RIVER VALLEY HEALTH - MANAGING STRATEGIC GOALS AND DRIVING CULTURE CHANGE WITH THE DIVER SOLUTION™

CHANGING TO A CULTURE OF EVIDENCE-BASED DECISION MAKING: *"We needed a tool that would support a cultural shift towards evidence-based decision making,"* noted Andrea Seymour, Vice President & CIO at River Valley Health (RVH).

ABOUT RIVER VALLEY HEALTH:

River Valley Health (RVH) is responsible for health care in Region 3 of the Province of New Brunswick, Canada. Through their integrated network of hospitals, health centres, and specialty care programs they provide a broad range of health care services to 166,000 residents or 21.7% of the province's population. All sites are within driving distance of the regional hospital, located in Fredericton, the province's historic capital.

River Valley Health uses MEDITECH MAGIC. Dimensional Insight's Diver Solution™ is also available for MEDITECH Client/Server environments.

Like many nations, Canada's healthcare system is socially oriented and publicly funded. As a result, River Valley Health's use of reporting and analytics is driven by the need to be accountable to the government and the public. Management decisions are focused on making efficient use of public resources — not, for example, by the need to understand which product lines are the most profitable and why. Hence, RVH has a strategic plan that dovetails with the strategic plan for the Province of New Brunswick.

River Valley Health recently switched to a three-year planning and budgeting cycle that synchronizes with the budgeting process for the Province. The regional health authority's budgeting process is largely driven from the bottom up, built around the needs and requirements as seen by front line staff. As a result, the budget and accompanying business plan is put together from the ground up — and that led to the need for a flexible decision support tool that can be easily deployed to — and used by — front line managers.

In tandem with this, 2004 also saw the release of a four-year strategic plan for River Valley Health — which also integrates with the strategic plan for the province. While the budget naturally focuses on finance, the goals of the strategic plan are far more qualitative, centered on four strategic directions.

Dimensional INSIGHT

DATA→INFORMATION→ACTION

STRATEGIC DIRECTIONS:

- Healthy population: "RVH will contribute to the health of the population and ensure care provided meets identified need."
- Quality services and effective service delivery: "RVH will improve clinical performance and support our staff in the delivery of quality care and services."
- Strong people and strong partnerships: "RVH will cultivate a rewarding working environment and strong partnerships."
- Responsible stewardship and accountability: "RVH will exhibit high levels of accountability and stewardship and be financially responsible in the use of resources."

Each strategic goal in turn is supported by a number of initiatives. To chart progress, 25 global indicators have already been defined, with more still in progress. It's these indicators that River Valley Health needed to make available to management — together with the underlying data to empower smart, timely decision-making. It is more important than ever to provide front line staff with better, more up-to-date information so that they are able to account for their department's expenditure, or the quality of care delivered, for example.

"We were looking for a tool that can be used by anyone, from front line management through to our senior management team. For people to successfully adopt any new tool, we felt it was important to be able to bring together data from a variety of sources and let people look at it in a single view," stated Andrea Seymour.

River Valley Health is an integrated health care delivery network consisting of a main regional hospital in Fredericton, six remote hospitals, nine health centers and a vibrant homecare program. Altogether, RVH has 3,300 employees and 232 physicians. Patient information for all health facilities is maintained in a single centralized MEDITECH system. While RVH uses MEDITECH supplied reporting and decision support tools — NPR reports and ESS — those tools did not provide the functionality and flexibility needed to support a culture of evidence-based decision making.
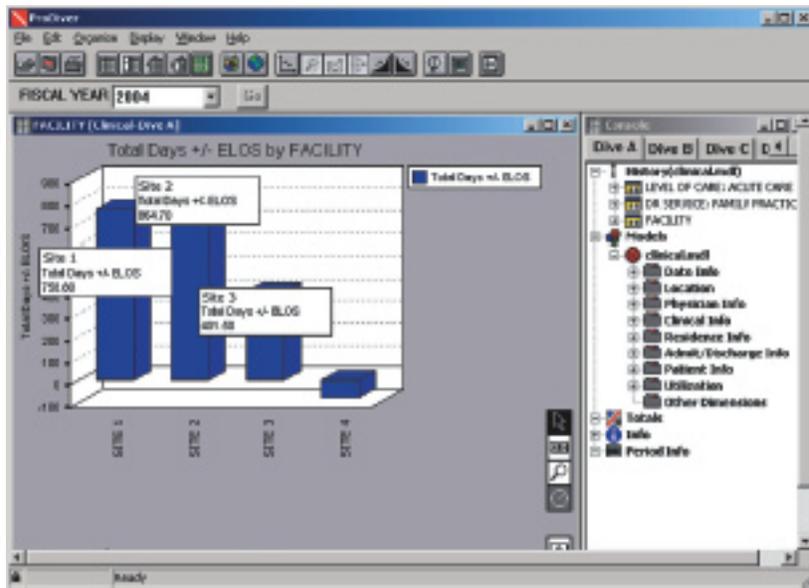
"While NPR is a powerful report-writing tool, creating reports with it is very much

an acquired skill, it just isn't suitable as an end-user tool. ESS on the other hand is more user-friendly. But, the paths you can navigate and the data you can explore are both pre-defined, so users don't have the ability to dive into the data and explore it any way they choose," continued Andrea Seymour.

The Diver Solution™ addresses those problems completely. All MEDITECH data is available to managers (ESS only provides access to a limited subset of the entire data set). In addition, data from any non-MEDITECH source can be integrated into analytic applications too. That includes relational databases such as Microsoft Access or Microsoft SQL Server™, data managed by applications from vendors like 3M, MSM and Purkinje, or any kind of flat files such as a comma-delimited (csv) file or Microsoft Excel™ spreadsheet. The end result is that users get a complete view of the data they need to support their role and they are fee to explore and view the data any way they choose.

INTEGRATING WITH MEDITECH AND DEPLOYMENT: The first application deployed with The Diver Solution is focused on improving utilization. The data model developed includes both clinical and utilization data, providing insight down to the case mix level and includes three years of data. Altogether, 75 dimensions are available to the user. That is, they can easily and quickly navigate through the data using whichever filters, criteria, summaries, or path they need to get to the information they need — without IT intervention. Data in this application is sourced from both MEDITECH and 3M systems and integrated into a single view for management.

Figure 1: Insights into network-wide bed utilization

This project fits under River Valley Health's fourth strategic goal, responsible stewardship and accountability. At the highest level, 15 global indicators are used to track utilization. These indicators include admissions, discharges and bed occupancy rates, for example. Overall deployment of the applications is governed by a decision support steering committee that evaluates progress and prioritizes projects. A number of different data models have been created and demonstrated to the advisory committee so that they can understand the potential of The Diver Solution ™ and prioritize development and deployment to areas with the most need or highest impact.

The impact on the effectiveness and productivity of staff is clear. In the past, River Valley Health used four analysts to support routine and ad hoc reporting, through NPR reports, or manipulating and massaging data using tools such as Microsoft Excel. "Everyone wants their own custom reports, nobody wants to use the standard reports," noted Pam Rippin, Regional Manager of Decision Support. "Also, often when an ad hoc report was developed specifically for a manager, that would lead to further questions and the need to modify the report or develop further reports. That work has now been significantly reduced. Dimensional Insight software is increasingly being used to build the models automatically, integrating a number of extracts from different MEDITECH modules and other software into a single view to a pre-defined schedule. As a result, management is able to perform its own ad hoc reporting without the need to constantly demand additional reports from the utilization group." Analysts now have time to validate, analyze and trend data.

Altogether, The Diver Solution™ taps about 12 data feeds from MEDITECH and 3M, including inpatient/day surgery, outpatient clinic registration, emergency room registration, end of day nurse census, room inventory and New Brunswick demographics.

AN EARLY SUCCESS: The utilization application has been deployed to a small group of users and progress is being evaluated by the steering committee. But, already key insights have been gained from the use of this tool.
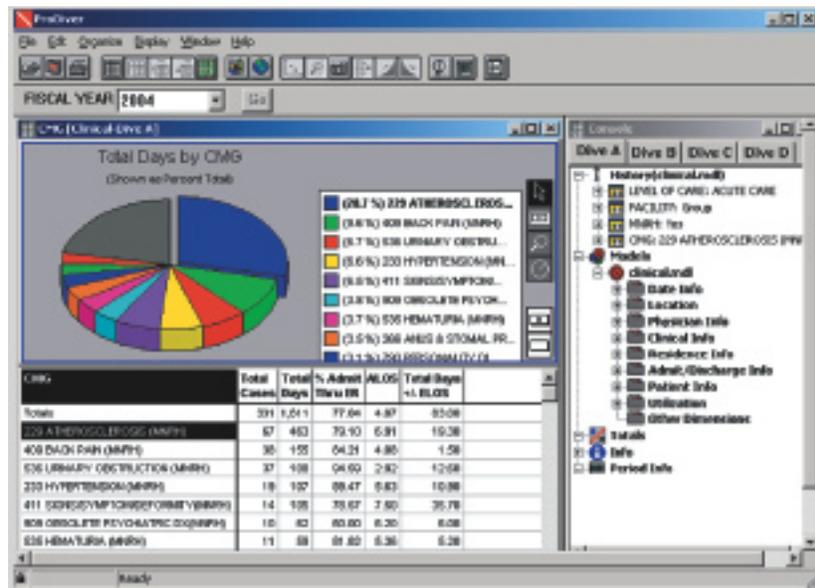
After two years of planning amidst significant public debate, River Valley Health decided to consolidate four smaller facilities into a new district hospital. As the design phase progressed, a review of current and past bed utilization was required in order to demonstrate that the bed capacity of the new facility would be adequate. With three years of utilization data from all of their facilities — the main hospital in Fredericton and six smaller hospitals — in HospitalAnalysis, it was very easy to show the trends, peaks and troughs in bed usage (see Figure 1). RVH was able to demonstrate that projected bed complement was sufficient to address current requirement.

Subsequently, the regional Utilization Committee requested that a review of current bed utilization be undertaken to ensure that there was consistency in practice (and bed usage) across all four facilities. This was easy to do with the data in their utilization model since it contained details on every admission

Figure 2: Understanding bed usage by CMG

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for the three-year period, right down to the case mix group (CMG) (the Canadian equivalent of a DRG) and diagnosis.

For a quick way to reduce bed days, they looked at the data to see which CMG's had many one or two-day stays — short stays that might perhaps be avoided altogether. The application helps managers at RVH to quickly and easily find ways to reduce bed usage; either by reducing length of stay or by treating patients in an ambulatory care setting. (A typical chart is shown in Figure 2). For example, the information supported the decision to develop a home health program for chronic obstructive pulmonary disease (COPD) that would reduce the number of COPD patients needing beds. Likewise, it identified a number of gastroenteritis patients who were admitted for only a one or two-day stay. Many of these patients could potentially be treated safely in an ambulatory care setting. Bed usage for other conditions such as false labor and back pain were reviewed in the same way. This information will allow the region to begin to improve utilization practice before the new facility opens in 2007, ensuring that bed capacity continues to appropriately meet the needs of the population.

LOOKING TO THE FUTURE: Over time, River Valley Health plans to switch from the ESS tool to The Diver Solution ™ in four key functional areas — finance, utilization, workflow and human resources. This would also include an increased number of external data feeds. For example, they plan to incorporate data from the Canadian Institute for Healthcare Improvement (CIHI) to enhance the current balanced scorecard. This would enable benchmarking at the regional, provincial and ultimately national level.

ABOUT DIMENSIONAL INSIGHT: Dimensional Insight offers business intelligence solutions that put you in command of your business. Companies worldwide use our technology to target opportunities, track performance, and increase profits. Our flagship product, DI-Atlantis, offers powerful reporting and multidimensional analysis. Navigating through data with DI-Diver is simple for non-technical users, enabling decision-makers across all functional areas of a corporation to access data quickly and intuitively. The solution provides flexible, scalable architecture, secure report distribution, and quick implementation. We also offer specialized solutions for wholesale/distribution, healthcare, manufacturing, and publishing.