

## **Practice Makes Improvement: Michigan Catheter-Associated Urinary Tract Infection Trends**

### **Background**

The Michigan Department of Community Health (MDCH) Surveillance for Healthcare-Associated and Resistant Pathogens (SHARP) Unit conducts state-wide Healthcare-Associated Infection (HAI) surveillance via the National Healthcare Safety Network (NHSN). Although reporting to MDCH SHARP is voluntary, the Centers for Medicare and Medicaid Services (CMS) requires that acute-care hospitals report Catheter-Associated Urinary Tract Infection (CAUTI) surveillance data via the NHSN (effective January 2012). Previously reported low Michigan CAUTI standardized infection ratios (SIRs) and device utilization (DU) ratios may be attributed to longstanding CAUTI surveillance and prevention efforts.

### **Methods**

Michigan accepts all CAUTI data shared voluntarily from acute care hospitals. The NHSN calculates SIRs, comparing time-specific Michigan CAUTI data to 2009 risk-stratified national CAUTI baseline data. DU ratios, comparing urinary catheter days to patient days, are also provided. SIRs and DU ratios were calculated overall for 2011, and quarterly for the first three quarters of 2012. A subset that consisted of twenty-five hospitals which shared data in 2011 was compared to all 69 hospitals reporting data in 2012.

### **Results**

The 2011 overall Michigan CAUTI SIR was 0.739 ( $p=0.0002$ ) for 25 hospitals. By the second quarter of 2012, the overall Michigan CAUTI SIR was 1.341 ( $p<0.0001$ ) for all 69 hospitals. This elevated SIR continued into the third quarter (SIR=1.170 ( $p=0.0146$ )). The original 25-hospital subset maintained a low SIR through the first three quarters of 2012 (SIR=0.743 ( $p=0.0339$ ), SIR=0.962 ( $p=0.4353$ ), and SIR=0.670 ( $p=0.0126$ ) respectively). The overall Michigan DU ratio for 2011 was 0.267 for 25 hospitals. In 2012, the overall DU ratio was elevated (range 0.365-0.412) for all 69 hospitals, while the original 25-hospital subset continued to fall below the 2011 level (range 0.232-0.242).

### **Discussion**

Historically, Michigan has reported low CAUTI SIRs. The addition of 44 hospitals due to the CMS mandate in 2012 contributed to a dramatic increase in state SIR and DU ratio values. However, the original 25-hospital subset continued to demonstrate low SIRs and DU ratios. Hospitals reporting prior to the CMS requirement were likely involved in CAUTI prevention initiatives. In Michigan these are most often led by the hospital association. This demonstrates that CAUTI prevention and surveillance initiatives can contribute to improvements in infection rates over time, and that hospitals that sustain efforts to reduce catheter usage and prevent infections can maintain a lower-than-expected number of infections.