker program, **and** whose income was at or below 200% of the federal poverty level (FPL). Thus, it will cover more Illinois seniors than any previous program. But it provides much better drug coverage than the Circuit Breaker program at no additional cost to the state.

The **SeniorCare** program, which is expected to cover 225,000 senior citizens by the end of fiscal 2004, could eventually serve up to 495,000 low-income Illinois seniors as outreach efforts continue (see chart).

The Circuit Breaker program consisted only of limited drug prescriptions for the treatment of Alzheimer's disease, arthritis, cancer, diabetes, glaucoma, heart and blood pressure problems, lung disease, and smoking-related illnesses. **SeniorCare** provides the *same full pharmacy benefits* to senior citizens that are currently available to Medicaid recipients, thereby improving their quality of life now and in the future.

SeniorCare Projected Enrollees



As for cost, the Circuit Breaker program was 100% state-funded. In Fiscal Year 2003 alone, IDPA received \$78 million in federal matching funds for **SeniorCare**, a figure that will increase with enrollment (see Return on Investment section).

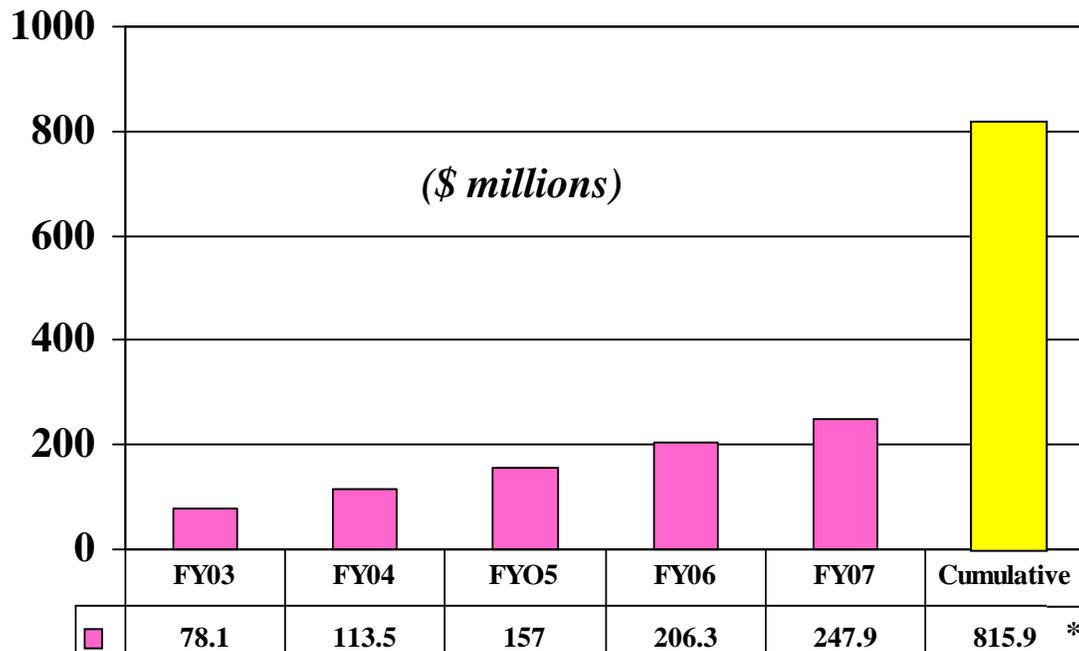
D. Return on Investment

There are several major aspects of return on investment (ROI) for **SeniorCare** – **the value of federal matching funds, net savings benefits to the state** throughout the life of the waiver, and the **cost avoidance** that the state expects to realize thanks to better up-front drug coverage for senior citizens.

Value of Federal Matching Funds

As mentioned above, federal matching funds for Fiscal Year 2003 alone will equal \$78 million. That figure will increase to \$113 million with projected enrollment increases next year. In fact, IDPA projects that, cumulatively, federal funds for **SeniorCare** will total \$815 million through Fiscal Year 2007, the last year of the waiver. The chart on the next page shows the trend projections of these critically important federal matching funds.

Senior Care Federal Matching Funds (50% match)



* Includes \$13.1 million in FY02

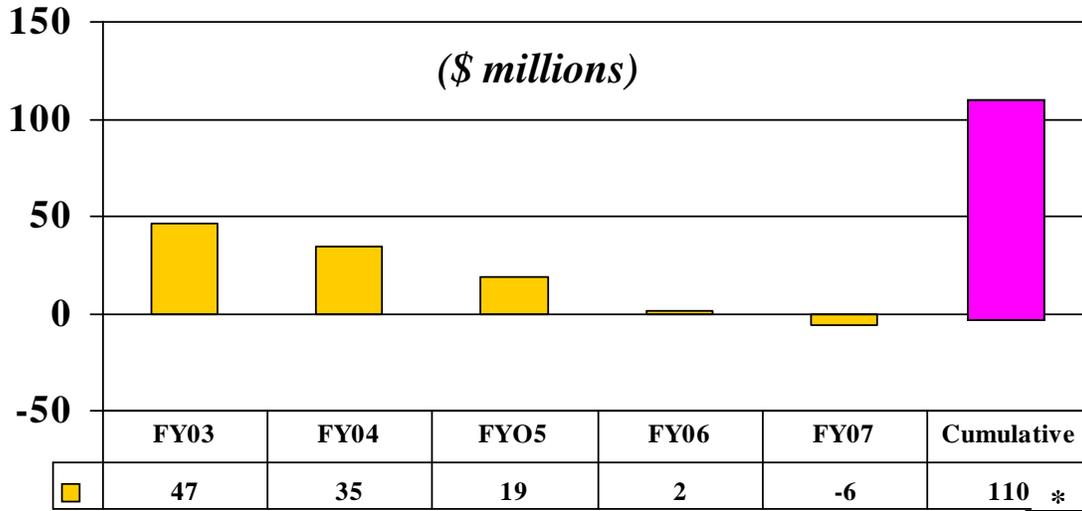
Net Savings Benefit to State

The IDPA expects that **SeniorCare** will help Illinois save more than \$100 million during the life of the federal waiver, even while taking into consideration the cost of serving a growing elderly population as knowledge of the program becomes more widespread. Most of these savings occur in the first three years of the program.

For the study on cost neutrality, IDPA looked at **total** medical expenditures – not just drugs – for the entire 65+ population and trended it forward for the five-year life of the waiver. IDPA used the data warehouse to show that the enhanced **SeniorCare** benefit would a.) Provide a better quality of life for the senior population by allowing them to stay in their own homes longer and spend less time in hospitals and nursing homes; and b.) Cost the same (\$14 billion) even with greater enrollment because the state would spend less money for nursing home services and elongated hospital stays.

The chart on the following page provides a look at the state benefit, by year, provided by **SeniorCare**, after the federal match.

**Net State Benefit By Year
Taking Into Consideration Increased Cost of Serving
Growing SeniorCare Population
(after Federal Match, but before savings in reduced hospital,
nursing home costs)**



* Includes plus-\$13 million in FY02

Cost Avoidance Due to Stronger Up-Front Prescription Program

Finally, IDPA expects the primary financial benefit from the **SeniorCare** program will be the decrease in the length of hospital stays for senior citizens and the costs associated with such stays. This not only will be reflected during the life of the waiver. **SeniorCare** could have a positive impact on cost and care for years to come through disease prevention. The proper drugs today, for example, can prevent or delay many maladies tomorrow – stroke and heart disease among them. This is particularly important as the population continues to age. The chart below shows that **more than 20% of Illinois’ elderly covered by Medicaid programs are 85 or over.**

The **SeniorCare** program, as of this writing, is still less than one year old. Impact analysis of the program will soon begin using claims data captured in the Medical Data Warehouse. The Data Warehouse will provide the necessary tools to accurately assess the ongoing impact of this program on health outcomes for Illinois’ senior population.

