BD MedMined™ Surveillance Advisor helps improve outcomes and reduce costs.

During a three-year system-wide implementation, Nosocomial Infection Marker (NIM) rates helped protect 418 patients, save $3.2 million and avoid 3,584 patient days, totaling $3,224,562 in potential cost avoidance.

“By giving every nurse manager access to the NIM data via the NIM analysis tool, each unit was able to take ownership of their rates and provide feedback about possible solutions.”

Beth Goodall, RN, BSN, CIC
Epidemiology Director
DCH Health System
Tuscaloosa, Alabama

*Results experienced by DCH Health System facilities reflect infection prevention surveillance processes in combination with MedMined Surveillance Advisor technologies.
About DCH Health System

DCH Health System offers high-quality, compassionate community-based health services to Western Alabama. Founded more than 90 years ago, it today consists of four facilities offering inpatient and outpatient services. DCH Regional Medical Center is the cornerstone 583-bed facility with the region’s most advanced trauma center. Northport Medical Center is a 204-bed facility specializing in physical rehabilitation and mental health services. Fayette Medical Center is a 61-bed rural hospital and 122-bed accredited skilled nursing care facility. Pickens County Medical Center is a 56-bed county-owned hospital.

Named one of the “Top Performers on Key Quality Measures” by The Joint Commission for “exemplary performance” for using evidence-based clinical processes to improve patient care, DCH Health System is committed to accountability measures for positive outcomes.

Infection Prevention Focus

Infection awareness as a patient safety and outcome measure beyond infection prevention increased in 2002, with the Alabama Hospital Quality Initiative (AHQI). As a key supporter, MedMined Surveillance Advisor helped boost infection-improvement conversations in C-suites state-wide.

“Awareness from hospital administrators brought infection prevention to the forefront,” according to Epidemiology Director Beth Goodall, RN, BSN, CIC, DCH. “We needed a way to identify and track improvement opportunities throughout all areas of the hospital and involve each unit with their specific reduction goals.”

Implementation

The solution that fulfilled DCH Health System’s vision was MedMined Surveillance Advisor from CareFusion. This automated software tool helps hospitals identify and track HAIs facility-wide and monitor medication stewardship. These measures can improve patient safety, prevent infections and reduce costs throughout all treatment areas. The service transforms data into actionable intelligence by applying proprietary algorithms to identify distinctive patterns marking the presence of infectious agents. The NIMs can then be used as an objective, reproducible, clinical case-finding tool to benchmark quality initiatives within an organization. Because NIM rates are correlated with cost, length of stay (LOS) and chart review findings associated with HAIs, they can then be integrated with hospital accounting data as viable indicators for the financial impact of infection prevention.

However, new system implementations often present challenges. “Overcoming a defensive attitude was a challenge at first,” said Goodall. “Introducing new metrics is always difficult and can be met with resistance, especially if the data is highlighting opportunities.” The key was fostering a positive “culture of improvement” instead of looking at the data as negative.

“Once we educated our staff on NIMs, they understood they are a weekly indicator of their infection prevention performance. The attitude changed from skepticism and uncertainty to interest and involvement. The NIM data facilitated ownership and root-cause investigations at the unit and process levels,” said Goodall.

Prior to MedMined Surveillance Advisor, IPs were required to manually review individual reports of every positive lab culture as well as manually track trends and identify HAIs. “MedMined Surveillance Advisor valuably offers the NIM analysis tool, which provides easy-to-access data anyone can view. By giving every nurse manager access to the NIM data, each unit was able to take ownership of their infection rates and provide feedback about possible solutions.”

For example, NIM data inspired NICU initiatives that led to ventilator and central line bundle implementation, as well as ventilator insertion and changes to the maintenance process. With more than 365 days without an occurrence of ventilator-associated pneumonia, the spotlight on the NICU’s success helped steer changes throughout their unit and across two campuses.

About the data

Over three years, NIM rates system-wide helped protect 418 patients, save $3.2 million and avoid 3,584 patient days, totaling $3,224,562 in potential cost avoidance after the implementation of MedMined Surveillance Advisor.

NIM reductions

- 14% reduction in urine NIM rate
- 13% reduction in blood NIM rate
- 9% reduction in wound NIM rate
- 4% reduction in stool NIM rate
- 22% reduction in respiratory NIM rate

Each year, NIM rates decreased by approximately 12.7% (p<.005), protecting an estimated 418 patients across the system. Since the implementation, the total NIM rate, or the total number of NIMs acquired as a rate of total admissions has decreased by an average of 15%.1

“It’s not about data only, but about what MedMined Surveillance Advisor allows us to do. The NIM analysis points out improvement opportunities that help link care from the inpatient side to the outpatient side in many cases,” said Goodall.
The data’s influence extends beyond each hospital unit to help influence system-wide improvements as well, according to Goodall. For example, blood NIMs that were reviewed on the inpatient oncology unit led to conversations with the DCH Health System cancer center about best practices for accessing and maintaining long-term central lines, which are essential to preventing bloodstream infections. Also, readmission prevention discussions related to catheter-associated UTIs (CAUTIs) and wound infections brought the inpatient and outpatient care teams together to find ways to better protect patients. “MedMined Surveillance Advisor has also provided information needed via organism susceptibility results to assist our Antibiotic Stewardship Program with minimizing the development of drug resistant pathogens,” Goodall said.

### Three-year DCH Outcomes

<table>
<thead>
<tr>
<th>12 Months ending June 30, 2013</th>
<th>Patients Protected</th>
<th>Potential LOS avoided</th>
<th>Potential cost avoided</th>
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<tr>
<td>2011</td>
<td>165</td>
<td>1,425</td>
<td>$1,305,819</td>
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<td>2012</td>
<td>130</td>
<td>1,109</td>
<td>$1,092,891</td>
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<td>2013</td>
<td>123</td>
<td>1,050</td>
<td>$825,851</td>
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<tr>
<td>Total</td>
<td>418</td>
<td>3,584</td>
<td>$3,224,562</td>
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### Fiscal year-to-date RMS overall NIM scorecard

<table>
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<tr>
<th>NIM Rate</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
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### References

1. National average is based on a MedMined analysis of 3.9 million discharges during July 1, 2012 to June 30, 2013

**Conclusion**

Overall, MedMined Surveillance Advisor helped DCH Health System achieve not only better outcomes and reduced costs, but also foster a hospital culture focused on embracing new methods to help identify and track improvement areas enterprise-wide.

“MedMined Surveillance Advisor helped change the way we engage employees, from adminstrators to the bedside. I cannot imagine going back and not having the tool.”

Beth Goodall, RN, BSN, CIC

BD MedMined™ Birmingham, AL