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- Daniel Deatrack, Manager of Data Analytics,
Northeastern Vermont Regional Hospital



Northeastern Vermont Regional Hospital Uses “Bottom-Up” Dashboard Approach

Situation

Northeastern Vermont Regional Hospital (NVRH) is a community, not for profit, acute care, critical access hospital located in Vermont's historic Northeast Kingdom. NVRH prides itself in being the only Vermont hospital designated as a "Baby Friendly" hospital by the United Nations.

NVRH provides primary and preventive care, surgical and specialty services, inpatient and outpatient care and 24-hour, physician-staffed emergency services.

The hospital uses MEDITECH Business and Clinical Analytics (BCA) to support reporting against its Expanse EHR. However, they wanted to find a flexible, user-friendly reporting and analytics solution to meet specific needs of individual physicians, departments, and other stakeholders.

“Our BCA product was an out-of-the-box solution that had preset cubes anticipating what our information needs would be,” says Shawn Burroughs, Chief Information Officer at Northeastern Vermont Regional Hospital. “Some of the information was useful, but we were hearing from individuals and departments with specific reporting needs that were difficult to meet with our existing solution. We decided to look for a solution that would allow us to build exactly what any given user would need.”

Solution

NVRH decided to create its own reporting and analytics solution using a *bottom-up* development style—instead of a top-down approach. Bottom-up development refers to projects initiated by system users and information consumers, as opposed to C-suite executives or an application vendor. NVRH chose Microsoft Power BI as a development

environment, while working with Acmeaware Professional Services for guidance in working with the MEDITECH Data Repository.

“We wanted to create a single development environment for reporting and analytics,” says Daniel Deatrck, Manager of Data Analytics at Northeastern Vermont Regional Hospital. “We had been using a combination of BCA reporting, SQL Server Reporting Services, as well as some spreadsheets. We needed a more user-friendly environment for our developers, as well as for our users.”



Northeastern Vermont Regional Hospital. Serving the beautiful “Northeast Kingdom of Vermont.”

NVRH chose Power BI because it is easy to work with and has an inexpensive licensing model that would allow it to be used in an additive fashion, as some of the hospital’s reporting would continue to come from BCA and Reporting Services.

Most importantly, Power BI would enable Deatrck and his team to engage in the kind of bottom-up report creation they needed to precisely meet the reporting and analytic needs of the hospital’s broad spectrum of users. The team uses SQL Server Management Studio for data modeling and creating stored procedures to perform data crunching before sending to the dashboards created using Power BI.

Acmeaware Knowledge was Key

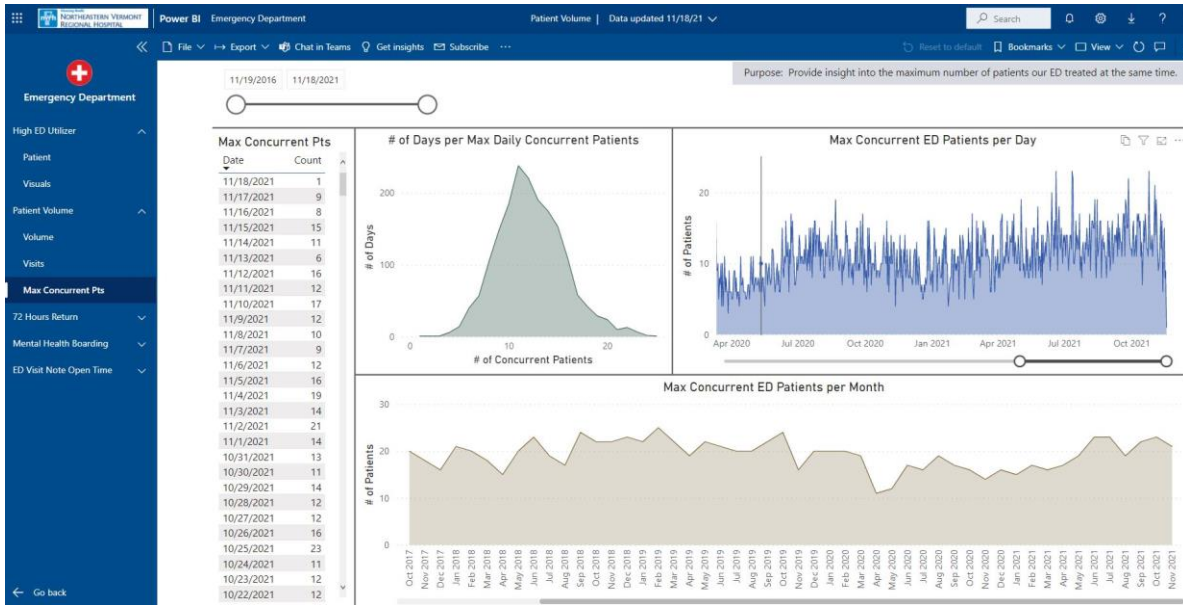
“A key part of our strategy was to tap into the vast and deep knowledge that Acmeaware has of the complex MEDITECH Data Repository,” Deatrck says. “The Data Repository is vast and

requires extensive application-specific knowledge to navigate. We didn’t want the complexity of data mapping to get in the way of swiftly creating personalized reporting solutions for our users.”

Bottom-Up Strategy: Let Your Happy Customers Spread the Word

CIO Burroughs and Deatrck decided to roll out their new personalized reporting and analytics solution using a word-of-mouth bottom-up strategy. They simply began creating solutions for individual users and let the word spread.

“Word of what we could do got out in a hurry,” Deatrck recalls. “People would stop me in the corridors and ask about a solution we had created for one group and want their own custom dashboard. I try not to go to too many meetings, because every meeting I go to, I seem to come out with two or three new projects.”



Emergency Department Expansion Dashboard. To help plan for expansion needs, this dashboard was created to show number of concurrent Emergency Department patients, maximum concurrent patients by time of day, maximum concurrent patients per month, and other data.

Benefits

Northeastern Vermont Regional Hospital has enjoyed a number of benefits working with Acmeaware and implementing a bottom-up approach to reporting and analytics, including: precise solutions, having Acmeaware Professional Services as a go-to source for Data Repository questions, an increased sense of ownership, ability to drill down into the data, no more waiting for data to load, a faster turnaround time, and great customer service.

A Bottom-Up Iterative Approach Yields Precise Solutions

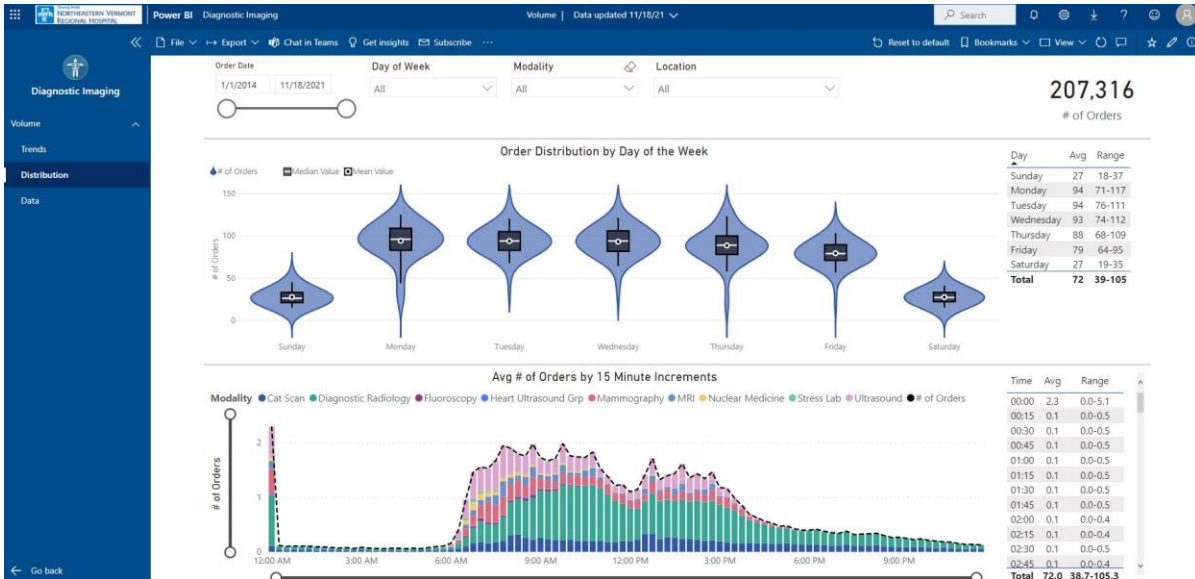
When Deatrick’s team gets a request for a new reporting solution, a data analyst works directly with the person requesting it.

“There are no committees involved,” Deatrick says. “One of us will sit with the person, ask for exactly the data they need, and how it will be used, and then create a custom dashboard just for their own use.”

Along the way, they will publish the new dashboard, send a link to the user and ask how this is meeting their needs. This iterative process results in personalized solutions that enhance personal productivity and yield very happy internal customers.

When the hospital began studying the need for enlarging its Emergency Department, the director of the project asked for a custom dashboard.

“Working with the project director, we identified relevant data such as number of concurrent Emergency Department patients, maximum concurrent patients by time of day,



Diagnostic Imaging Dashboard. Deatrck’s team created a dashboard showing use of diagnostic imaging equipment in 15-minute intervals.

maximum concurrent patients per month, and other information and created an easy-to-use dashboard,” Deatrck says. “At a glance, the project director can see usage trends, and then drill down into any specifics of interest.”

Another dashboard project was created for the hospital’s director of Diagnostic Imaging, who wanted to visualize when and where diagnostic equipment was used.

“She wanted to see volume over time,” Deatrck says. “She wanted to know things like how many diagnostic orders were made, for which type of equipment, by which departments, as well as by provider—filterable to six years back.”

Deatrck’s team created a dynamic dashboard that let the director filter by whichever variables required. This allowed her to see, for example, how many thousands of MRI, CAT scans, ultrasounds, mammograms, and other imaging diagnostics were ordered each year for

each department, and then look at year-over-year trends.

“The dashboard, among other uses, helped provide insight into staffing needs by seeing equipment usage by day of week and hour of day,” Deatrck says. “Knowing where the information is within the Data Repository, we can pull it into easy-to-use dashboards that help our people gain insights to help guide their planning and decision making.”

Having Acmeaware Professional Services as a Go-To Source for Data Repository Questions

Part of Northeastern Vermont Regional Hospital’s strategy for swiftly creating personalized, high-impact, dashboards for their users is to incorporate the deep knowledge of the MEDITECH Data Repository that Acmeaware Professional Services brings.

“Acmeaware is our go-to if there's something we can't find inside the Data Repository, because they have so much experience working in the DR,” Deatrick says. “When it comes to the MEDITECH DR, Acmeaware has vast expertise and long experience.”

Knowing precisely where to find the data is essential to successful dashboard creation—and a major time saver.

“The MEDITECH Data Repository has more than 18,000 tables spread across two different databases, and more than 150,000 discrete data fields,” Deatrick says. “I don't care what visualization tool you use, you're not going to be able to answer questions unless you know exactly where each piece of data comes from. We have multiple departments, and they all have their own reporting and analytical needs. Meeting those needs requires locating exactly where each of the data elements are stored across all those thousands of tables and data fields. Acmeaware has the experience to help us do that.”

Increased Sense of Ownership

One benefit of the iterative, personalized, development approach that Deatrick's team uses is the strong sense of ownership users have with the dashboard that's created.

“We are working side by side with the person who has asked for a dashboard, and it's built specifically for them to answer *their* questions and make *their* decisions,” Deatrick says. “The result is a strong sense of ownership. You don't have to nudge them into using it. They are helping us build it. It is their baby and they love to use it.”

Ability to Drill Down

Deatrick's team uses Power BI combined with selective data imports from the MEDITECH Data Repository to support the ability for users to drill down into the data.

“With our previous system, there was little ability to look deeper into the data, which frustrated our users,” Deatrick says. “Now our users can enjoy the convenience of data visualization with our Power BI dashboards, while being able to drill down to see whatever details they need.”

The ability to drill down into the data is especially appreciated by the hospital's financial team. “We have people who want to download the data into an Excel spreadsheet, which is easy to do from Power BI,” Deatrick says. “With a couple of clicks they can download the whole data set and apply whatever filters they like.”

No More Waiting for Data to Load

With more than 18,000 tables in the MEDITECH Data Repository, Deatrick's team brings in only relevant data to enable instantaneous responses, while also providing the granularity required for drill-down exploration.

“Acmeaware can help you find the precise tables you need, and with Power BI it is easy to bring them in,” Deatrick says. “This is important because you can literally hold the arrow down for minutes as all the thousands of tables in the Data Repository scroll by. With our previous solution, users had to wait a long time for some queries to process. With our bottom-up Power BI solution there's no more waiting for data to load.”

Faster Turnaround Time

Acmeaware's knowledge of the MEDITECH Data Repository helped slash development time for reporting projects. Deatrick mentions an anesthesia project in which it was difficult to assemble all the tables and fields that would be required.

"A group could spend years trying to acquire the MEDITECH Data Repository knowledge that Acmeaware provides," Deatrick says. "Tapping into their knowledge greatly reduces the time required to create a reporting solution."

Great Customer Service

Northeastern Vermont Regional Hospital values the great customer service it receives from Acmeaware. NVRH also uses Acmeaware's Downtime Defender, a secure downtime application and report delivery system for the MEDITECH 6.1 and Expanse platforms. Downtime Defender, based on Acmeaware's 20 plus years of experience in working with MEDITECH and its Data Repository, helps ensure organizations can survive ransomware and other cyberattacks, and natural disasters without losing access to their data and reporting.

"We recently had a question about Acmeaware's Downtime Defender," Deatrick recalls. "We wanted to add something. I called, talked to someone on the phone and they fixed it immediately. We didn't have to fill out a trouble ticket and wait days for an answer. They took care of it on the spot. They are responsive and extremely user friendly."

Deatrick also values the community of users that has formed through Acmeaware's Partnership User Group (PUG).

"Acmeaware brings MEDITECH hospitals together every few months where we can talk with each other about how we're handling reporting, share best practices, and talk about how we pull data in to support visualizations," Deatrick says. "This creates a community between the hospitals, a central hub for this community of users of MEDITECH data. It's really helpful to bring everybody together so we can talk about what we are doing."

About Acmeaware

Established in 1998, Acmeaware specializes in report consulting services and software solutions based on the MEDITECH Data Repository, including [Microsoft Power BI](#). Whatever your data needs from MEDITECH, our professional services and solutions can deliver what you need. Our clients are hospitals throughout the United States and in Canada, Australia, and the Caribbean, many of whom we enjoy a long-term collaboration with via our [Partnership Program](#). We have a skilled staff of professionals working from our main office in Dedham, Massachusetts or from remote offices across the country. Our consultant analysts, developers, and executive staff have many years of experience in MEDITECH hospitals, working at MEDITECH, and sometimes both. As a MEDITECH collaborative vendor, we enjoy a positive working relationship with them and many other industry partners as well.

For more information, visit us at <https://acmeaware.com>.