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HEALTHCARE ANALYTICS

State and local government healthcare agencies are clearly in need of timely, centralized advanced analytic solutions to sift through volumes of disparate data to help spot trends, streamline operational effectiveness and reduce both fraud and abuse in critical state-run healthcare systems.

New York's Medicaid program, for example, provides healthcare services to more than 3.7 million people, and faces an overwhelming challenge in analyzing \$40 billion in claims each year.

Indeed, the need to share information to improve the analysis of structured, semi-structured and unstructured data, and respond more quickly and efficiently to avoid the common problem of "pay and chase," has led New York, along with other state governments to seek new ways to analyze information, while still serving constituent needs.

Due to the sheer size of its Medicaid program, New York faced a daunting challenge, analyzing vast amounts of data to detect fraudulent claims. With data distributed across multiple, diverse computing environments and both local and remote data stores scattered throughout state, there was no easy way to link information for query and analysis. This is why New York turned to Teradata for an Enterprise Data Warehouse (EDW) to consolidate five years of Medicaid records, including more than 1.4 billion claims. The EDW has aided in documenting more than \$22 million in fraud and abuse, running more than 240,000 queries in its first two years of operation. The state anticipates nearly \$80 million in Medicaid cost savings next year. Using its EDW, New York can now map trends, perform advanced queries and analyze medical and pharmaceutical information to better detect fraud. More than 1,000 users in 47 counties, including ten state agencies and the Federal Office of the Inspector General will use the enterprise-wide analytic system to track not only abuse among providers and recipients, but also bioterrorism indicators in pharmaceutical purchases, disease trends, drug usage patterns and program and service delivery effectiveness, among other matters.

State agencies and departments have found they can gain more from a centralized decision support system than from efforts to improve claims processing efficiency, for example. This is why they are starting to focus now on implementing an analytic engine to extract information from various, diverse database resources. They can then apply data mining techniques to help resolve complex problems – including everything from detecting fraud to identifying at-risk individuals and developing better models to predict and monitor the progress of a disease outbreak.

In many ways, a centralized EDW offers the best possible solution for any government healthcare organization's analytic challenges. Most people think of an EDW as an integrated and centralized repository of detailed, historical data that supports strategic decision making. However, leading data warehouse implementations are providing Active Enterprise Intelligence (AEI) as the next step in the evolution of the EDW. AEI enables users to combine historical and current data to support tactical, operational decision making, as well as traditional strategic analysis. The AEI architecture combines the outputs of traditional transaction processing systems with agile analytic capabilities to implement decision-making applications for multiple groups and serves as the single source of data for the enterprise.

Also, by bringing their data warehouses into a Service-Oriented Architecture (SOA), state and local officials eliminate the need to hammer network performance to search for data scattered across departments, agencies or other far flung locations. Including a centralized enterprise data warehouse in their SOA will enable all kinds of government organizations to more easily protect information, provide superior, integrated, detailed data for

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research and analysis, and deliver the highest levels of multi-dimensional scalability to suit each agency's growing analytic needs.

Setting Teradata Apart

A big benefit of an enterprise data warehouse from Teradata for state and local government healthcare organizations is that it easily fits into any enterprise architecture. The company's consulting expertise and support services can help government organizations generate the pilot projects that will speed return on investment, while validating the need for advanced analytics to aid in support of key agency mission goals.

With more than 25 years of data warehousing experience, Teradata has helped government agencies gain a clear, integrated view of their data resources to help them achieve critical mission goals and make better decisions. Teradata's highly scalable decision support platform with specialized tools, data mining and web accessibility features, provides the analytic engine needed to interpret information gleaned from far-flung database resources, both within and across agency boundaries.

Whether working directly with federal institutions or via systems integration partners, Teradata's solutions are used in the data warehousing initiatives of the U.S. Department of Health and Human Services, the U.S. Air Force, the U.S. Navy, the Department of Labor, the Department of Justice, the U.S. Postal Service and the Department of Agriculture, among other federal, state and local government organizations.

While competitors may argue over database size and scalability, Teradata is recognized by customers as the only EDW supplier to offer multidimensional scalability, which roughly translates to the ability to expand a data warehouse, much like a rubber band, to meet the complex demands of any number of users, systems and queries. That's why, for example, the Center for Medicaid and Medicare Services recently chose Teradata for its EDW solution. Teradata's approach to analytics enables government healthcare agencies to gain consistent and accurate information for ad hoc healthcare delivery, improved quality and payment analysis, along with more sophisticated decision making than ever before.

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Healthcare Analytics in Action

In 1999, Michigan's Department of Community Health (DCH) was managing \$9.5 billion in funds, and was facing an ongoing challenge to reduce fraud and abuse, along with a desire to lower costs and improve overall program effectiveness.

In a nutshell, information-sharing and advanced analytics were desperately needed to support the nearly 1.2 million residents who depend on Michigan's DCH for a variety of healthcare services. Information silos housed on disparate computers and databases located within various separate agencies hindered the department's ability to analyze data and spot important trends.

The DCH turned to Teradata to provide an enterprise data warehouse (EDW), consolidating data from nine separate Medicaid agencies. Using advanced analytics, the Michigan DCH EDW has generated annual savings of \$75 million and reduced administrative costs for its Medicaid program by 25%. Most importantly, the EDW enables DCH to detect and reduce fraud, while maximizing efficiency and maintaining a quality standard of care.

Illinois, meanwhile, has taken on the challenge to reduce the number of babies born at low birth weights, along with other physical or mental disabilities, using advanced analytics to help integrate information from agency databases including Women In Crisis (WIC) and Medicaid, to help officials identify at-risk mothers and provide a full range of prenatal care and services.

Using a Teradata EDW to convert raw data from WIC and Medicaid files, along with OB/GYN records, Alcohol and Substance Abuse data and hospital information, health experts and technology specialists can now identify and help mothers get the prenatal care they need. And the result is a projected savings for Illinois of than \$100 million annually by reducing the need for neonatal intensive care services and long term healthcare for infants and children with disabilities. Teradata partners with Bull Services in the states of New York, Michigan, and Illinois.

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