White Paper
March 2009

Performance management in healthcare

Patient-centered care, accountability and rising costs drive better performance

Information Management

Cognos. software

Contents

Abstract

Leading healthcare organizations are discovering the power of a performance management approach to decision-making, driven by business intelligence software. Trends such as patient-centered care, the demands of accountability, and rising costs are transforming healthcare and forcing hospitals to become more efficient in the way they manage their resources and deliver quality service. For many of these organizations, the solution includes powerful IBM Cognos® products for business intelligence and performance management.

Overview

Better reporting and business intelligence (BI) provide the tools to help meet many of the challenges of today's health systems. The next step is performance management, a strategic business direction. With a performance management approach, organizations are gaining a perspective of their entire business unlike anything they have seen before.

Vast amounts of disparate health and patient data are transformed into information assets. Healthcare professionals can effectively collaborate and make informed decisions. They can analyze resources, operations, and finances, measure against benchmarks, and plan for upcoming business cycles. They can be accountable to the public and regulatory agencies, and share information with patients and their families in keeping with patient-centered care.

IBM works with leading healthcare institutions worldwide and has proven its ability to help them meet these vital goals. Examples include Canada's Trillium Health Centre, where IBM Cognos business intelligence is helping to fulfill the hospital's mandate of patient-centered care. South Tyneside NHS Foundation Trust in England relies on IBM Cognos technology for its electronic patient records and wait-list management. And in the Netherlands, the Siza Dorp group demonstrates how reporting, analysis and planning tools are helping them focus and streamline management information to become a demand-driven organization.

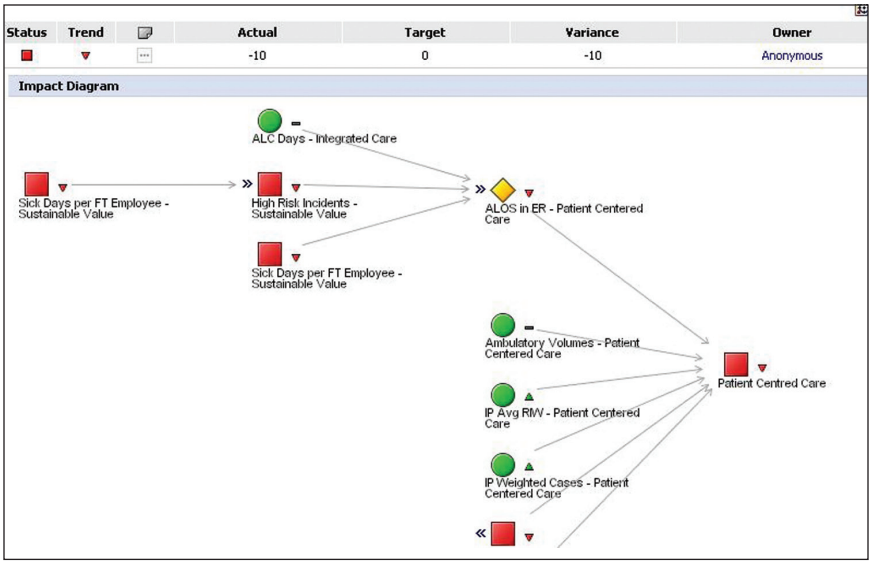

Figure 1: Impact diagram allows you to see the cause and effect metrics have on each other, providing better understanding of where problems are.

Business problems

Healthcare trends

Patient-centered care

Until recently, the model for healthcare delivery remained the same as it was a century ago, with the hospital and doctor's office at the center of the system. Each institution had volumes of medical files and data, but access to information and communication could sometimes be lost in silos along the continuum of healthcare.

Today's more patient-centered approach encompasses collaboration and communication among all providers throughout a person's care. It engages patients and their families in decision-making, giving them greater responsibility for their own health. New modes of delivery and information tools are now responding to this challenge, overcoming the concern that reporting has been overfocused on financial metrics or just what's available in an ERP database.

While institutions may not have focused enough on patient care metrics and data in the past, new performance management approaches are in step with patient-centered care. They take reporting out of its silos, and apply it across functions to manage performance better.

Performance management supports better patient outcomes, and provides the knowledge to run more effective organizations. For example, integrating your overall healthcare strategy through scorecards or strategy maps with the appropriate underlying reports lets clinicians understand what drives better care, and helps administrators see what drives the bottom line. More importantly, it keeps both financial and care objectives in balance.

Trillium Health Centre

Patient-centered care with performance management

The Trillium Health Centre is renowned for the way it delivers quality, patient-focused care to more than one million people in the Toronto region. This community hospital is home to one of Canada's busiest emergency departments, and the largest day surgery facility in North America. In addition to inpatient facilities, Trillium manages diagnostic, laboratory and pharmaceutical services, as well as community outreach programs.

Trillium continues to receive top honors for its innovative use of IT. What began as disparate data stored in 45 different systems grew to a homegrown dashboard, and finally to a business intelligence solution with Cognos. Now the hospital can unite, analyze and access information across every department. Administrators and managers are able to share common strategies with their 3,000 employees throughout this large urban hospital system.

A recent assessment by Canada's National Quality Institute Progressive Excellence Program noted that Trillium has engaged and supportive leaders at all levels, as well as inspired and motivated staff. It recognized that planning at the hospital is clearly linked and cascades throughout the whole organization.[1] At Trillium, business intelligence is more than an IT decision; it's a mission-critical strategy defined by the hospital's leadership.

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IBM and other IT partners are part of Trillium's long-term strategy known as THINK – Transforming Healthcare into Integrated Networks of Knowledge. Trillium is standardizing its entire corporate performance management cycle on IBM Cognos products. This will bring even greater benefits to the way the hospital plans and budgets programs, patient services and supplier requirements; measures and monitors delivery; and carries out reporting and analysis.

Already, business intelligence has led to smoother operations at the hospital, as well as resource savings. The new technology will give patients unprecedented secure access to their own health information. And over the next seven years, Trillium's investment in IBM Cognos performance management is expected to deliver a 46% annual return on investment (ROI), for a payback period of just 2.17 years.[2]

The largest return, however, remains the quality of care. The IBM Cognos performance management platform is supporting Trillium's mission to put the patient first.

Accountability, financial responsibility and quality care

Accountability is key to discussions on transforming modern healthcare. Incorporating sound business and financial management practices has become essential not only to individual hospitals, but also in the context of a more regulatory and participatory healthcare environment. Hospitals must be accountable to government health agencies, to patients and staff, to their boards of directors, to taxpayers, and to other funding sources.

The demands for greater performance and accountability are in every jurisdiction. In certain Canadian provinces, for example, regional health systems are required to gather and analyze similar metrics and report them to the provincial government and to the public on a regular basis. In England, the Healthcare Commission monitors standards and efficiency, and publishes performance ratings for indicators such as wait times. The Netherlands is moving towards more rigorous accountability measures, with a new Social Support Act, and the requirement for providers to register and report more fully on patient care.

In the United States, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is responsible for comparative benchmarking of performance. The nonprofit organization evaluates the standard of care at hospitals across the country through surveyor visits and performance measurements. This information is available to the public, and is part of accreditation to receive reimbursements from Medicare and Medicaid.

With a growing emphasis on monitoring the quality and consistency of care, the information required to support this level of accountability, through managing key indicators, has as much to do with operational performance as it does with financial management. This means information from different parts of the healthcare process and institution must be seen together.

However, the typical situation for many institutions is reporting against a single functional area, such as Finance or HR. Few institutions leverage the full value of business intelligence to gain a holistic view of the entire organization. While accountability may vary by definition and jurisdiction, it is a growing demand for which timely and specific information is essential. Hospitals are beginning to discover how IT-based performance management solutions can help meet that demand.

The rising costs of providing quality healthcare

The aging population is a global phenomenon, with major implications for health. People require more care and longer hospital stays as they age. Hospitals need to be prepared for the increasing number of seniors who will depend on the system now and in the years to come. Along with the aging population of patients, the same is true for healthcare personnel. Many hospitals report that their workforce is also aging, with retirement causing shortages in nurses, physicians, and specialists.

Chronic disease management among patients of all generations for conditions such as diabetes, heart disease and asthma is one of the most critical issues for health systems. At the same time, more prevention strategies, technological advancements and new treatments exist than ever before. They are available to hospitals that can afford them.

Every year, total health spending continues to rise. For some systems, the constant strain of limited resources has made issues such as wait times a major focus of the public and political agendas. These pressures all lead to one outcome: escalating operating costs.

Better use of information can help with the pressure, balancing use of funds with health outcomes. For example, administrators typically see length of stay reports in isolation. They may use such a report to identify "bed blockers." By correlating length of stay attached to specific procedures with a longer-term view on outcomes, they can see the impact on specific patient care at an aggregate level. They can determine, for example, whether quick discharge results in re-admitting for a class of patients, and the resulting extra burden on the healthcare system, not to mention the negative impact on the patient at the system's center. Acting on this type of report is not a stretch in logic for any healthcare provider, but accessing such a report can be with your information locked in silos.

Business drivers

How healthcare manages information

These three trends – patient-centered care, accountability, and managing rising costs – make the case for better information and better information management in healthcare. According to IT industry analysts Gartner Research, healthcare has more data than almost any other industry. However, it is widely acknowledged that hospitals are 'data rich, but information poor.' The cause is typically the number of separate operational systems – patient admissions and discharges, financial, billing and claims, lab tests, human resources, even databases for clinical research, among others. As noted briefly in the discussion around some of the trends, *cross-functional* data and analysis is the critical need.

While healthcare facilities collect a large quantity of data, key information is often stored in disparate and siloed systems, at various data entry and collection points. Correlating this data and ensuring its accuracy is a major task.

Reporting can be slow and labor-intensive, drawing on data from various spreadsheets, applications, and even paper documents. Many of these applications in healthcare were not designed for business processes on an enterprise scale. They have not always been modernized to accommodate the growing enterprise or complexity of healthcare services. Finally, in a sector where human resources are continuously stretched to capacity, there is little time left for staff and decision-makers to analyze the data that has been collected.

A growing number of providers have implemented business intelligence reporting to improve their visibility into core information. Still, it tends to be for a single functional area such as Finance or Human Resources. When hospital executives are asked about their information needs, they often say, '*We understand pieces of our organization, but can't understand the impacts of one area on another.*'

The next phase is linking varied sources of data to gain a more holistic view of their institution, and then tracking and managing the key business drivers to accomplish their strategic goals.

South Tyneside NHS Foundation Trust

BI for electronic records and wait-list management

South Tyneside is a network of community hospitals and outpatient care serving 180,000 people in northeast England. It became one of the new National Health Service (NHS) Foundation Trusts in 2005. When South Tyneside was looking for a comprehensive IT solution, it turned to IBM Cognos business intelligence. The direction had come from NHS to develop electronic patient and health records, and implement performance management. According to Gartner Research, the entire NHS is "in the midst of a pioneering program to transform itself using information technology."[3]

South Tyneside standardized on IBM Cognos BI because it offered:

- The ability to access a huge range of information locked within the system
- Powerful drill-down capability to reach and analyze specific data
- Strong Web capacity and interface with the hospital's existing database
- Outstanding potential for a hospital to report, manage and plan
- Secure access to electronic records without compromising patient privacy.

Business intelligence is at the core of South Tyneside's electronic record systems to ensure that patient data is not only accurate, but also accessible to managers via any of the Trust's 1,000 Web-enabled desktops. The software allows managers to draw information from relational databases to view and analyze specific data relevant to their department in a matter of minutes.

Reducing wait times is another major focus at South Tyneside, as it is for hospitals around the world. The Trust continues to set targets such as reducing the length of time patients wait for emergency care, operations and appointments, and cancer diagnosis and treatment. Business intelligence gives the hospital's managers critical, real-time information on wait lists so they can adjust staffing levels and resources.

"It is the breadth of access to management information, and the resulting ability to change information into knowledge that supports the decision-making process that is so impressive,"[4] says South Tyneside Executive Director of Corporate Governance Mike Robson.

South Tyneside continues to excel. England's Healthcare Commission gave the Trust a rare excellent score for the use of its resources in 2005-06. The Trust was found to be particularly strong at meeting all national targets including wait times, overall patient satisfaction, and only 0.1 percent of operations cancelled.

Strategic goals in healthcare

Healthcare providers' goals fit in the context of the trends already introduced:

Patient-centered care

- Better clinical outcomes
- Improved health status of patients
- Increased patient volumes

Accountability

- The availability of evidence, such as data collection
- Clinical and management decision-support systems for the uptake of evidence

Rising costs

- Efficient use of resources
- Increased capacity to deliver care
- Improved coordination
- Sustainability of the health system.

IBM Cognos healthcare customers, including hospitals, regional health systems, and unique entities such as blood service organizations, have experienced a range of benefits from applying business intelligence and performance management to these goal areas.

Foremost, the technology supports *quality and efficiency of patient care* through:

- Access to evidence-based information for improved clinical outcomes
- Wait-list management: tracking patient through-put, and establishing wait-time alerts
- Capacity management: tracking key indicators like critical incidents, discharge times, and patient transfers
- Predictability: viewing and analyzing all factors that impact a patient's length of stay
- Resource allocation: such as planning staff levels, workload, supplies, and number of beds.

IBM Cognos performance management also helps organizations improve *financial performance* by:

- Providing timely and dependable revenue and cash flow management
- Improving budgeting performance and forecast accuracy
- Linking financial ledgers to other corporate databases for a more holistic view
- Improving cost and revenue modeling.

Performance management has also benefited *operational performance*, by:

- Consolidating data on patient care, administration, financial and clinical
- Providing stakeholders with better access to information through the Web
- Enabling easier compliance and accreditation reporting
- Linking financial and clinical planning
- Improving demand and capacity modeling.

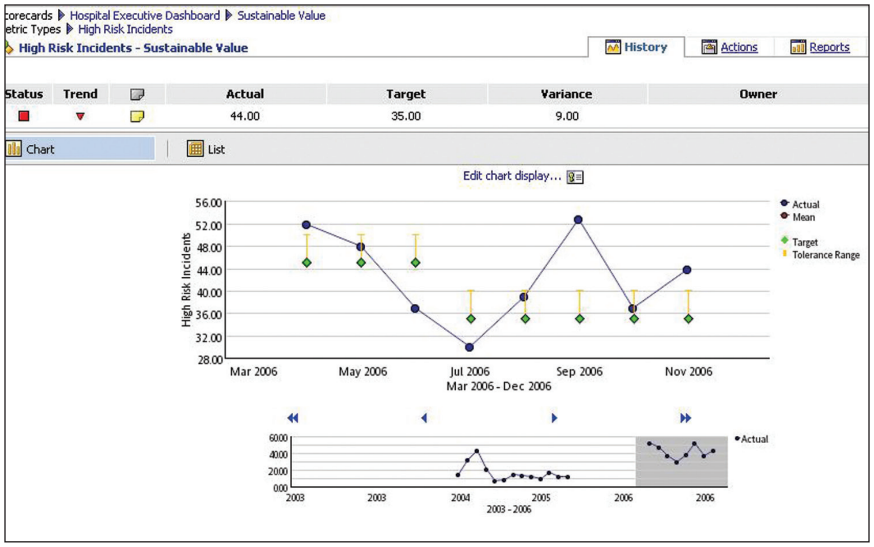

Figure 2: Data needs to be rendered in a way that makes interpretation quick and insightful. In this example, trend analysis from aggregated data for gives you rapid feedback on the variance from the expected values.

The technology can also support *specific clinical issues*, for example:

- Tracking epidemics, incidents of hospital-borne illness
- Spotting disease patterns in the community
- Profiling and identifying at-risk patients to improve intervention strategies
- Analyzing and comparing transplant patient improvement rates
- Measuring length of patient stays and re-admittance
- Monitoring factors that contribute to crowded emergency departments and realign resources
- Comparing the use and cost of prescribing generic vs. brand-name pharmaceuticals
- Comparing the results of treatments and medicines to improve clinical outcomes through evidence-based analysis.

All of these benefits demonstrate how reporting and business intelligence-led performance management overcome the key barriers to effective information use in healthcare: siloed information, and a dependency on existing transaction systems. Linking clinical data and financial data is crucial if healthcare administrators are to make the best decisions for how to apply healthcare dollars.

Institutions that have embraced BI-led performance management have realized tangible, quantifiable results. They are able to improve predictability in a sector that must at times confront both anticipated and unforeseen challenges, such as a sudden influx of cases.

Who benefits from such a solution? All the stakeholders: hospital decision-makers, managers of patient care, heads of departments, staff responsible for data analysis, doctors and nurses, and most importantly, the patients, families and the communities they serve.

Siza Dorp Group, the Netherlands

Reporting and planning for demand driven healthcare

Siza Dorp Group's services help more than 2,400 children, youth, and adults with physical and mental disabilities live and work actively in their communities. The result of a triple merger, the group employs 2,800 in more than fifty locations in the Netherlands.

"We wanted to become a demand-driven healthcare provider," says Thomas Geelkerken, project manager BI and Planning, Siza Dorp Group. "For that we needed dynamic, well-managed information that provided insight into our activities from various points of view. Cognos let this happen."

The group set out to streamline the provision of management information, focusing on finance, personnel, clients, and quality. It trimmed its large number of source systems down to four.

"We wanted an easy-to-use Web-based system for reporting, analysis, and planning," says Geelkerken. "Cognos also had a lot of experience and good references in healthcare." IBM Cognos products give the group up-to-date and detailed management information over the Web from several points of view.

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"Financial reporting and planning with Cognos has immense benefits," says Geelkerken. Using IBM Cognos products, location managers and the Board can now:

- View data at general ledger level
- Analyze past performance, note trends, and perform internal benchmarks
- See how many full-time employees are active at which location and at what cost
- Understand employee turnover and absence
- Enter financial figures directly into the system, which automatically reflects changes
- Quickly draft a budget with a minimum margin of error
- Create very detailed overviews, down to the expense level
- Make direct comparisons with previous years, since they did not need to introduce a new budgeting model.

The Siza Dorp Group chose IBM Cognos products over four other possible solutions.

The Solution

Healthcare performance management

Six years ago, Gartner Research introduced the term corporate performance management. They defined it as "all of the processes, methodologies, metrics and systems needed to measure and manage the performance of an organization."[5]

Performance management comprises the complete management cycle, from planning to executing, measuring to analyzing, and then re-planning.[6] Its merits are found in the seamless way decision-makers can move among three fundamental business questions: 'How are we doing?' 'Why?' and 'What should we be doing?' At its heart, it is about the cross-functional use of information, and usage that encompassed plans, reports, dashboards, and metrics.

How we are doing? – supported by scorecards and dashboards

- Monitor, measure, and track performance against strategic objectives and benchmarks
- Obtain improved and timely visibility into issues, identifying and rapidly correcting them.

Why? – supported by analysis and reporting

- Consolidate information across functions – patient, clinical, operations, HR, finance – to gain a better view of institutional performance
- Provide front-line workers, supervisors and management with tools and information to make better decisions
- Improve visibility into key data
- Satisfy mandatory reporting requirements on activity and spending.

What should we be doing? – supported by planning and forecasting

- Gain accurate, up-to-the-minute view of revenue and costs
- Adjust budgets quickly in response to new priorities and initiatives
- Improve predictability with proactive planning and forecasting.

The concept of performance management is not new— it is merely the formalization of good management practice. What is new is the ability to support these processes with an integrated set of tools, so that:

- All layers of management can communicate about plans, results, and analyses
- Data is drawn automatically from a variety of sources and is consistent across the enterprise, presenting a 'single version of the truth'
- Data is available in real time – that is, as quickly as it is needed for better decision-making.

Figure 3: Dashboards provide critical information at–a-glance. From there, you can drill into additional detail or analysis.

The impact of a well-implemented performance management system can be enormous. Executives can quickly see how effectively their strategies are carried out, and can react and fine-tune as required. Mid-level managers and individual contributors can view how well they are meeting targets, and focus their efforts on diagnosing, fixing, and improving processes to meet or exceed their commitments. And executives and managers can more easily work together and ensure they are properly aligned.

The end result is a rich definition of performance management. It creates an environment in which the relationships among business processes, from the top level of the enterprise to the individual worker, can be understood. Managers can prioritize their efforts to improve performance and gain maximum impact.

Organizations deploying healthcare scorecards and strategy maps are great examples of the power of performance management. A scorecard is a dynamic, easy-to-read visual representation of metrics. It allows an organization to set targets, link metrics, understand the correlation among metrics, and easily view trends. Ideally, the metrics are tied to an organization's overall strategy. A strategy map is a visual way to communicate an organization's mission, goals and metrics. It shows interrelationships across defined metrics and captures perspectives such as financial, customer, internal, and learning and growth.

By defining metrics and outcomes and relating each one with another, healthcare institutions underline the need to look at the system holistically, and define all of its activities in the context of others. This is the heart of performance management.

Performance management embraces a new way of thinking and operating, but well suited to healthcare professionals and institutions. Managers and executives make the transition from decisions based on intuition and experience, to fact-based, analytic management. The enterprise as a whole should view transparent and consistent access to information as a valuable asset. This is consistent with the model for efficient healthcare delivery.

IBM Cognos performance management

IBM is a global leader in the field. Its software and services give customers access to quality inter-related metrics and information in real time to support decisions across all the functions and divisions of their organization. The IBM Cognos performance management solution is delivered by:

- IBM Cognos 8 Business Intelligence – with business intelligence and features such as dashboards, scorecarding, and reporting analysis
- IBM Cognos 8 Planning – for integrated planning, budgeting, forecasting
- IBM Cognos 8 Controller – for financial consolidation and reporting.

Cognos consolidates information from various databases to produce user-friendly, comprehensive and automated reports. It enables in-depth analysis to monitor and measure performance against strategic objectives and benchmarks, and offers valuable insight for planning.

Conclusion

Can IT investments deliver better care?

When healthcare organizations look at making investments to improve patient care, they tend to look at funding staff or equipment – an MRI machine for example – rather than IT. Reporting, business intelligence and other performance management technologies must show their value outside of silos such as just HR and Finance.

The case studies in this paper show how some institutions demonstrate the value. For example, patient care dashboards provide a way to gather and correlate qualitative data from patient surveys, and quantitative data related to resource use, discharge conditions, staffing, and other factors.

Can such a dashboard make a difference? With effective correlation, which is the strength of a performance management approach to reporting, you can delve into the 'why' behind responses. For instance, through correlating data you may discover higher patient dissatisfaction in an area with higher turnover. Higher turnover means more use of agency staff, so patients see different healthcare professionals each day. This is especially problematic in a longer-term care facility. Better use of data helps you clearly identify problems, and then determine remedial solutions. In this case, you may better define agency contracts to reward repeated use of the same people, or ensure other methods of patient care continuity.

Among healthcare providers, there are already many information management and reporting solutions in place. However, in terms of performance management, the information and reporting has not reached the necessary level of maturity. There may be dashboards in place, but the dashboard might be financial and go against one specific functional area. The reports may be siloed, viewed separately, and lack common data dimensions or definitions. This limits the reports' use across the institution.

As the case studies indicate, business intelligence and performance management is an investment in patients; a means to bring clinical, operational, and financial data together; and in the end, a way for hospitals to serve their communities better.

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About IBM Cognos BI and Performance Management

IBM Cognos business intelligence (BI) and performance management solutions deliver world-leading enterprise planning, consolidation and BI software, support and services to help companies plan, understand and manage financial and operational performance. IBM Cognos solutions bring together technology, analytical applications, best practices, and a broad network of partners to give customers an open, adaptive and complete performance solution. Over 23,000 customers in more than 135 countries around the world choose IBM Cognos solutions.

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Endnotes

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