

The Hidden Heart of Healthcare Change

**Organize your collective information, raise your
collective intelligence**

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Executive Summary

Plans are under more pressure than ever to find the elusive balance among quality, cost, and access. Initiatives designed to strike the balance – from disease management and clinical informatics through improvements in pricing and fraudulent claims identification – rely on rapid access to reliable data. Yet it can be a struggle to create an environment that allows them to get the most from their data.

This paper argues that implementation of a Teradata® platform creates the optimal data management environment. A proven decision support solution in healthcare and beyond, Teradata has three distinct advantages for today's healthcare challenges:

- > First, Teradata solutions ensure clean, reliable data and high performance levels, regardless of the expanding volume of information, complexity of queries, or data freshness requirements.
- > Second, Teradata's Healthcare Logical Data Model enforces extraordinary discipline and flexibility in the organization of data. It minimizes miscommunication, reduces the chance for errors, and speeds the communication of data and information requirements between parties. It also helps companies build their data environment incrementally without data redundancies or conflicts.
- > Third, the Teradata Data Integration Roadmap (DIr) – rooted in extensive experience in healthcare and data warehousing – eases the implementation process by helping companies plan and prioritize their build strategy. Companies get their data environment up and running quickly by acting on opportunities for immediate returns. The DIr also helps companies save time and money by ensuring that companies *source data once, but use it many times*, in many ways across the enterprise.

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As the industry evolves, healthcare discussions are turning angry and loud again. States such as Massachusetts and California are taking tentative steps toward state-mandated universal coverage. Presidential candidates are making proposals for nationwide change, some of which inch toward the single plan concept. Michael Moore's "Sicko" casts plans as villains in the tense and ongoing battle between containing costs and providing care. The core message to health plans and insurers seems to be: "Cover more people, offer more services, and improve the quality of care, but don't even think about raising premiums."

The pressures mount even though plans have spent much of the past decade rolling out new products and services that were supposed to keep costs down and keep members happy and healthy. Unfortunately, many of these efforts have not delivered as hoped. The reasons vary, but one that is often ignored might be the most important of all moving ahead: how health plans and insurers organize their information.

Why it Matters

Organizing data and information may not get the blood boiling, but it's not hard to understand why it's critical to balancing cost control with the demands for better quality and more individualized services.

Consider a single important decision regarding a single claim. Imagine that in order to find all of the information that contributes to the decision, you have to sift

through millions of papers strewn about a room without labels or organization and with the stacks in front obscuring your ability to see those in the back. Multiply that scenario by the thousands of decisions, big and small, that your organization has to make each day. It's frightening; a true nightmare scenario for any business.

Yet that room is a fair analogy for the way many organizations store their valuable information. This is no one's fault, simply the result of legacy efforts that provided immediate value, but today limit the ability to effectively manage the business. By struggling to logically organize data or implement tools that can zero in on appropriate information, it's almost impossible for even the most well-intentioned and otherwise well-designed programs to succeed. The effects of this failure play themselves out every day. Take the following two examples, based on real-life cases.

Renee is a 75-year-old Medicare Advantage member. She is mostly healthy, but after years of borderline blood pressure and cholesterol readings, her numbers tip into the danger zone. Her physician counsels her about diet and prescribes a drug for hypertension, but the system struggles to identify her as ripe for important prevention programs in which the health plan has invested. The reason it struggles is that disease management and clinical informatics data may not be linked and synchronized. Health education is not connected to the clinical data at all, but does hear about Renee's readings informally, through an email from the primary care physician. Because of the delays, Renee

hears nothing when she is most likely to act: immediately after her doctor visit. She does, however, get bombarded with information at an inconvenient time. Two weeks after the reading, clinical informatics sends her brochures about a disease management program for hypertension. A day later, health education sends her information about a class on living with high cholesterol. Days later still, the disease management nurse calls her personally, but by that time, Renee is frustrated and confused and chooses not to enroll in any of the options. It's a lose-lose situation, as those options could not only keep her healthy, but would save the plan dollars by reducing the likelihood of emergency room visits and further prescriptions of expensive drugs.

Contrast that with the case of Conor, a 27-year-old asthmatic who smokes and has averaged more than 30 visits to the emergency room each year. This year, however, with upgraded information, the system can generate the right messages at the right time. Consequently, when Conor calls in to ask a question about a recent claim, the call center screen shows his medical history and prompts the member services representative to suggest health education classes, including one on smoking cessation that a subcontractor offers within a few blocks of Conor's home address. Conor cuts his ER visits in half and as a result of the health education classes, begins using the local urgent care center when his primary care physician is unavailable. His health improves. Costs go down.

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Delivering a Single Version of the Business



Figure 1. A single version of the enterprise.

The Business Side

Better still, the benefits of integrated data extend far beyond serving members more effectively and maximizing investments in preventive care. From a business side, things such as fraudulent claims, incorrect claims payments, and poor pricing of premiums are considerable cost drivers. The ability to confidently do complex inquiries on your data enables you to make small corrections in each of these areas that can result in millions of dollars in savings. For a one-million member organization:

- > A 1% reduction in claims by reducing fraudulent claims activity – typically between 3% and 5% of healthcare spending – could save \$15 million.

- > Incorrect claims payments often account for 1% to 2% of claims dollars paid. Reducing payments by *one tenth of one percent* by reducing errors could save \$1.5 million.
- > More accurate pricing models depend in part on the type of timely and accurate information that better organized data can deliver. One half percent improvement in pricing could prevent \$4.5 million in losses.

Those are real dollars you can use to shore up the bottom line, better control premiums, or both. It is also where a solution from Teradata Corporation can make an enormous difference.

Getting from Here to There

In healthcare and many other industries, Teradata has proven its ability to bring together enterprise data and organize it into a single view of the business so companies can serve customers better. Our healthcare plan clients include WellPoint, Highmark® Blue Cross Blue Shield, Bundesverband der Betriebskrankenkassen and Harvard Pilgrim HealthCare; Teradata is also the decision support platform of choice for most of the major airlines in the U.S., key players in the gaming industry, and some of the world's largest retailers and financial institutions.

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In fact, since 1999 when Gartner Group first implemented its Server Evaluation Model report – which assesses data warehouse database management system server performance across multiple dimensions – Teradata has ranked first every year, including 2007.

Three Teradata characteristics stand out as especially important in healthcare: the flexibility of the Teradata platform, the Teradata Logical Data Model for Healthcare, and Teradata consulting resources and expertise.

A Platform That Adapts to Change and Growth

As healthcare *and* IT undergo enormous change in response to growth, regulatory demands, mergers and acquisitions, and/or various market forces, information is your most stable resource. Through all the changes, your environment must ensure clean, reliable data and high performance levels, regardless of the expanding volume of information, complexity of queries, or data freshness requirements. Teradata's open architecture works well with most existing tools and has proven to be enormously adaptable to change.

Consider the case of Highmark Blue Cross Blue Shield (BCBS), which was born in the 1996 consolidation of Blue Cross of Western Pennsylvania and Pennsylvania Blue Shield. Faced with the challenge of merging data from disparate systems, the newly formed giant initially relied on a legacy mainframe environment, but quickly found itself frustrated with response times. When it turned to Teradata, Highmark found that it got query results 300 to 700 percent faster. The benefits of the increased responsiveness and more flexible analyses rippled throughout the organization. Among them:

- > Highmark BCBS found it easier to meet mandatory reporting deadlines

Benefits of Implementing the Teradata Healthcare Logical Data Model

- > Improved data consistency and data quality.
- > A single, consistent view of data across the enterprise.
- > Improved communications with internal and external clients/customers, agencies, and vendors.
- > The ability to logically consolidate data from disparate databases; construct/develop the data portion of Electronic Medical Records (EMRs); facilitate internal and external data/information interchange, such as Regional Health Information Organizations.
- > Enhanced ability to better leverage existing data into usable information in business analytics, outcome studies, Business Intelligence, Relationship Management, and other key data intensive business initiatives (e.g., data warehousing and decision support).
- > Lower implementation cost through the reuse of existing data/information.
- > Simplified and rapid development of new application systems.
- > Substantial cost reduction associated with delivering business capabilities tied to enterprise data.
- > More effective use of information technologies, such as database management systems, portals, internet, metadata repositories, and change-control mechanisms.
- > Eliminate or significantly reduce cost associated with redundantly stored data, related processes, personnel, and CPU usage.
- > Improved healthcare delivery while reducing information related cost.
- > When implemented in an active enterprise intelligence environment, such as Teradata's AEI, access to relevant information at the point of need.

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Figure 2. A Blueprint for Corporate Information Assets.

for HEDIS/NCQA and could more confidently push forward its relationship management and fraud management programs.

- > After an initial claim, the legacy system took two weeks to allow access to claims information that could be used to identify members who are strong disease management candidates. With a Teradata solution, the business process was easily re-engineered. Tom Tabor, the company’s chief information officer says, “That kind of (quick) turnaround – with the flexibility and timeliness of the information – gives us new business confidence.”

- > For a business key indicator report that looks at an entire book of business and analyzes key performance measures – admission rates per thousand, specialist visits per thousand members, prescriptions per thousand members, some quality measures – the legacy environment took two weeks to produce a report that could begin to explain what was driving a change in utilization. Today, those reports run in a fraction of the time.

Another example: More than fifteen years ago, Teradata helped Community Mutual, a Blue Cross Blue Shield carrier in Cincin-

nati, Ohio, merge with Blue Cross Blue Shield of Kentucky. Teradata has remained the merged company’s decision support platform as these companies merged with the Associated Insurance Companies, Inc., in Indiana becoming Anthem Insurance Companies, Inc., and eventually, Well-Point, Inc. The early adoption of an integrated data repository allowed for the conversion of data assets into actionable information that continues to meet the growing business challenges of a larger organization.



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The Healthcare Logical Data Model

An open and scalable platform is critical, but maintaining performance and growing with your organization also depends on an industry-specific logical data model (LDM). Here's why: The size and complexity of the healthcare business – and its constant growth – implies the need for extraordinary discipline and flexibility in the organization of data.

The Teradata Healthcare LDM is the business user's view of their data, optimized for industry needs from trend management and product pricing to the ongoing challenges of consumer-driven healthcare. Teradata has built its Healthcare LDM by drawing on our experience in creating LDMs for other industries, as well as on our array of healthcare industry experts and feedback from our healthcare clients.

Perhaps the most significant advantage of an industry-specific data model is that it allows you to build your data environment incrementally, which is almost always the most effective approach. Most companies cannot and should not transform their data environment in one fell swoop and find that the best method is to build on successes. The key is to find an immediate priority and begin loading existing data into the new platform to successfully implement an important strategic initiative. Because the LDM ensures that each business fact

appears in exactly one place – and only one place – it reduces data redundancies and conflicts during this process, which makes the platform much easier to build on, while reducing the time-to-market for subsequent initiatives.

In addition, the LDM's common, structured vocabulary minimizes miscommunication, reduces the chance for errors, and speeds the communication of data and information requirements between parties. This means you receive the most reliable business intelligence – be it for identifying candidates for disease management or finding a fraudulent claim – faster, at a reduced cost, and with increased confidence.

Consulting Resources and Expertise

Of course, building a new and more efficient decision support environment is not just a matter of purchasing the technology. Combining the platform and LDM with a Data Integration Roadmap (DIR) will ease the implementation process by helping you plan and prioritize your build strategy.

The DIR is a business driven effort through which you identify key business drivers that will guide your implementation. We call those key business drivers business improvement opportunities (BIO) because they represent the best opportunities to use data to answer high-value business questions. These are then prioritized based

on business return and linked to the underlying data management framework.

Teradata's long history in healthcare and roster of industry experts (both in healthcare and in data warehousing generally) makes us the ideal partner for creating and implementing your DIR. Not only can Teradata get your environment up and running quickly and efficiently, with a plan for the future, but we can recognize opportunities that others might not. In particular, our methodology helps you get the most out of your data conversions by ensuring you *source your data once, but use it many times*, in many ways across the enterprise. This helps you dramatically reduce the cost and increase the value of building a new data platform. You can think big, but start small (one BIO at a time) and provide business value along the way to ensure continued momentum. And as you integrate more data you will get closer and closer to realizing something that may initially have seemed a monumental task.

In order for you to better understand how we view business improvement opportunities, we have developed the framework shown in Figure 3.

Again, the key to getting the most from this framework is understanding the data overlap across these initiatives and being able to optimize the data management design to eliminate redundant data and the problems associated with an inefficient data organization.

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Key Business Processes	Business Improvement Opportunities						
Health Management	Proactive Intervention	Medical Management	Utilization Analysis	Patient Care Management (In/Out Patient)	Health Education		
Operations Management	Network Management and Payer Relations	Claims/Encounter Analysis	Human Resources/EE Benefits Management	Underwriting Risk Analysis	Customer Service and Call Center Management	Government Programs Management	Supply Chain Inventory Management
Enterprise Risk Management	Reserve Analysis/Risk-Based Capital Development	Product Development and Pricing	Product Portfolio Analysis	Fraud and Abuse	Enterprise Exposure Management	Security and Privacy (HIPPA)	
Distribution Management	Channel Strategy Rationalization	Channel Usage Preferences and Profitability	Channel Management Recruitment and Retention	Sales Reporting and Performance Analysis	Channel Communication		
Finance and Performance Management	Enterprise Financial Reporting Analysis and Forecasting	Financial Process Optimization	Enterprise Performance Management Enablement	Operational Analysis and Reporting Enhancement	Consistent Compliance Infrastructure Assurance	Rebate Forecasting and Management	
Marketing/ Customer Management	Customer and Member Communication Management	Customer/Member Retention and Growth	Customer/Member Prescriber Acquisition	Product and Customer/Member Alignment	Market Research		
Pharmacy Benefit Management	Drug Utilization Review (DUR and RDUR)	Drug Trend Management	Pharmacy Network Management	Formulary Management	Specialty Pharmacy Management	Clinical Therapeutic Management	

Figure 3. Business Improvement Opportunities.

The data overlap analysis in Figure 4 demonstrates how this can work. In this example, we have three improvement opportunities that many plans would recognize. Of the total population of data required for Medical Management and Utilization Analysis, 43% is common. This represents an enormous incentive to move ahead with loading Utilization Analysis data shortly after completing the Medical Management data load because you can leverage so much of the data from the first initiative for the second.

Data Overlap Analysis

	Utilization Analysis	Medical Management	Channel Communications
Utilization Analysis		43%	7%
Medical Management	25%		4%
Channel Communications	10%	10%	

Figure 4.

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It's about Performance

Striking the complicated balance among expanding services and coverage, meeting regulatory demands, supporting the delivery of higher quality care, and containing costs has never been easy. It is not likely to get easier in the near future.

That's why the innovative use of enterprise information – accessible and actionable – is going to be crucial for healthcare moving ahead. Capturing and loading data in near real time, organizing it so that it supports multiple users and multiple queries, and provides immediate access to decision makers at all levels of the

organization will make an enormous difference. With our flexible platform, unique LDM, and expertise, Teradata is the best choice for creating that environment for healthcare organizations.

For more information about how Teradata can help your organization, contact your Teradata representative or visit Teradata.com.

About the Author

Karmon Schmitt, a Teradata healthcare industry consultant since 2005, helps health insurance companies and healthcare providers address the core issues of

profitability, data integration, and maximizing their use of data to solve business challenges. Prior to joining Teradata, Karmon worked 20 years in the healthcare field with companies such as Mayo Clinic, and Blue Cross Blue Shield of Minnesota. Karmon has a B.S. in Accounting and is pursuing a Masters degree in Business and Information Technology.

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