**Health Care Associated Infection**

**Annual Report to the Joint Committee on Health and Human Services**

**January 31, 2010**

**Dirigo Health Agency's**
**Maine Quality Forum**

## EXECUTIVE SUMMARY

In 2008, the Maine State Legislature amended Section 6951 of Title 24-A of the Maine Revised Statutes directing the Dirigo Health Agency's Maine Quality Forum to submit a report to the Joint Committee on Health and Human Services on hospital performance in the area of prevention of healthcare associated infection (HAI). This report will include the results of performance measures currently submitted, a summary of collaborative infection control efforts in Maine, and a summary of additional reporting requirements under consideration in the Maine Quality Forum Advisory Council. In the first regular session of the 124th Legislature, Resolve Chapter 82 was adopted. This specified reporting by the Maine Quality Forum on patients at risk for colonization and infection by methicillin-resistant *Staphylococcus Aureus* (MRSA), as well as investigation into HAI prevention and control programs in Maine's hospitals.

**Part I** of this report contains tables which describe hospital performance in three areas relating to prevention of HAI and the incidence of one type of HAI. Specifically, hospitals are required to report to the Maine Health Data Organization on:

- 2 pneumonia care process measures (both having to do with timely administration of antibiotics)
- 6 surgical care process measures, all having to do with care processes that are associated with decreased infection (e.g. pre-op antibiotic administration, proper hair removal, etc.)
- 2 outcome measures on incidence of central line associated bloodstream infection (CLABSI), in intensive care units (ICUs) and in neonatal ICUs
- 2 process measures for compliance with care processes to prevent CLABSI in ICU and in perioperative areas
- 1 process measure for compliance with care processes to prevent ventilator associated pneumonia

The 13 original measures are reported publicly on the MQF website. Summary graphs showing hospital performance over a three-year period are included in this report. The vast majority of Maine hospitals outperform the national averages in measures for which national benchmarks are available, and many perform in the top 10%. For the single

outcome measure (occurrence of CLABSI in adult and neonatal ICUs) there is wider variation in performance and fewer hospitals outperform national benchmarks. The challenge for providers is to maximize compliance with preventive processes and drive adverse outcomes to zero.

**Part II** of the report is an update on the activities, accomplishments, and plans of the Maine Infection Prevention Collaborative which convened originally in 2008. Major accomplishments of the group in 2009 included:

- Merging of separate northern and southern groups into a single entity
- Continued work toward developing valid accurate comparable hand hygiene data as well as evaluation of that data in member hospitals with internal comparison of compliance rates by healthcare workers at member hospitals
- Participation with the Maine CDC in the drafting of the federal grant application as well as the development of a state HAI plan to be implemented with funding through the American Recovery and Reinvestment Act (ARRA)
- Participation in the Maine Quality Forum's workgroup to implement targeted surveillance of high risk populations for MRSA colonization
- Continued expansion of the number of Maine hospitals participating in the federal Centers for Disease Control and Prevention's National Healthcare Safety Network, a vehicle for reporting and benchmarking prevention and incidence of HAI
- Assistance with a statewide conference held by the Maine Association of Hospital Pharmacists on antibiotic stewardship.

The American Recovery and Reinvestment Act of 2009 resulted in the ability of the federal CDC to support the development of capacity within state health departments for prevention of healthcare associated infection. Maine CDC has been awarded $965,000 for this program, which will be administered by the Division of Infectious Disease within Maine CDC. This project has three areas of focus, including development and enhancement of programmatic HAI prevention efforts, detection and reporting of HAI data, and establishment of a prevention collaborative. This will provide further opportunities for collaboration among Maine's hospital epidemiology community and Maine CDC in HAI control and prevention.

**Part III** of the report summarizes results of a survey carried out by the Maine Quality Forum of Maine hospital infection prevention and control capacities and programs, as specified by Resolve 2009 Chapter 82.

**Part IV** of the report discusses new indicators of hospital performance in the area of healthcare associated infection. One new indicator, HAI-6, was developed in the past year. This will measure performance of hospitals in accomplishing active targeted surveillance for MRSA colonization in members of potentially high risk population groups at the time of hospital admission. The rationale for this indicator and the process of its development is a result of legislation passed during the First Regular Session in 2009. The Legislature passed PL 2009, Ch. 346 and Resolve 2009, Ch. 82, focused

primarily on Methicillin Resistant Staphylococcus Aureus, or MRSA. PL 2009 Ch 346 requires hospitals to perform targeted surveillance for MRSA in high-risk populations defined by the Maine Quality Forum. Resolve 2009 Ch 82 requires rulemaking by the Maine Quality Forum and the Maine Health Data Organization regarding MRSA. Since passage of this legislation:

- Rules regarding definition of high-risk populations and targeted surveillance of these populations in our hospitals have been promulgated
    - Targeted surveillance of members of 5 groups for MRSA colonization on hospital admission (recent hospitalization, recent nursing home stay, hemodialysis, patients from prison or jail, and patients admitted to ICUs). The colonization rate for these groups in each hospital will be reported, as will the performance on the hospital on screening them (how many group members admitted compared to how many screened). This is the protocol and reporting structure that was a response to last session's legislation.
- Screening of these groups for colonization with MRSA began on January 4, 2010
- Analysis and subsequent reporting of the results of the screening of these groups will begin after six months of data collection

This protocol is the result of a collaborative process convened by the Maine Quality Forum which included representatives of the Maine Hospital Association; the Maine State nurses Association, and the Maine Infection Prevention Collaborative and consumers. A copy of the screening protocol is appended as Attachment 2 at the end of this report.

There has been progress in the last year in the area of healthcare associated infection, but clearly more needs to be done. There is potential for leveraged improvement through cooperative efforts of the Maine Infection Prevention Collaborative (MIPC), particularly in promotion of hand hygiene and in increasing participation in the reporting mechanisms of the National Healthcare Safety Network (NHSN). The variability of program structures for control of multi-drug resistant organisms (MDRO) in Maine hospitals is of concern. It is hoped that continued participation of all of Maine's hospitals in the MIPC will facilitate the statewide spread of best infection prevention and control practices.

## FULL REPORT

Chapter 594 of the Session Laws of the 123rd Maine Legislature, now incorporated into the statute governing the Dirigo Health Agency's Maine Quality Forum, directs the Forum to

- "*Submit a health care provider-specific performance report … including health care-associated infection quality data that is submitted by providers to the Maine Health Data Organization."*
- *"Report to the joint standing committee of the Legislature having jurisdiction over health and human services matters on statewide collaborative efforts with healthcare infection control professionals in the State to control or prevent health care-associated infections."*
- *"report to the joint standing committee of the Legislature having jurisdiction over health and human services matters no later than January 30, 2009, with any recommendations from the Maine Quality Forum Advisory Council regarding additional health care-associated infection quality data to be collected from health care providers."*

In addition to the above, Resolve Chapter 82 of the First Regular Session of the 124th Legislature requires of the Dirigo Health Agency's Maine Quality Forum.

- *"reporting on the hospital's adoption of a multiple drug-resistant organism prevention program as part of the hospital's broader health-care-associated infection prevention strategies, including hand hygiene, contact precautions that include barriers as appropriate, isolation policies, design of a response to increases in infection rates and environmental precautions."*

This report addresses these elements.

### I. Health Care Provider-Specific Performance Data

Maine's hospitals must report to the Maine Health Data Organization, directly or through Northeast Health Care Quality Foundation (under contract with the Centers for Medicare and Medicaid Services (CMS) to be the Quality Improvement Organization (QIO) for Maine, New Hampshire, and Vermont), performance on several indicators of quality on health care associated infections. These include:

- Pneumonia Care indicators (CMS Core Indicators)
    - PN-5b: Percent of patients receiving antibiotics for pneumonia within 4 hours of hospital arrival (Note: Metric was changed to within 6 hours of arrival on January 1, 2009.)

- PN-6: Percent of patients receiving antibiotics for pneumonia within 24 hours of hospital arrival

- Surgical Care Improvement Project indicators (CMS Core Indicators)
  - SCIP-inf-1 (a-h): Percent of patients who receive antibiotic prophylaxis less than 1 hour prior to 7 types of surgeries and roll-up
  - SCIP-inf-2 (a-h): Percent of patients who received the correct prophylactic antibiotic for the procedure being done
  - SCIP-inf-3 (a-h): Percent of patients whose prophylactic antibiotics were discontinued within 24 hours following surgery
  - SCIP-inf-4: Percent of cardiac patients whose serum glucose is controlled at 6 a.m. following surgery
  - SCIP-inf-6: Percent of surgical patients with appropriate hair removal prior to surgery
  - SCIP-inf-7: Percent colorectal surgery patients with normal temperature immediately after surgery

Hospitals also must report the following healthcare associated infection (HAI) indicators to the Maine Health Data Organization:

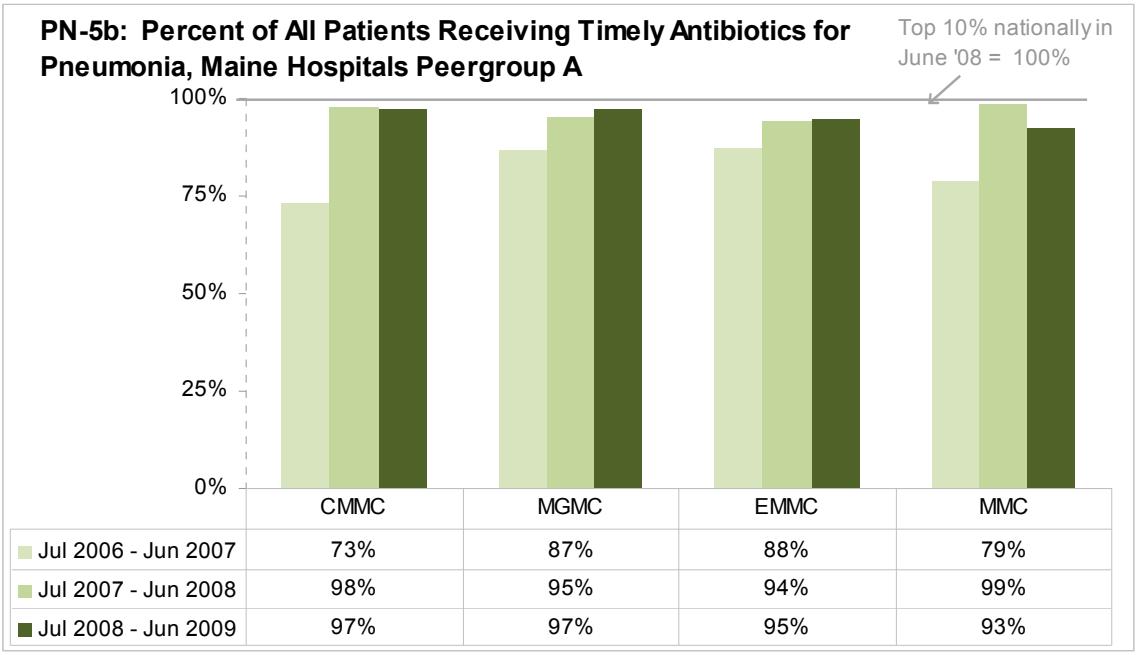
- HAI-1: Central line associated bloodstream infection (CLABSI) rate for intensive care unit (ICU) patients
- HAI-2: CLABSI rates for neonatal (ICU) patients (by birth weight)
- HAI-3: Percent of (ICU) patients for whom all elements of the CLABSI "prevention bundle" are observed at the time of insertion
- HAI-4: Percent of perioperative patients for whom all elements of the CLABSI "prevention bundle" are observed at the time of insertion
- HAI-5: Percent of ventilator patients for whom all elements of the ventilator associated pneumonia "prevention bundle" are observed on a daily basis

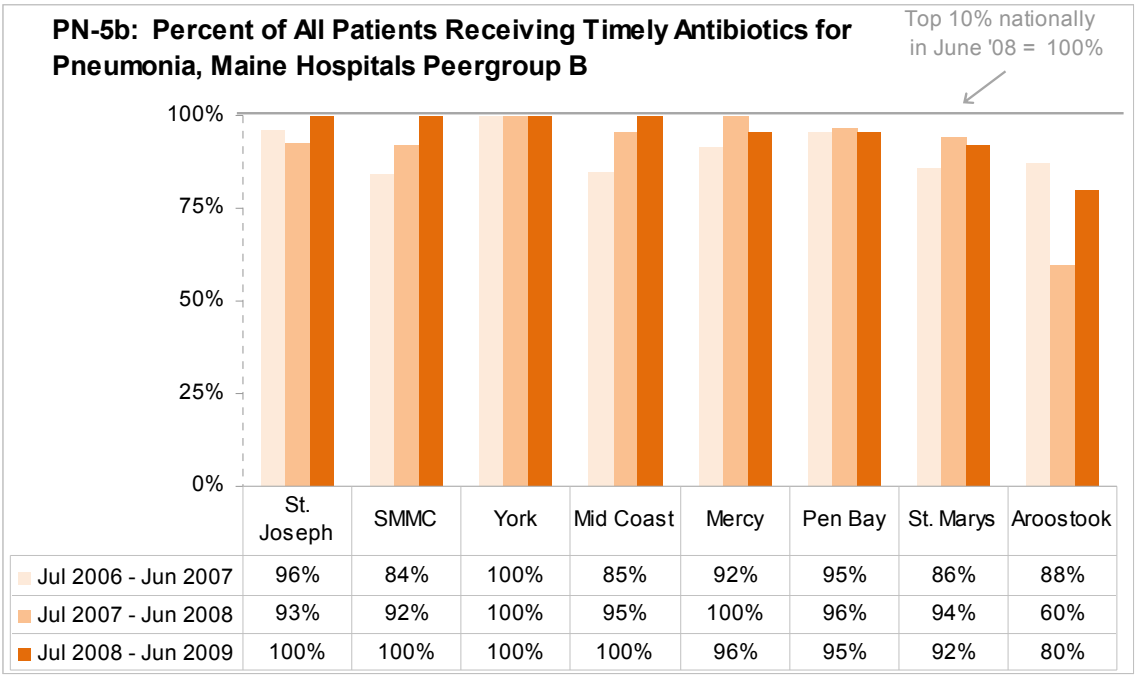
Hospital performance on these measures is reported on the Maine Quality Forum website (www.preview-mqf-online.com/summary/intro.aspx). Printed tables showing trends over a three-year reporting period are included below. Graphs are sorted by hospital peer group, a Maine Hospital Association designation on the basis of hospital size and other descriptors. Peer Group E contains all of Maine's fifteen critical access hospitals.

**1. Pneumonia Care** The following graphs show hospital performance over three time intervals on timely administration of antibiotics to patients with pneumonia. Higher performance is associated with better patient outcomes. The graphs compare hospitals to other members of their Maine Hospital Association peer group. A benchmark line on each graph shows the performance of the top 10% of hospitals in the nation (regardless of size). Most but not all hospitals show excellent performance and trend toward

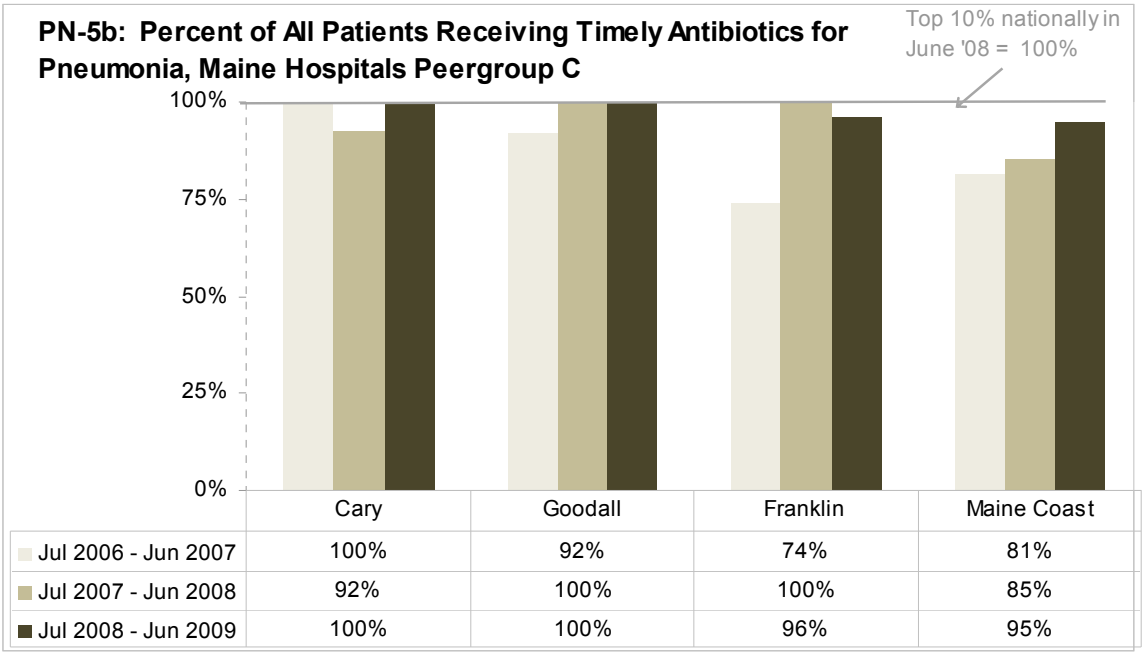
improvement over the three-year period. **In the graphs in the Pneumonia Care and Surgical Care Improvement Project sections below, hospitals showing no bar ("0 %") had small numbers of patients meeting criteria for measurement (denominator) which were not sufficient for analysis; that is, the number of reported cases is too small to reliably tell how a hospital performs on the measure.**

**A. Proportion of hospital's patients who receive antibiotic therapy for pneumonia within 4 (before 1/1/09) or 6 (after 1/1/09) hours of hospital arrival (Note: National average performance on this measure April 2008 – March 2009 was 93%)**

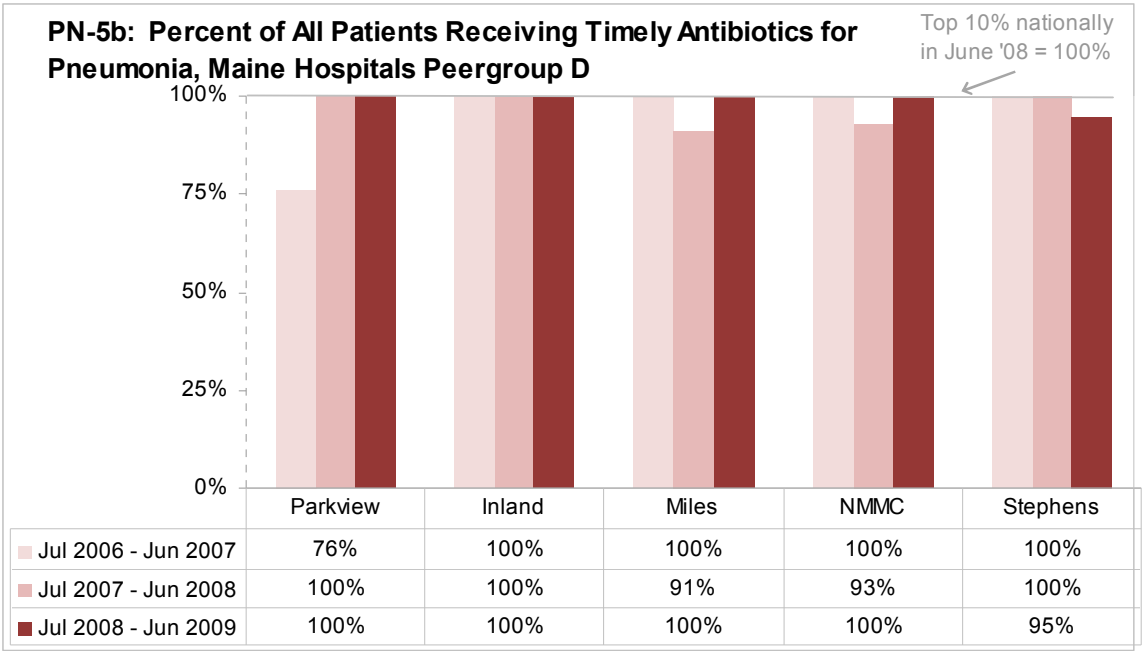




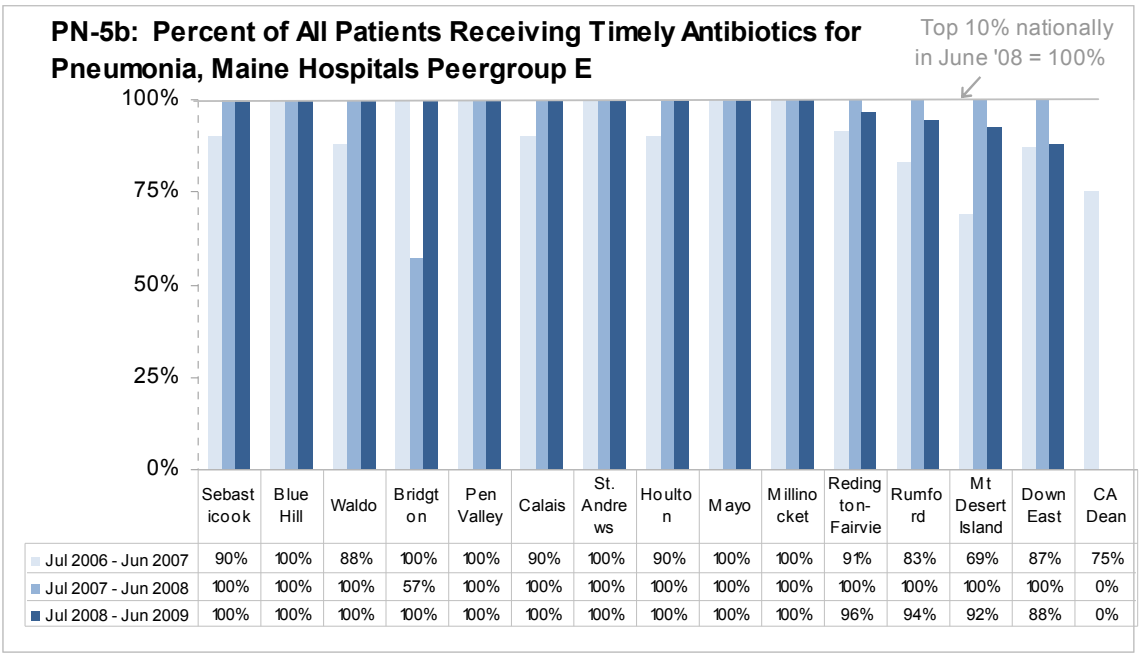

| | St. Joseph | SMMC | York | Mid Coast | Mercy | Pen Bay | St. Marys | Aroostook |
|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 96% | 84% | 100% | 85% | 92% | 95% | 86% | 88% |
| Jul 2007 - Jun 2008 | 93% | 92% | 100% | 95% | 100% | 96% | 94% | 60% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 96% | 95% | 92% | 80% |




| | Cary | Goodall | Franklin | Maine Coast |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 100% | 92% | 74% | 81% |
| Jul 2007 - Jun 2008 | 92% | 100% | 100% | 85% |
| Jul 2008 - Jun 2009 | 100% | 100% | 96% | 95% |

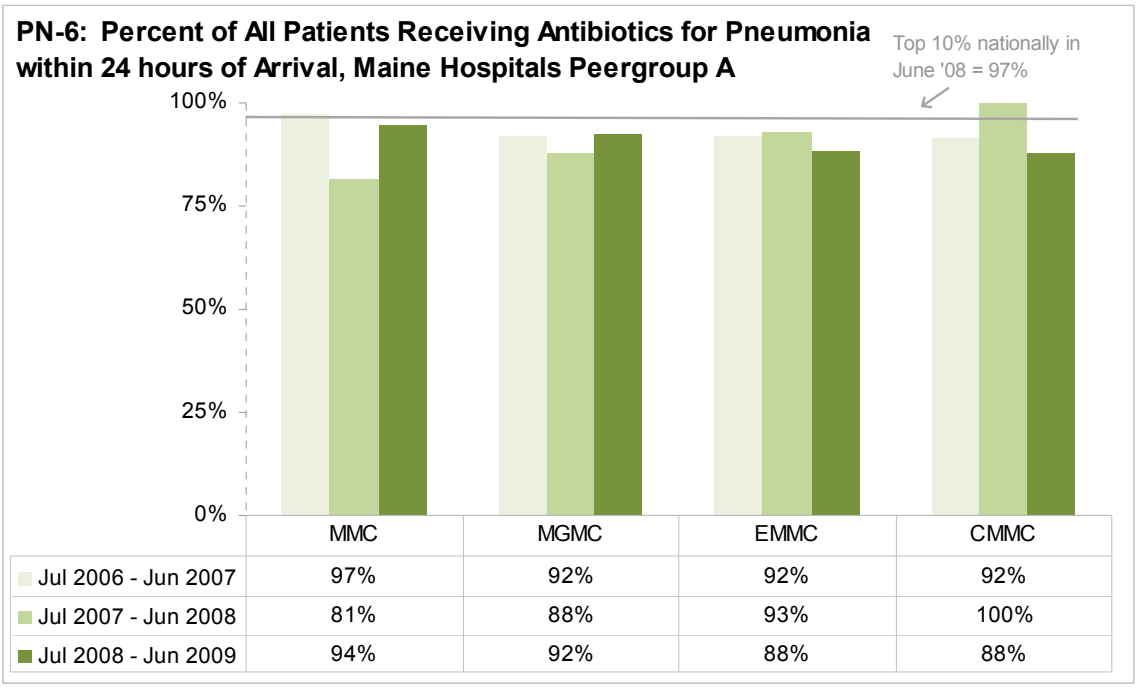



| | Parkview | Inland | Miles | NMMC | Stephens |
|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 76% | 100% | 100% | 100% | 100% |
| Jul 2007 - Jun 2008 | 100% | 100% | 91% | 93% | 100% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 95% |

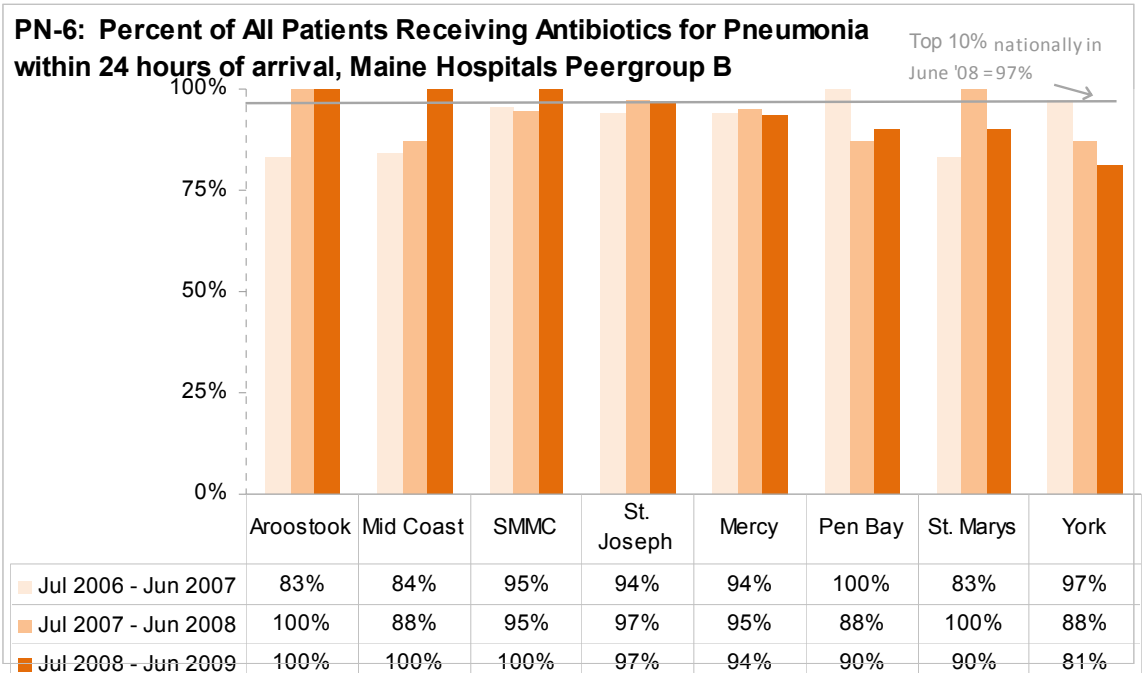



| | Sebasticook | Blue Hill | Waldo | Bridgton | Pen Valley | Calais | St. Andrews | Houlton | Mayo | Millinocket | Redington-Fairview | Rumford | Mt Desert Island | Down East | CA Dean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 90% | 100% | 88% | 100% | 100% | 90% | 100% | 90% | 100% | 100% | 91% | 83% | 69% | 87% | 75% |
| Jul 2007 - Jun 2008 | 100% | 100% | 100% | 57% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 0% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 96% | 94% | 92% | 88% | 0% |

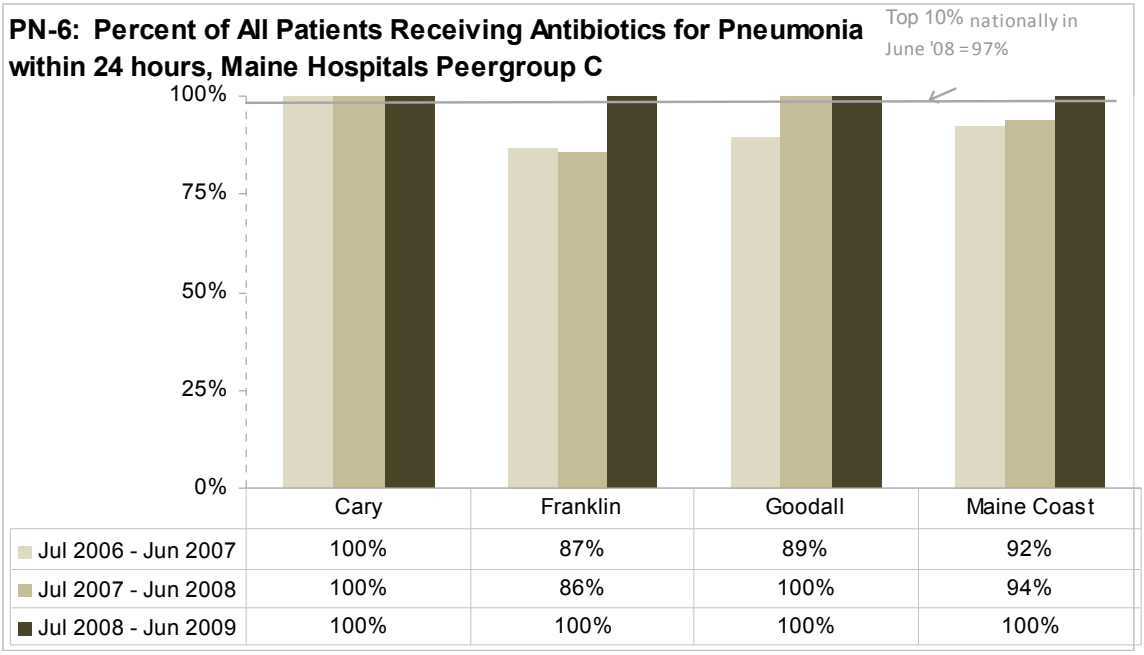
**B. Proportion of hospital's patients who receive antibiotic therapy for pneumonia within 24 hours of hospital arrival**



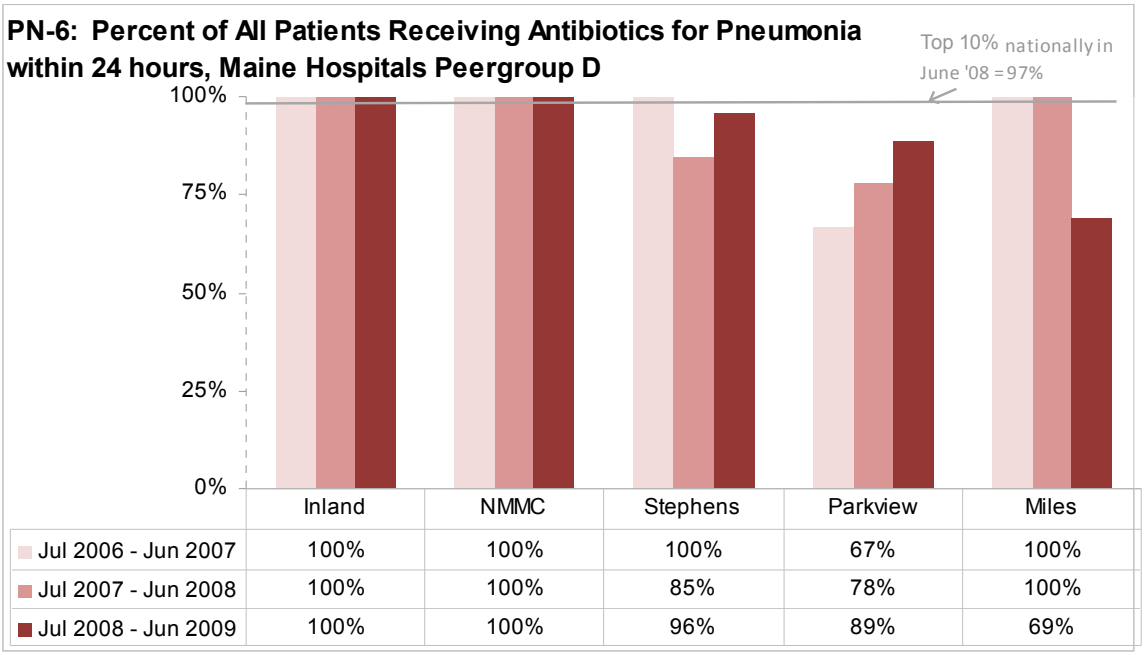

| | MMC | MGMC | EMMC | CMMC |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 97% | 92% | 92% | 92% |
| Jul 2007 - Jun 2008 | 81% | 88% | 93% | 100% |
| Jul 2008 - Jun 2009 | 94% | 92% | 88% | 88% |



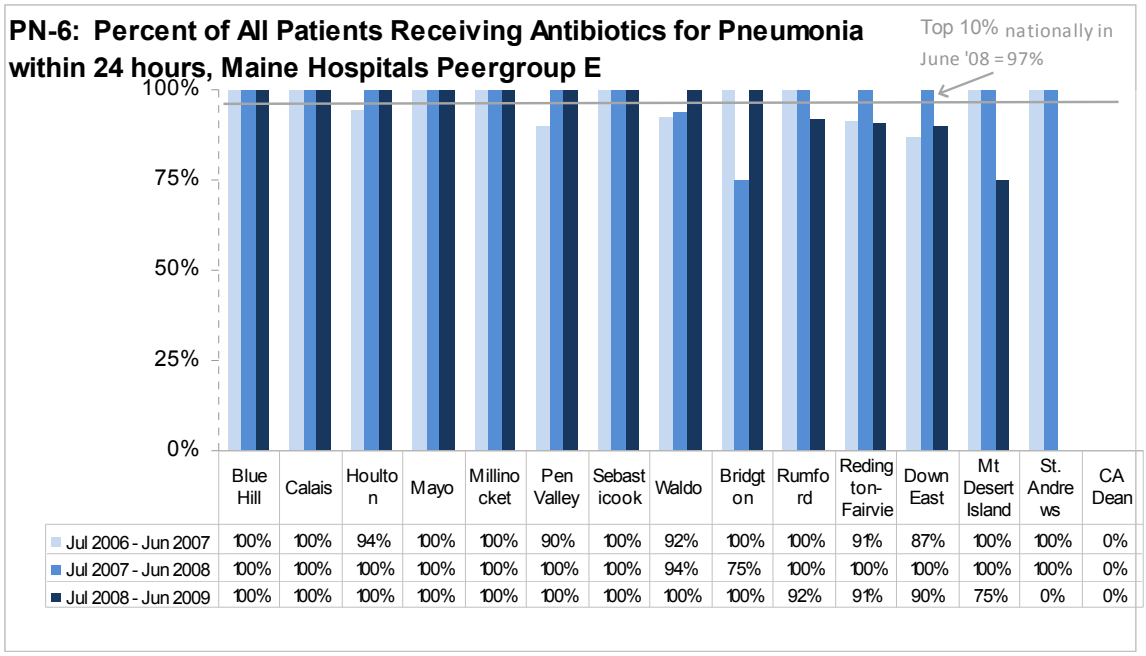

| | Aroostook | Mid Coast | SMMC | St. Joseph | Mercy | Pen Bay | St. Marys | York |
|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 83% | 84% | 95% | 94% | 94% | 100% | 83% | 97% |
| Jul 2007 - Jun 2008 | 100% | 88% | 95% | 97% | 95% | 88% | 100% | 88% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 97% | 94% | 90% | 90% | 81% |




| | Cary | Franklin | Goodall | Maine Coast |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 100% | 87% | 89% | 92% |
| Jul 2007 - Jun 2008 | 100% | 86% | 100% | 94% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% |




| | Inland | NMMC | Stephens | Parkview | Miles |
|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 100% | 100% | 100% | 67% | 100% |
| Jul 2007 - Jun 2008 | 100% | 100% | 85% | 78% | 100% |
| Jul 2008 - Jun 2009 | 100% | 100% | 96% | 89% | 69% |

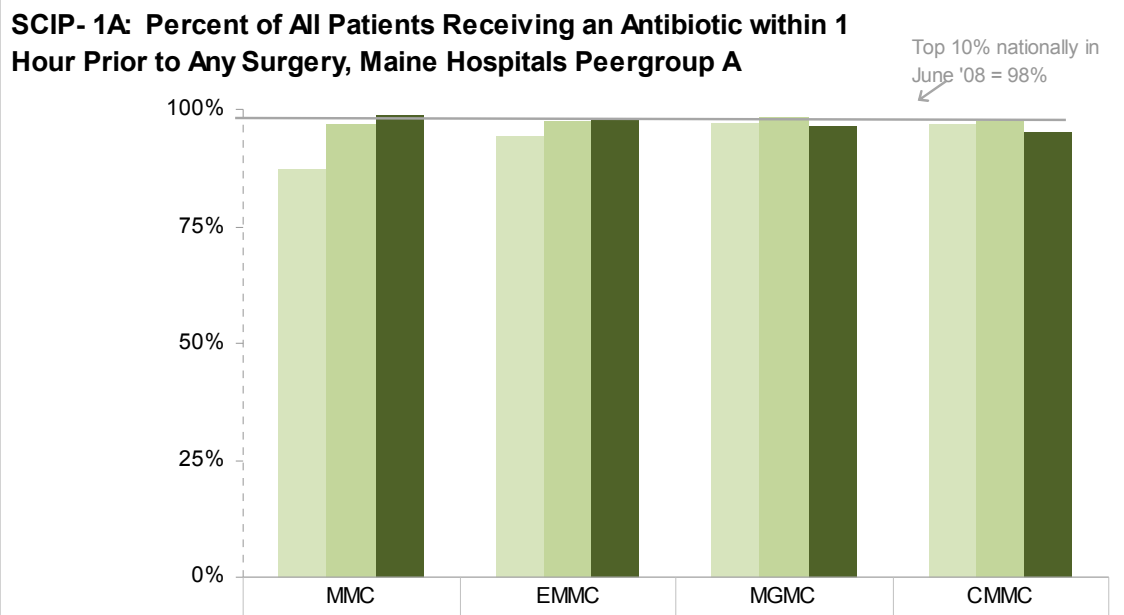



| | Blue Hill | Calais | Houlton | Mayo | Millinocket | Pen Valley | Sebasticook | Waldo | Bridgton | Rumford | Redington-Fairvie | Down East | Mt Desert Island | St. Andrews | CA Dean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 100% | 100% | 94% | 100% | 100% | 90% | 100% | 92% | 100% | 100% | 91% | 87% | 100% | 100% | 0% |
| Jul 2007 - Jun 2008 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 94% | 75% | 100% | 100% | 100% | 100% | 100% | 0% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 92% | 91% | 90% | 75% | 0% | 0% |

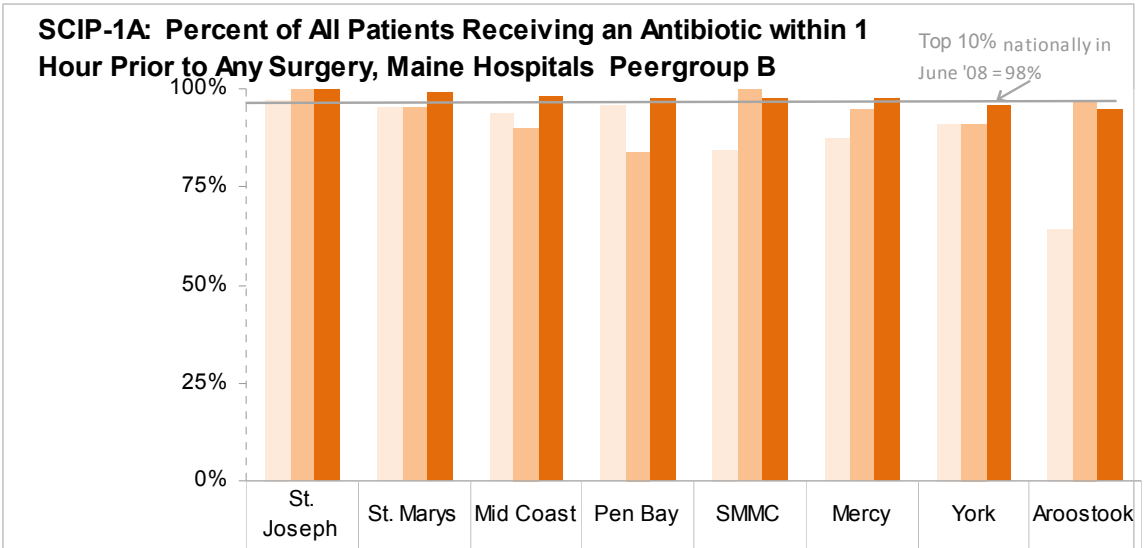
## 2. Surgical Care Improvement Project

The Surgical Care Improvement Project (SCIP) is a national quality partnership of organizations interested in improving surgical care by significantly reducing surgical complications. SCIP Partners include the Steering Committee of 10 national organizations who have pledged their commitment and full support for SCIP. SCIP measures are part of the "core measures" required by the federal Centers for Medicare and Medicaid Services (CMS). Several SCIP measures relate to the prevention of surgical site infections, and these are grouped with HAI measures by the Maine Quality Forum. Hospital performance by peer group over three measurement intervals is demonstrated below, for six HAI-related SCIP measures**. In the graphs in the SCIP section below, hospitals showing no bar ("0 %") had insufficient numbers of patients meeting criteria for measurement.**

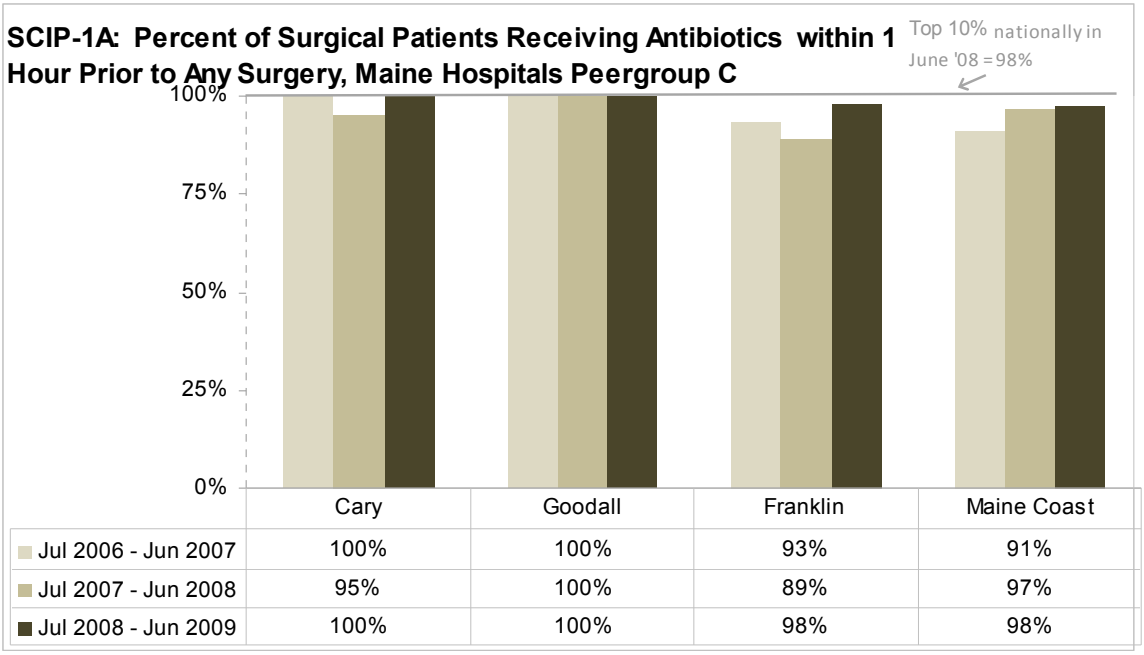
**A. Percent of patients receiving an antibiotic within one hour prior to surgery (Note: National average performance on this measure April 2008 – March 2009 was 90%)**

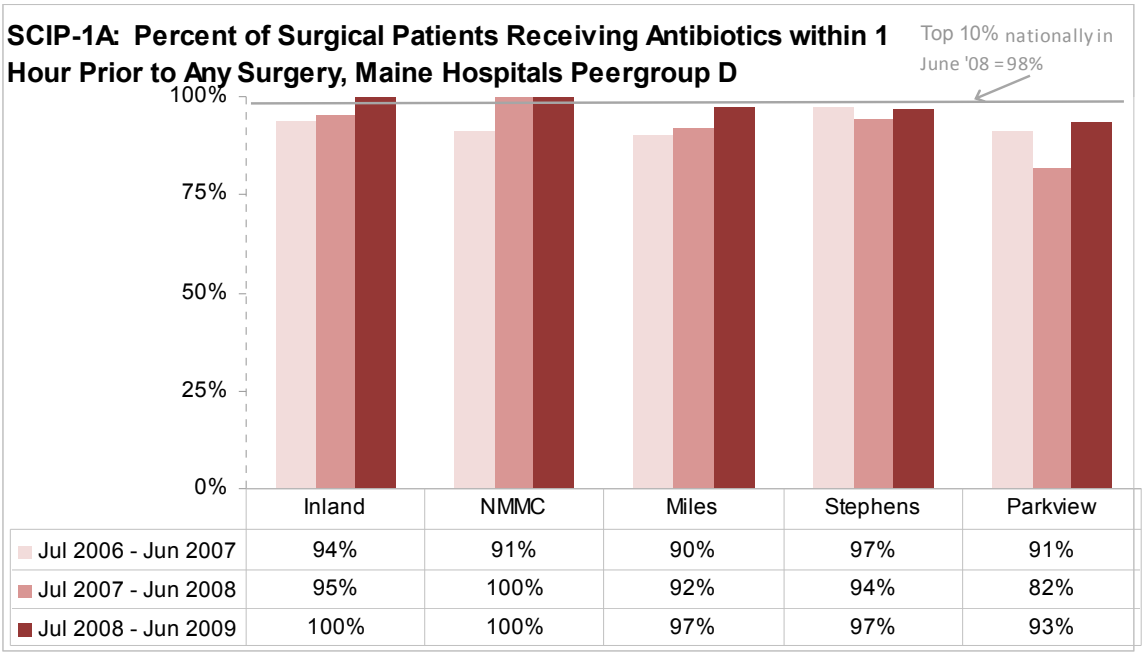


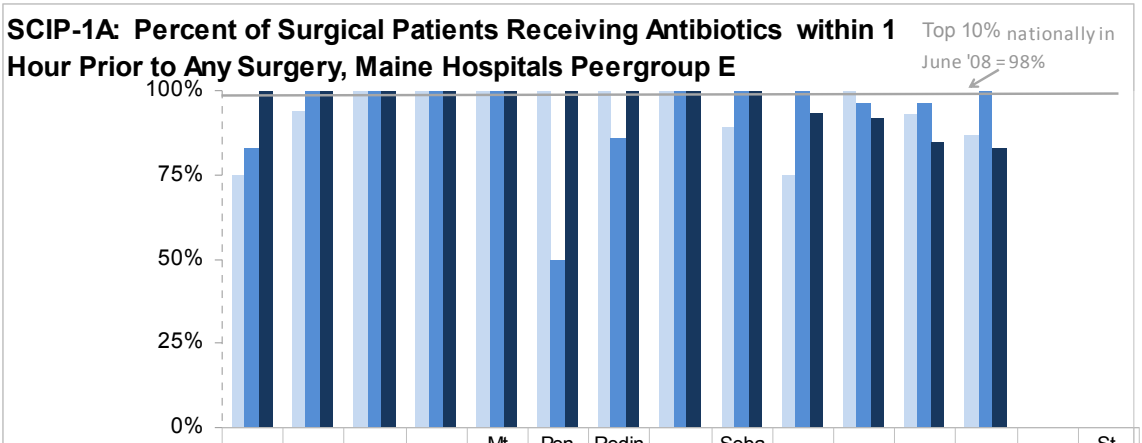

| | MMC | EMMC | MGMC | CMMC |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 87% | 94% | 97% | 97% |
| Jul 2007 - Jun 2008 | 97% | 98% | 98% | 97% |
| Jul 2008 - Jun 2009 | 99% | 98% | 96% | 95% |




| | St. Joseph | St. Marys | Mid Coast | Pen Bay | SMMC | Mercy | York | Aroostook |
|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 97% | 95% | 94% | 96% | 85% | 87% | 91% | 64% |
| Jul 2007 - Jun 2008 | 100% | 95% | 90% | 84% | 100% | 95% | 91% | 97% |
| Jul 2008 - Jun 2009 | 100% | 99% | 98% | 98% | 98% | 98% | 96% | 95% |

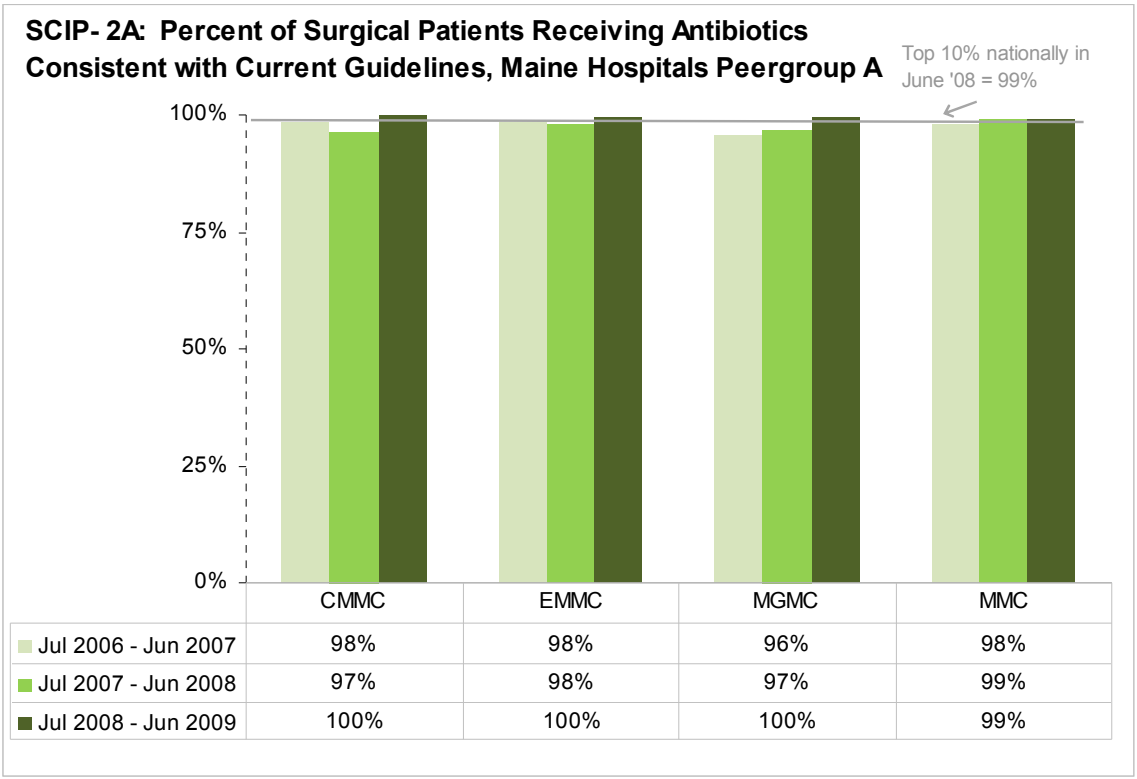

SCIP-1A: Percent of Surgical Patients Receiving Antibiotics within 1 Hour Prior to Any Surgery, Maine Hospitals Peergroup C
Top 10% nationally in June '08 = 98%
100%
75%
50%
25%
0%
Cary
Goodall
Franklin
Maine Coast
Jul 2006 - Jun 2007 100% 100% 93% 91%
Jul 2007 - Jun 2008 95% 100% 89% 97%
Jul 2008 - Jun 2009 100% 100% 98% 98%


SCIP-1A: Percent of Surgical Patients Receiving Antibiotics within 1 Hour Prior to Any Surgery, Maine Hospitals Peergroup D
Top 10% nationally in June '08 = 98%
100%
75%
50%
25%
0%
Inland
NMMC
Miles
Stephens
Parkview
Jul 2006 - Jun 2007 94% 91% 90% 97% 91%
Jul 2007 - Jun 2008 95% 100% 92% 94% 82%
Jul 2008 - Jun 2009 100% 100% 97% 97% 93%

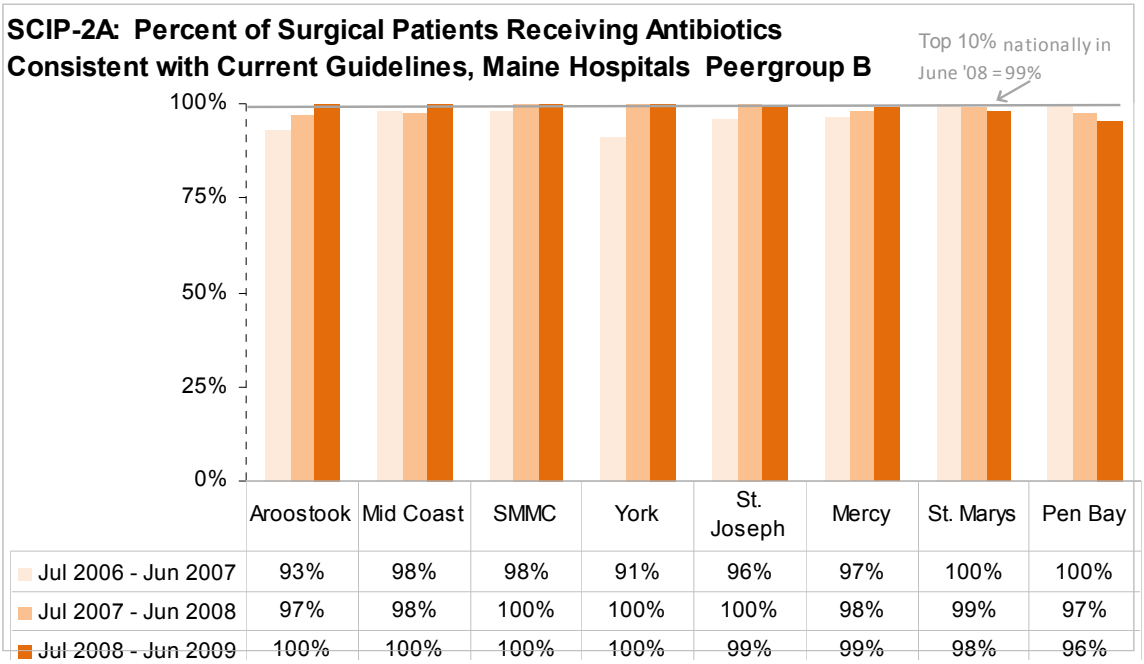



| | Bridgton | Calais | Houlton | Millinocket | Mt Desert | Pen Valley | Redington-Fairvi | Rumford | Sebasticook | Blue Hill | Mayo | Waldo | Down East | CA Dean | St. Andrews |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 75% | 94% | 100% | 100% | 100% | 100% | 100% | 100% | 89% | 75% | 100% | 93% | 87% | 0% | 0% |
| Jul 2007 - Jun 2008 | 83% | 100% | 100% | 100% | 100% | 50% | 86% | 100% | 100% | 100% | 96% | 96% | 100% | 0% | 0% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 93% | 92% | 85% | 83% | 0% | 0% |

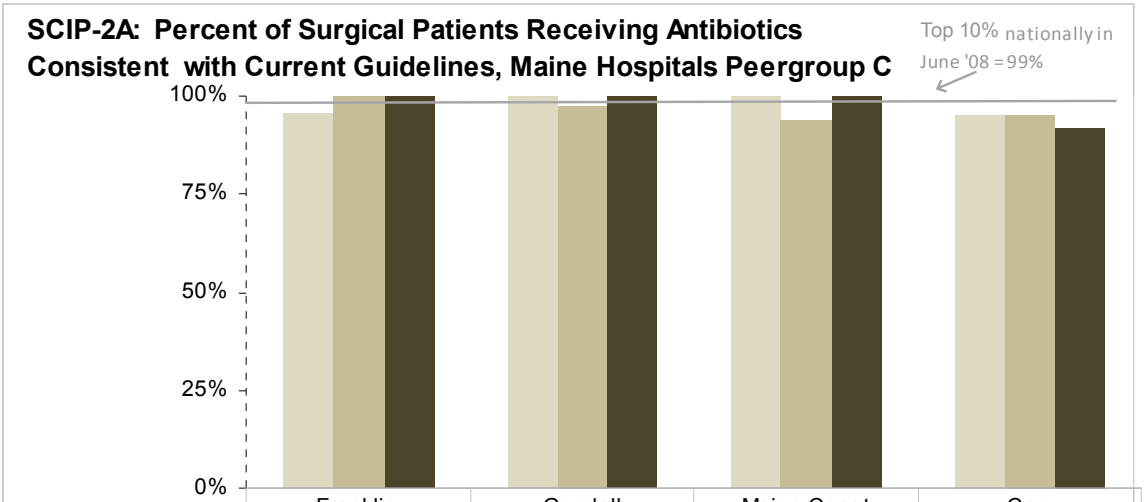
**B. Percent of patients receiving the correct antibiotic prior to surgery (Note: National average performance on this measure April 2008 – March 2009 was 94%)**



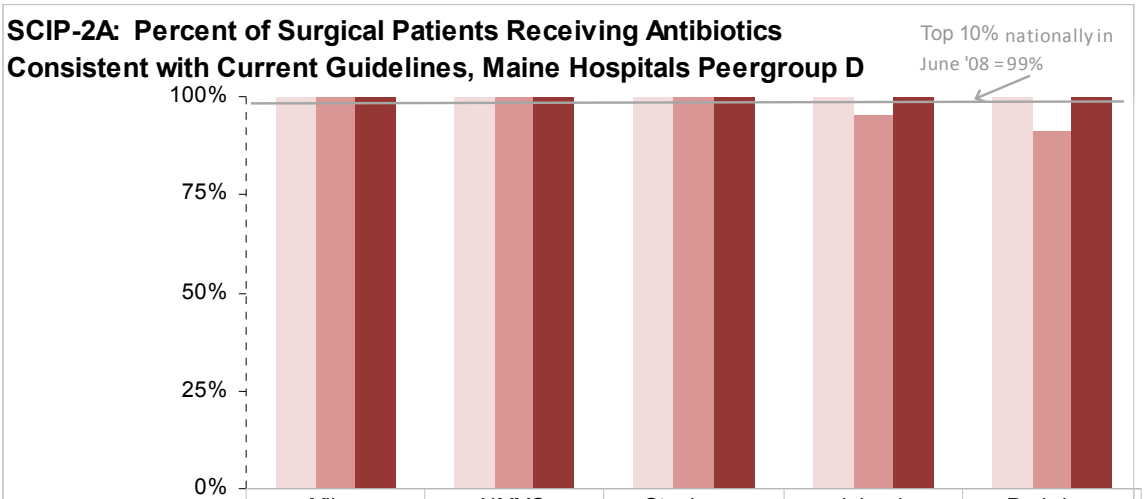

| | CMMC | EMMC | MGMC | MMC |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 98% | 98% | 96% | 98% |
| Jul 2007 - Jun 2008 | 97% | 98% | 97% | 99% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 99% |



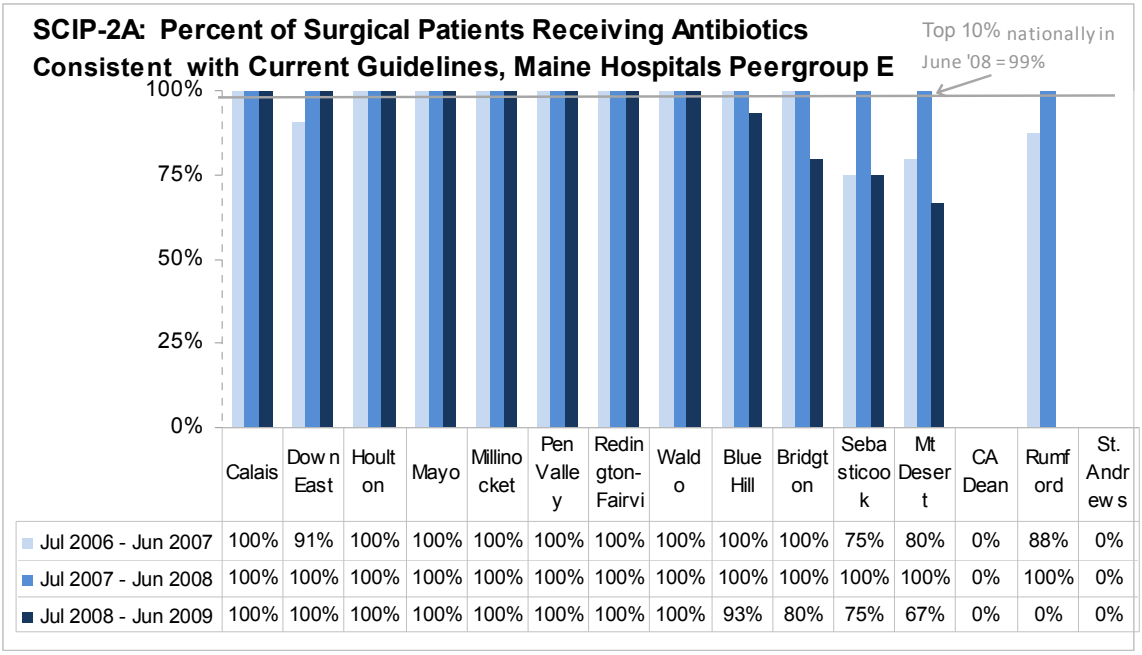

| | Aroostook | Mid Coast | SMMC | York | St. Joseph | Mercy | St. Marys | Pen Bay |
|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 93% | 98% | 98% | 91% | 96% | 97% | 100% | 100% |
| Jul 2007 - Jun 2008 | 97% | 98% | 100% | 100% | 100% | 98% | 99% | 97% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 99% | 99% | 98% | 96% |




| | Franklin | Goodall | Maine Coast | Cary |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 96% | 100% | 100% | 95% |
| Jul 2007 - Jun 2008 | 100% | 98% | 94% | 95% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 92% |

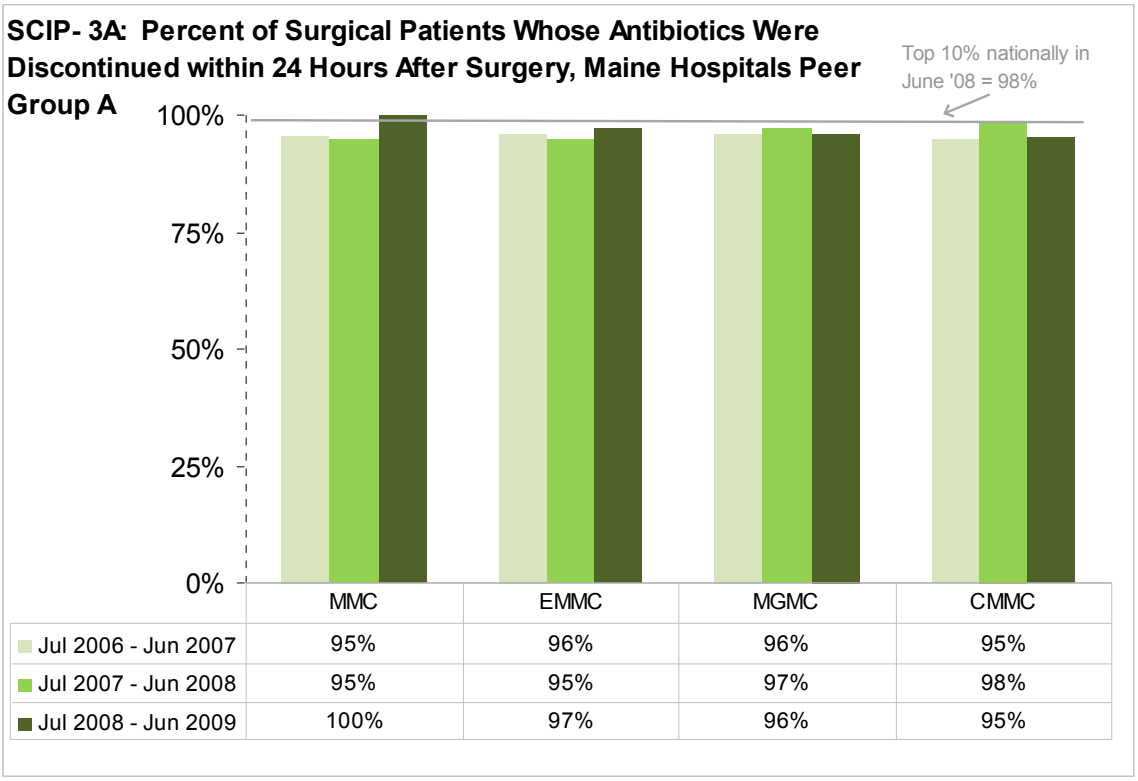



| | Miles | NMMC | Stephens | Inland | Parkview |
|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 100% | 100% | 100% | 100% | 100% |
| Jul 2007 - Jun 2008 | 100% | 100% | 100% | 95% | 91% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 100% |



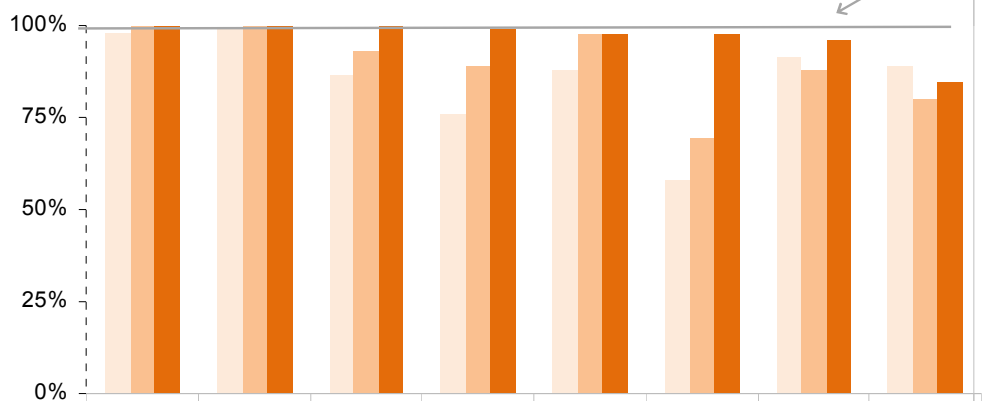

| | Calais | Down East | Houlton | Mayo | Millinocket | Pen Valley | Redington-Fairvi | Waldo | Blue Hill | Bridgton | Sebasticook | Mt Desert | CA Dean | Rumford | St. Andrews |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 100% | 91% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 75% | 80% | 0% | 88% | 0% |
| Jul 2007 - Jun 2008 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 0% | 100% | 0% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 93% | 80% | 75% | 67% | 0% | 0% | 0% |

**C. Appropriate discontinuation of prophylactic antibiotics following surgery (Note: National average performance on this measure April 2008 – March 2009 was 89%)**



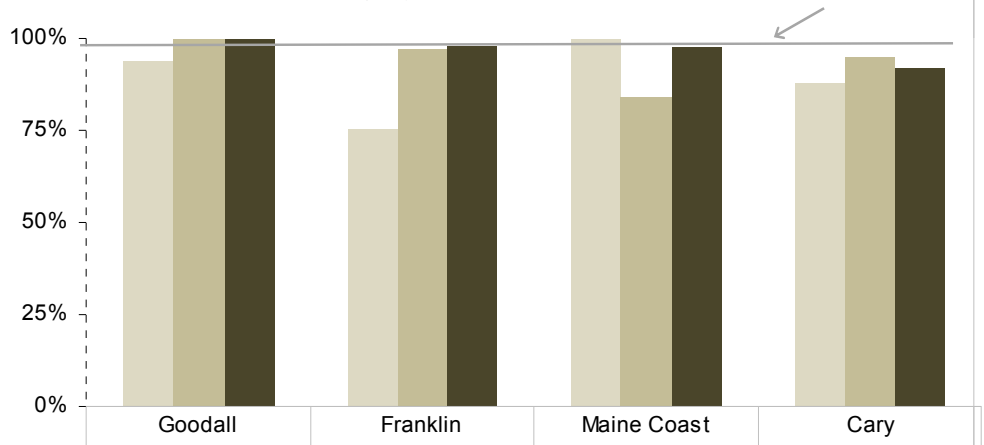

| | MMC | EMMC | MGMC | CMMC |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 95% | 96% | 96% | 95% |
| Jul 2007 - Jun 2008 | 95% | 95% | 97% | 98% |
| Jul 2008 - Jun 2009 | 100% | 97% | 96% | 95% |

**SCIP-3A: Percent of Surgical Patients Whose Antibiotics Were Discontinued within 24 Hours After Surgery, Maine Hospitals Peer Group B**



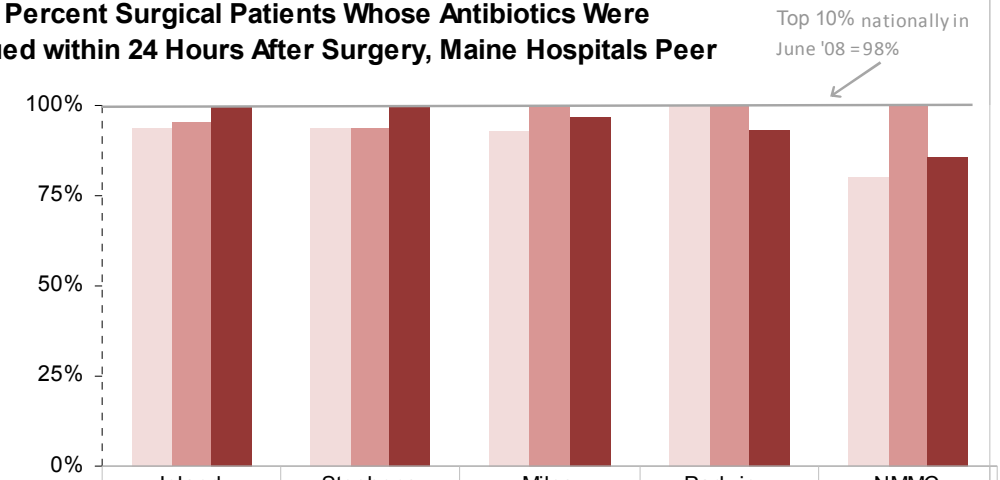

| | Mid Coast | St. Joseph | York | Mercy | SMMC | Aroostook | St. Marys | Pen Bay |
|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 98% | 99% | 86% | 76% | 88% | 58% | 92% | 89% |
| Jul 2007 - Jun 2008 | 100% | 100% | 93% | 89% | 98% | 69% | 88% | 80% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 99% | 98% | 97% | 96% | 84% |

**SCIP-3A: Percent Surgical Patients Whose Antibiotics Were Discontinued within 24 Hours After Surgery, Maine Hospitals Peer Group C**



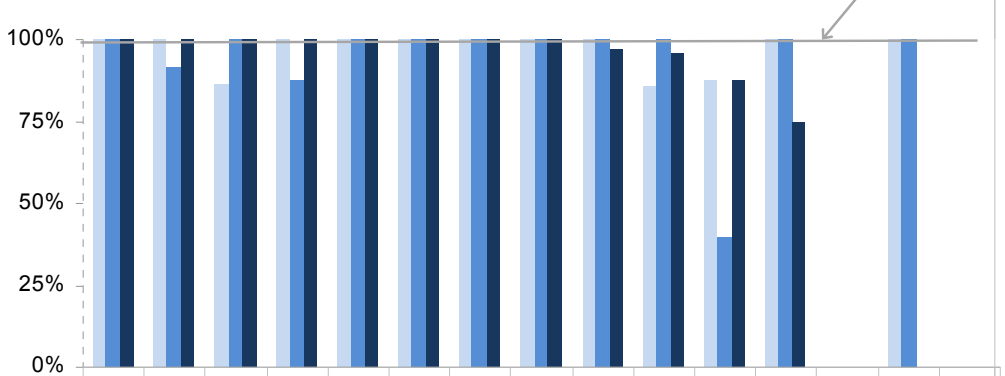

| | Goodall | Franklin | Maine Coast | Cary |
|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 94% | 76% | 100% | 88% |
| Jul 2007 - Jun 2008 | 100% | 97% | 84% | 95% |
| Jul 2008 - Jun 2009 | 100% | 98% | 97% | 92% |

**SCIP-3A: Percent Surgical Patients Whose Antibiotics Were Discontinued within 24 Hours After Surgery, Maine Hospitals Peer Group D**



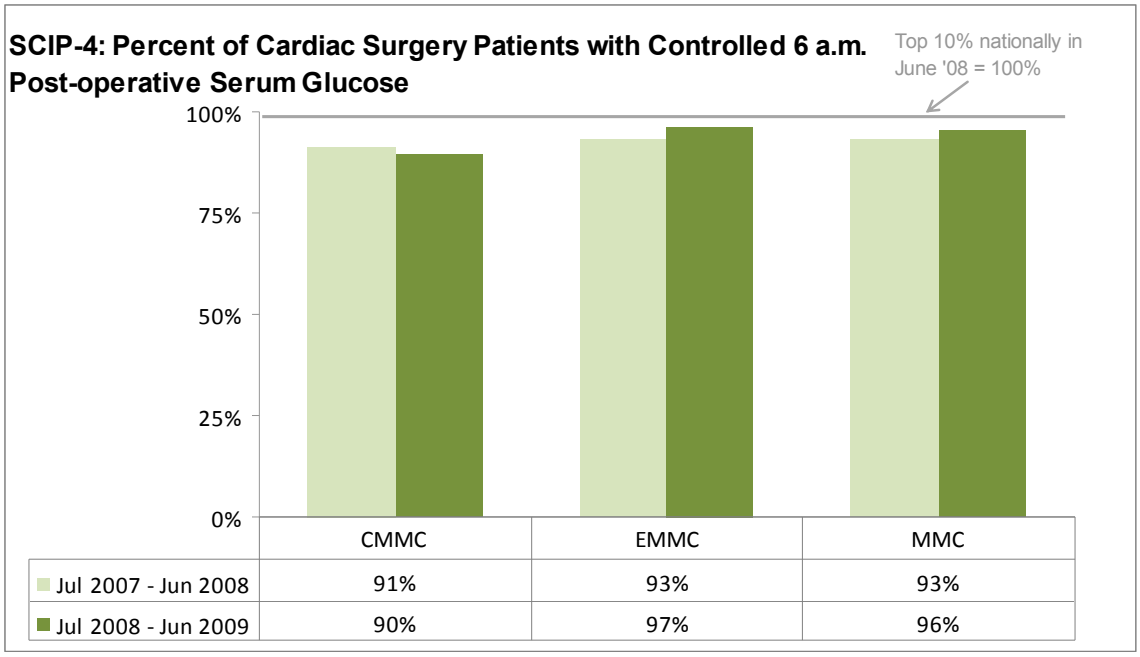

| | Inland | Stephens | Miles | Parkview | NMMC |
|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 94% | 94% | 93% | 100% | 80% |
| Jul 2007 - Jun 2008 | 95% | 94% | 100% | 100% | 100% |
| Jul 2008 - Jun 2009 | 100% | 100% | 97% | 93% | 86% |

**SCIP-3A: Percent Surgical Patients Whose Antibiotics Were Discontinued within 24 Hours After Surgery, Maine Hospitals Peer Group E**

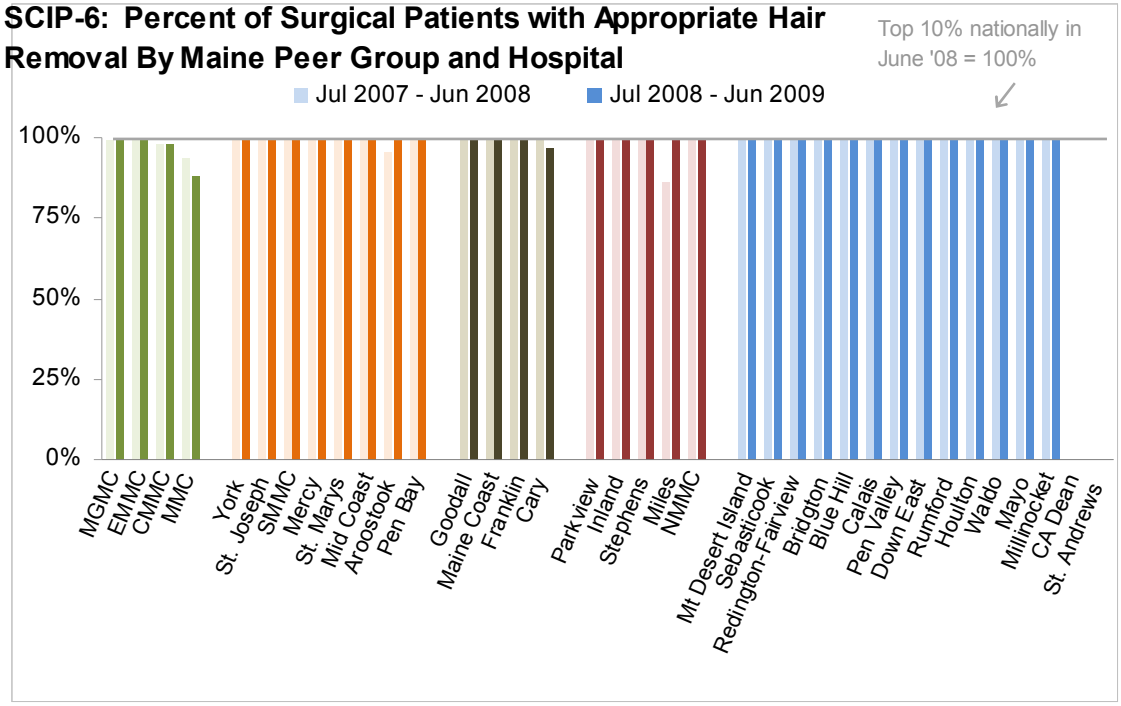



| | Blue Hill | Calais | Down East | Houlton | Millinocket | Mt Desert | Pen Valley | Redington-Fairvi | Mayo | Waldo | Sebasticook | Bridgton | CA Dean | Rumford | St. Andrews |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul 2006 - Jun 2007 | 100% | 100% | 86% | 100% | 100% | 100% | 100% | 100% | 100% | 86% | 88% | 100% | 0% | 100% | 0% |
| Jul 2007 - Jun 2008 | 100% | 92% | 100% | 88% | 100% | 100% | 100% | 100% | 100% | 100% | 40% | 100% | 0% | 100% | 0% |
| Jul 2008 - Jun 2009 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 97% | 96% | 88% | 75% | 0% | 0% | 0% |

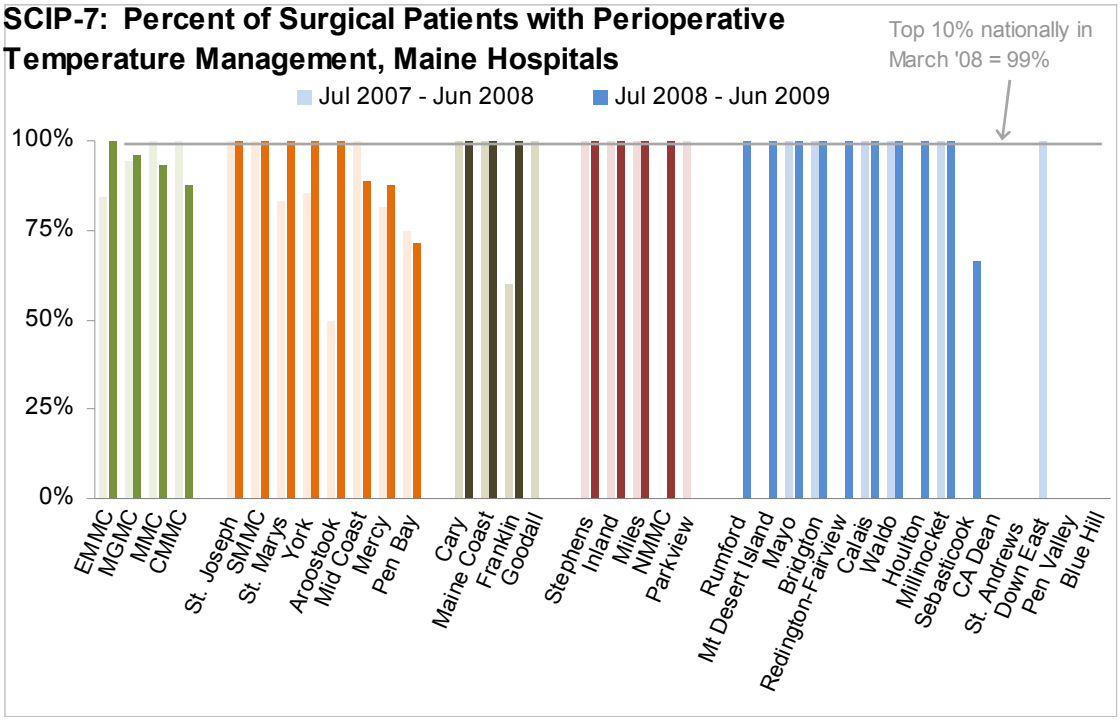
**D. Rate of blood sugar control after cardiac surgery (associated with lower infection rates) (note: only three Maine hospitals perform cardiac surgery) (Note: National average performance on this measure April 2008 – March 2009 was 87%)**



**E. Rate of appropriate hair removal (clipped, not shaved) prior to surgery) (Note: Because only two measurement periods exist, data for all hospitals is displayed on a single chart) (Note: National average performance on this measure April 2008 – March 2009 was 97%)**



**F. Rate of colorectal surgery patients with normal body temperature after surgery (Note: Because only two measurement periods exist, data for all hospitals is displayed on a single chart)**




## 3. Healthcare Associated Infection Indicators

The five measures discussed and displayed below are submitted in Maine only because of Rule Chapter 270 of the Maine Health Data Organization. They are indicators of infection outcomes (HAI-1 and 2, central line associated bloodstream infection rates in adults in intensive care and in neonates in intensive care) and of prevention processes (all others).

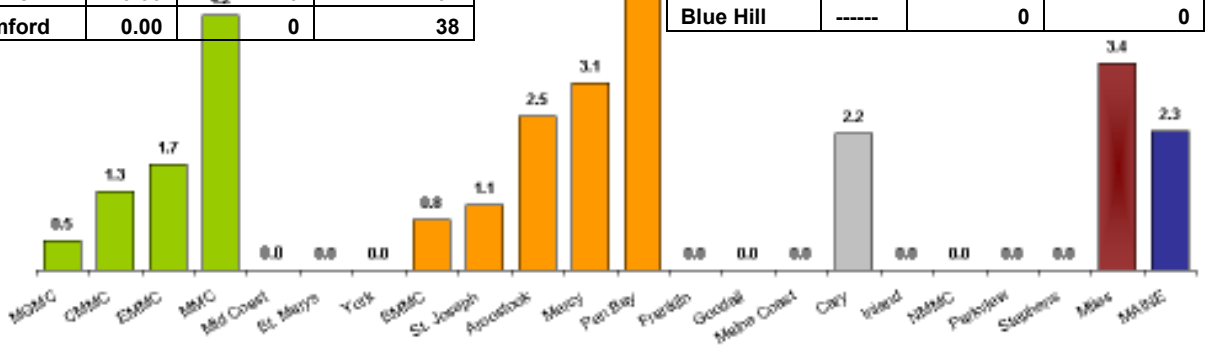
### A. Central line associated bloodstream infections

Bacteria in the blood (bloodstream infection) can result from the presence of a "central line," or large IV catheter which terminates in the large veins of the chest or in the heart. This is diagnosed by detecting the presence of these bacteria through cultures of blood. There is little ambiguity in this diagnosis; it is the only "outcome" measure that is widely used in HAI reporting. The following two tables show the central line associated bloodstream infection rates in adult intensive care unit patients in each Maine hospital and in Maine hospital peer groups compared to national data from the federal Center for Disease Control and Prevention National Healthcare Safety Network. Results for peer group E (critical access hospitals) are tabulated but not graphed because of small numbers. Most hospitals report this measure for intensive care units (ICUs), but unit type varies for hospitals without dedicated ICUs.

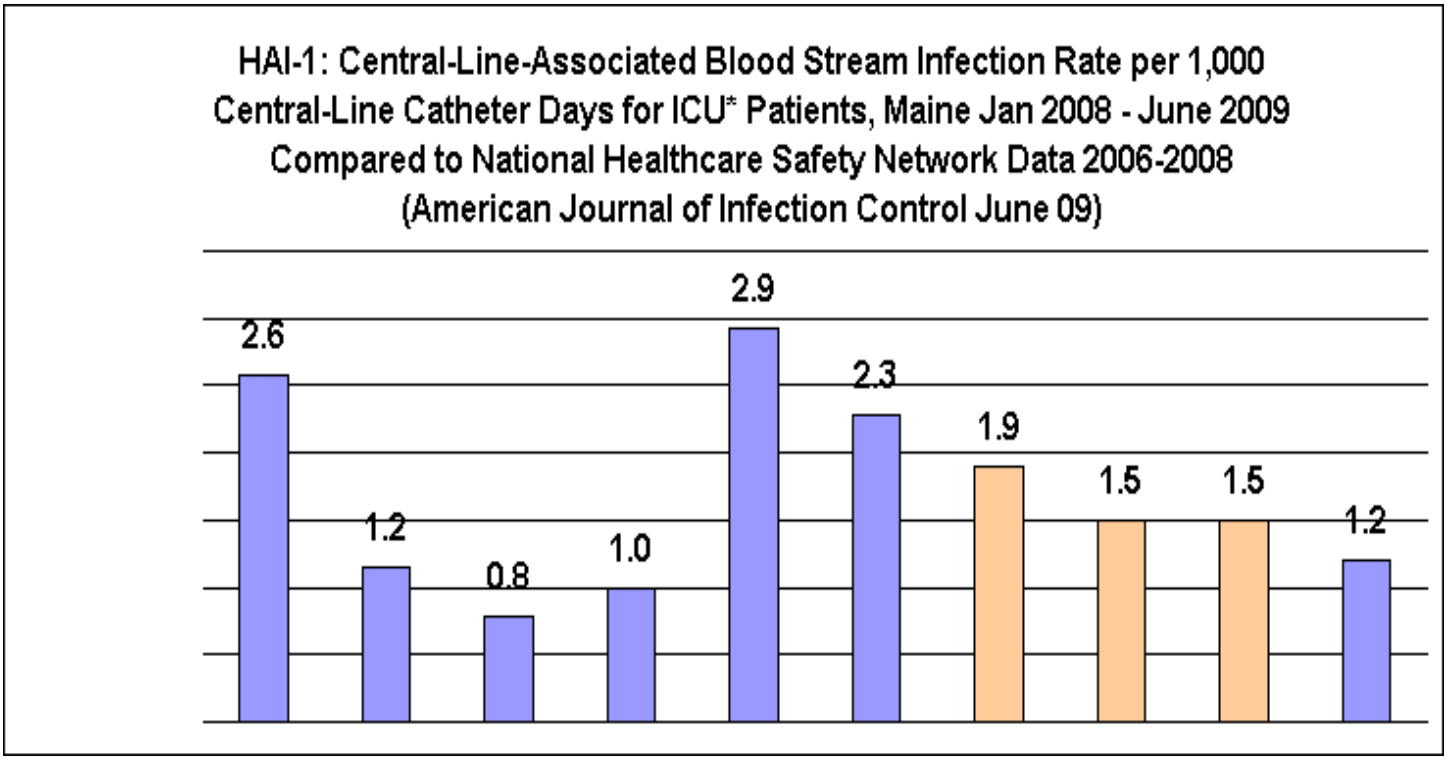
## HAI-1: Central-Line-Associated Blood Stream Infection Rate per 1,000 Central-Line Catheter Days for ICU* Patients, Maine Jan. '08 thru Jun. '09

| | Rate per 1000 | Numerator | Denominator |
|---|---|---|---|
| Calais | 0.00 | 0 | 3 |
| Down East | 0.00 | 0 | 66 |
| Houlton | 0.00 | 0 | 8 |
| Mayo | 0.00 | 0 | 49 |
| Millinocket | 0.00 | 0 | 120 |
| Pen Valley | 0.00 | 0 | 86 |
| Red-Fairview | 0.00 | 0 | 107 |
| Rumford | 0.00 | 0 | 38 |

| | Rate per 1000 | Numerator | Denominator |
|---|---|---|---|
| Sebasticook | 0.00 | 0 | 52 |
| St. Andrews | 0.00 | 0 | 404 |
| Waldo | 0.00 | 0 | 87 |
| MDI | 7.04 | 1 | 142 |
| CA Dean | 14.29 | 1 | 70 |
| Bridgton | 14.81 | 2 | 135 |
| Blue Hill | ------ | 0 | 0 |

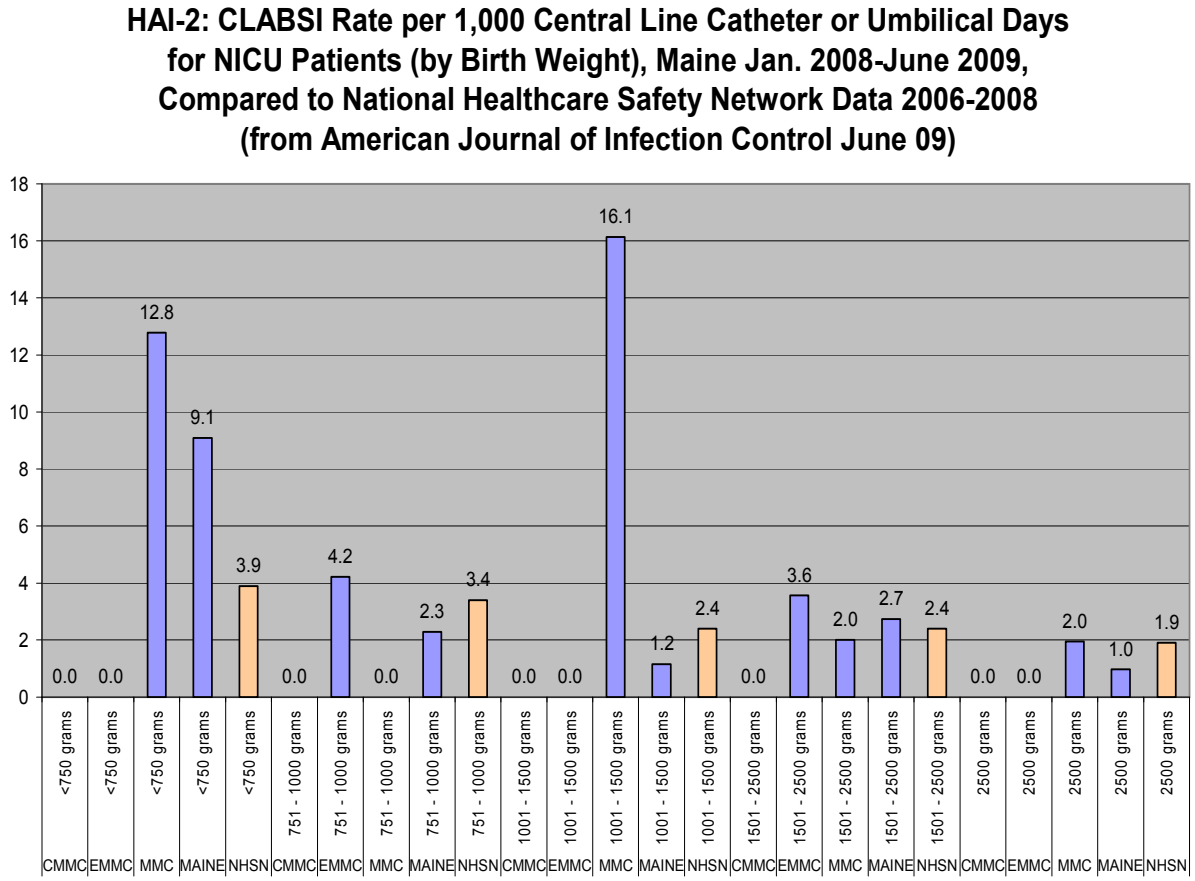



| | MGMC | CMMC | EMMC | MMC | Mid Coast | St. Mary's | York | SMMC | St. Joseph | Aroostook | Mercy | Pen Bay | Franklin | Goodall | Maine Coast | Cary | Inland | NMMC | Parkview | Stephens | Miles | MAINE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Peer Group A | | | | Peer Group B | | | | | | | | Peer Group C | | | | Peer Group D | | | | | Maine |
| Numerator | 1 | 9 | 20 | 60 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 104 |
| Denominator | 2,056 | 7,021 | 11,577 | 14,345 | 768 | 1,876 | 471 | 1,219 | 937 | 397 | 978 | 383 | 340 | 219 | 269 | 448 | 132 | 83 | 318 | 130 | 295 | 45,549 |




| Peer Group | Peer Group A | Peer Group B | Peer Group C | Peer Group D | Peer Group E | MAINE | NHSN Medical ICU | NHSN Med/Surg ICU | NHSN Medical Ward | NHSN Med/Surg Ward |
|---|---|---|---|---|---|---|---|---|---|---|
| Numerator | 90 | 8 | 1 | 1 | 4 | 104 | 687 | 2579 | 422 | 733 |
| Denominator | 34999 | 6949 | 1276 | 1005 | 1367 | 45549 | 362388 | 1742419 | 278221 | 618196 |

Central line associated bloodstream infection rates are also reported for infants in neonatal intensive care settings. These reports are grouped by patient weight and compared to the CDC's National Healthcare Safety Network benchmark rates for similar patients. These reports are demonstrated in the graph below.




These data are displayed in table form in the following table.

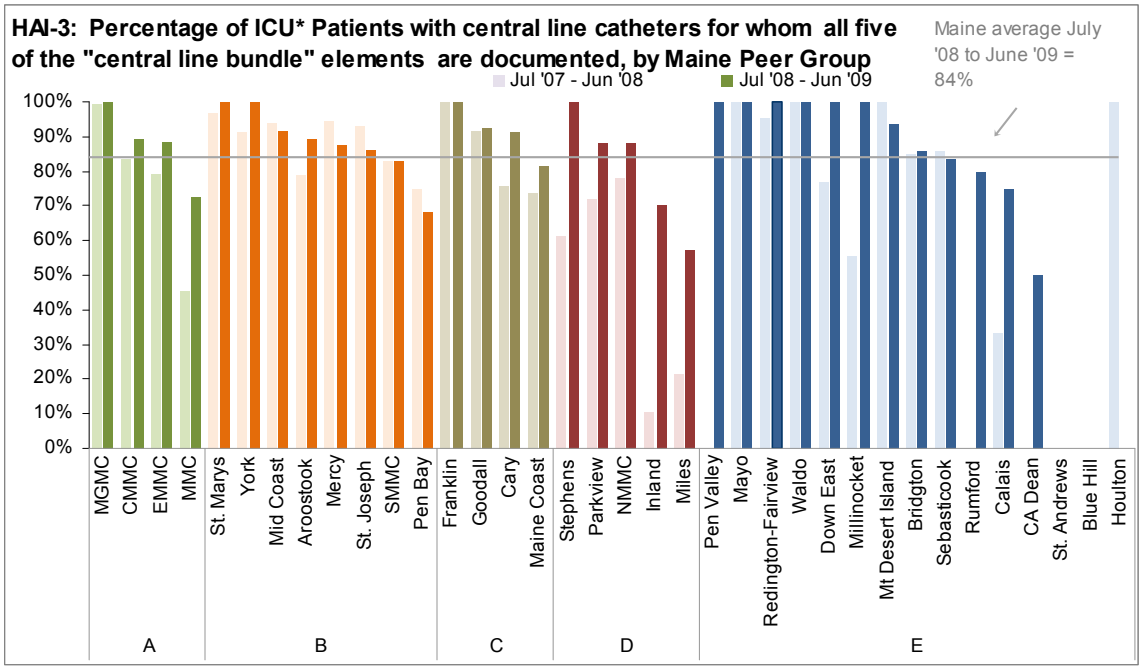
HAI-2: Central-Line Associated Blood Stream Infection Rate per 1,000 Central-Line Catheter or Umbilical Days for NICU Patients (by Birth Weight), Maine January 2008 thru June 2009

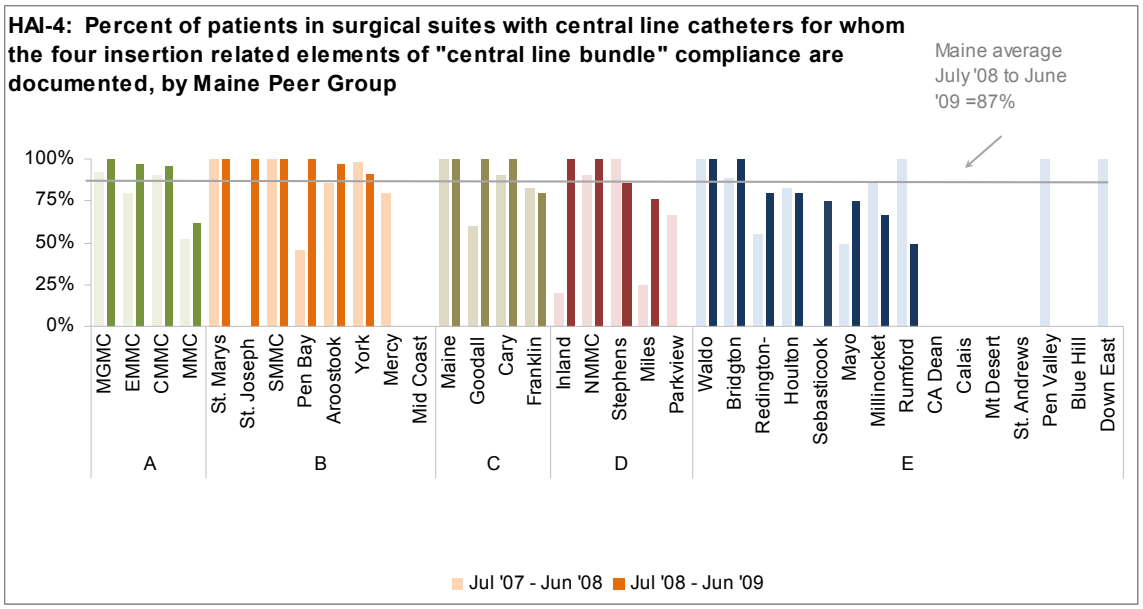
| Hospital Name | ICU neonate weight | Numerator | Denominator | Rate per 1000 Central Line Catheter or Umbilical Days |
|---|---|---|---|---|
| CMMC | <750 grams | 0 | 1 | 0 |
| CMMC | 751 - 1000 grams | 0 | 126 | 0 |
| CMMC | 1001 - 1500 grams | 0 | 0 | 0 |
| CMMC | 1501 - 2500 grams | 0 | 32 | 0 |
| CMMC | 2500 grams | 0 | 42 | 0 |
| EMMC | <750 grams | 0 | 126 | 0 |
| EMMC | 751 - 1000 grams | 2 | 474 | 4.22 |
| EMMC | 1001 - 1500 grams | 0 | 489 | 0 |
| EMMC | 1501 - 2500 grams | 2 | 561 | 3.57 |
| EMMC | 2500 grams | 0 | 476 | 0 |
| MMC | <750 grams | 4 | 313 | 12.78 |
| MMC | 751 - 1000 grams | 0 | 397 | 0 |
| MMC | 1001 - 1500 grams | 6 | 372 | 16.13 |
| MMC | 1501 - 2500 grams | 1 | 501 | 2 |
| MMC | 2500 grams | 1 | 514 | 1.95 |
| MAINE | <750 grams | 4 | 440 | 9.09 |
| MAINE | 751 - 1000 grams | 2 | 873 | 2.29 |
| MAINE | 1001 - 1500 grams | 1 | 861 | 1.16 |
| MAINE | 1501 - 2500 grams | 3 | 1,094 | 2.74 |
| MAINE | 2500 grams | 1 | 1032 | 0.97 |
| NHSN | <750 grams | 481 | 122,272 | 3.9 |
| NHSN | 751 - 1000 grams | 373 | 111,293 | 3.4 |
| NHSN | 1001 - 1500 grams | 276 | 112,926 | 2.4 |
| NHSN | 1501 - 2500 grams | 216 | 90,384 | 2.4 |
| NHSN | 2500 grams | 157 | 82,677 | 1.9 |

**Central Line Bloodstream Infection Prevention ("Prevention Bundles")**

There are groups, or "bundles" of preventive strategies for central line associated bloodstream infection whose use is associated with fewer cases of these diseases. The following tables demonstrate how frequently these prevention bundles are employed in intensive care units and in surgical suites in Maine hospitals. Two time periods are

shown for each hospital, benchmarked to the Maine average for the more recent time period.

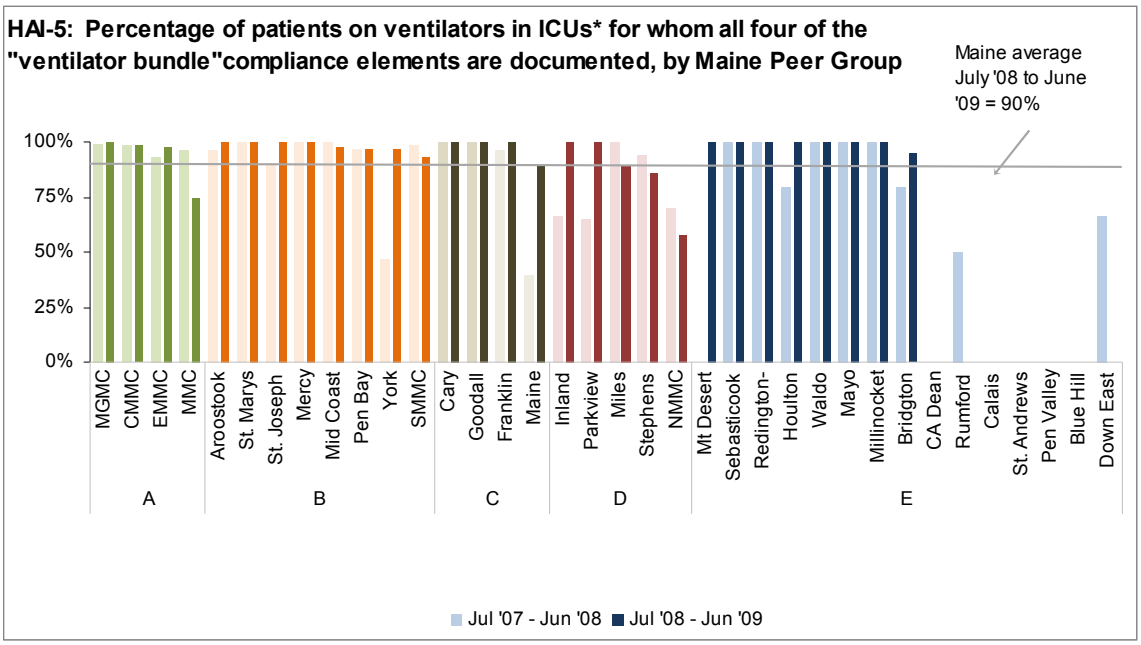



## B. Preventive measures for ventilator associated pneumonia

A bundle of preventive strategies exists for the prevention of ventilator associated pneumonia. Adherence to all of these preventive process measures by each hospital is described in the following graph. Two bars for each facility compare two time periods.

The benchmark line is the Maine average for all hospitals for the more recent time period. It should be noted that the actual incidence of ventilator associated pneumonia (outcome measure) is not measured due to difficulties with accurate diagnosis of this clinical condition.




## II. Statewide Collaborative Efforts

### Maine Infection Prevention Collaborative

In 2008, Maine's hospitals formed the Maine Infection Prevention Collaborative, in partnership with the Maine Quality Forum, the Maine Centers for Disease Control and Prevention, and the Northeast Health Care Quality Foundation, under contract with the Centers for Medicare and Medicaid Services to be the Quality Improvement Organization for northern New England. The goal of the group is to review, develop and share experience and expertise in the prevention of healthcare associated infections and to continuously improve the health and safety of patients and providers by seeking to uniformly employ the best practices of infection control. Current strategies to achieve these goals include:

- Collaborative development and implementation of evidenced-based protocols and guidelines,
- Standardization of data collection and the analysis and sharing of infection control performance indicators.

Infection prevention professionals from all Maine hospitals participate in the Collaborative. Every hospital CEO has signed a Pledge of Support for the work of the Collaborative.

Collaborative efforts and accomplishments in 2009 included:

- Merging of the original northern and southern working groups into a single collaborative and the formation of four committees:
    - MDRO (multiple drug resistant organisms)
    - Data
    - Resource
    - Hand Hygiene

- Implementation of previously developed hand hygiene assessment tool. This has allowed ongoing measurement of compliance with hand hygiene policies, provided the foundation for standardizing the data, and stimulated discussion about local factors resulting in high or low performance. Specific accomplishments in hand hygiene measurement and compliance include:
    - Developed methodology, data collection tools and data protocols agreed to by all participants
    - Collected data monthly from January through December 2009
    - Conducted monthly sessions to apply the data through improvement process
    - Adapted Maine Medical Center hand hygiene toolkit for use by all Maine hospitals
    - Most participating hospitals reported improvements in observed hand hygiene compliance
    - Actions taken by participating hospitals included the following:
        - Increased communications within their institutions on value of hand hygiene
        - New education and training efforts
        - Environmental changes
        - New communications from their CEO on the importance of hand hygiene as an organizational priority
        - Adapted tools from the hand hygiene toolkit templates

- Participation with Maine CDC in successful federal grant application for the Maine State Program to Prevent Healthcare-Associated Infections and subsequent participation in formulation of the Maine HAI Plan (please see separate description of this program elsewhere in this report).

- Participation in the MDRO Metrics Workgroup formed by the Maine Quality Form to carry out obligations of Resolve Chapter 82, 124th Legislature, First Regular Session, which required the Maine Quality Forum to designate patient

populations at high risk for MRSA colonization and design reporting functions to document surveillance of these populations. This resulted in the development of a protocol now used by all hospitals for testing of five designated possible high risk groups for MRSA colonization. Results of this testing will be analyzed after data is submitted by September 1, 2010.

- Facilitation of hospitals' participation in the federal CDC's National Healthcare Safety Network (NHSN). NHSN provides a common platform and definitions for reporting on MDRO infections as well as specific benchmarks, based on hospital and unit type. At the beginning of 2009, four hospitals were enrolled in the MDRO module of NHSN. Through a grant awarded to MIPC by Medline Industries Inc., NHSN training was provided to acute care hospitals in Maine by Federal CDC, Division of Healthcare Quality Promotion and by the Northeast Health Care Quality Foundation (QIO for Maine). Twenty-nine of Maine's thirty-six acute care hospitals have met the training requirements to enroll in NHSN. Twelve hospitals have enrolled in NHSN. Twelve hospitals are reporting MDRO metrics for a single unit within the hospital. MIPC will continue to provide support and training to implement NHSN in all acute care hospitals.

- Participation in the Maine Society of Hospital Pharmacists Annual Conference in Bar Harbor which was devoted to the topic of antimicrobial stewardship (May 29-30, 2010). Representatives of the MIPC delivered presentations on building antibiotic stewardship programs in hospitals, fostering collaborative approaches to antibiotic stewardship, and specific obstacles and hurdles in forming programs along with potential solutions

In addition to the Maine Infection Prevention Collaborative, the Maine Pine Tree Chapter of the Association for Professionals in Infection Control and Epidemiology (APIC) continues to be active. APIC has representation from all Maine acute care hospitals and behavior health facilities as well as representation from long-term care, home health, and public health professionals. As of December 2009 there were 60 active members. 30% of the hospital based infection preventionists are certified in infection control and 40% of the chapter membership is certified in infection control. The APIC- Maine chapter meets quarterly. The meeting provides a day long educational opportunity for members and is open to all healthcare care professionals.

It is noteworthy that these accomplishments occurred in 2009, a year when considerable attention and resources were being devoted to the pandemic of H1N1 influenza beginning in April.

**Maine State Program to Prevent Healthcare Associated Infections (ARRA grant)**

The American Recovery and Reinvestment Act of 2009 resulted in the ability of the federal CDC to support the development of capacity within state health departments for prevention of healthcare associated infection. Maine CDC has been awarded $965,000 for this program, which will be administered by the Division of Infectious Disease within Maine CDC. This project has three areas of focus, including development and enhancement of programmatic HAI prevention efforts, detection and reporting of HAI data, and establishment of a prevention collaborative. Goals and activities planned (or accomplished) in each of these areas are listed below:

- Development of state HAI prevention program
    - Development of a State HAI Plan (completed December 2009, in collaboration with the Maine Infection Prevention Collaborative)
    - Recruitment and identification of a State HAI coordinator and trained staff
    - Provide quarterly reports on achievement of state HAI prevention targets described in the State HAI Plan
    - Integration of laboratory capacity to confirm emerging resistance in HAI pathogens

- Detection and reporting of HAI data
    - Enhancement of laboratory capacity for state and local detection and response to new and emerging HAI issues
    - Identification of priority prevention targets for surveillance
        - Central line associated bloodstream infections
        - MRSA infections
        - Surgical site infections
    - Adoption of national standards for tracking and reporting HAI
- Prevention
    - Establishment and enrichment of the MIPC as the state HAI advisory council to implement HAI prevention activities in the state.
    - Develop and implement healthcare infection prevention initiatives with hospital partners.

For detailed project plans and timeline, see Attachment 1, page 35.

**III. Multiple Drug Resistant Organism Prevention and Control Practices (Survey)**

Resolve Chapter 82 of the First Regular Session of the 124th Legislature required *"reporting on the hospital's adoption of a multiple drug-resistant organism prevention program as part of the hospital's broader health-care-associated infection prevention strategies, including hand hygiene, contact precautions that include barriers as appropriate, isolation policies, design of a response to increases in infection rates and*

*environmental precautions"* by the Dirigo Health Agency's Maine Quality Forum. The Forum surveyed Maine's hospitals in November and December 2009. Using the US CDC document *Management of Multidrug-Resistant Organisms in Healthcare Settings 2006* as a guide, a survey of current Maine hospitals' multidrug-resistant organism prevention and control practices was developed and sent to infection control practitioners in all of Maine's hospitals except the two state psychiatric hospitals. The survey covered areas of MDRO prevention and control. The results of this survey are tabulated and described below.

**1. Transmission precautions and hand hygiene**

Standard precautions are a group of infection prevention practices that apply to all patients, regardless of suspected or confirmed diagnosis or presumed infection status. Standard Precautions include hand hygiene, and depending on the anticipated exposure, use of gloves, gown, mask, eye protection, or face shield. Also included are strategies to protect patients against infection from equipment or fluids. Standard precautions as defined by the US CDC should form the basic practice for infection control and prevention in all hospitals.

Appropriate hand hygiene (washing with soap and water or with alcohol-based hand rub) is a cornerstone of standard precautions. Hospitals should have hand hygiene policies in place as well as a mechanism for monitoring compliance with hand hygiene. (A common hand hygiene monitoring measurement tool has been developed by the Maine Infection Prevention Collaborative and is now used by all Maine hospitals).

Contact precautions are used for some patients, depending on their clinical condition. They include the use of single rooms and single-use gowns, gloves, and masks.

Survey items and responses for transmission precautions and hand hygiene are listed below. Positive responses are expressed as a fraction of hospitals responding:

- Hospital has a hand hygiene policy (39/39)
- Hospital has a hand hygiene compliance monitoring strategy (39/39)
- Standard precautions are the basic practice for all patients (39/39)
- Transmission based precautions are implemented per current CDC guidelines (39/39)

**2. Environmental cleaning and decontamination processes**

Environmental contamination has been implicated in transmission of MDROs in hospital settings. Monitoring and adherence to recommended environmental cleaning practices is an important determinant for success in controlling transmission. Evidence based strategies for MDRO transmission prevention and the fraction of Maine hospitals utilizing them include:

- Housekeeping staff education on proper methods of cleaning (38/39)
- Monitoring of cleaning performance (34/39)
- Use of dedicated equipment for patients who are colonized or infected with MDROs (39/39)

Other strategies which may be theoretically useful but have less evidence in support of their implementation include:

- Use of a checklist for each room to document that all areas were cleaned appropriately (34/39)
- Cleaning and disinfection of equipment that is transported from room to room prior to use on each patient (39/39)

**3. Antimicrobial (Antibiotic) Stewardship**

Antimicrobial (or antibiotic) drug use has been correlated with the emergence of resistant strains of pathogenic bacteria, including MRSA. Moreover, appropriate antibiotic selection and timing can result in better and safer outcomes form patients. CDC guidelines include three elements of a program to assist clinicians in the effective and efficient choices and management of antibiotics. These are called antimicrobial stewardship programs. The relevant CDC recommendations and the fraction of Maine's hospitals which follow them include:

- A multidisciplinary process to review antimicrobial utilization, local susceptibility patterns, and antimicrobial agents included in the formulary to foster appropriate antimicrobial use (27/39).
- Systems which prompt medical staff to use the appropriate antimicrobial agent and regimen for the given clinical situation (28/39).
- A process to provide medical staff with antimicrobial susceptibility reports and analysis of current trends, updated at least annually, to guide antimicrobial prescribing practices (32/39)

Antimicrobial stewardship programs are a topic of interest both within the hospital pharmacy community in Maine and within the infection prevention community. A spring 2009 conference of Maine hospital pharmacists devoted a day to this topic, and promotion of antimicrobial stewardship programs is a goal of the Maine Infection Prevention Collaborative.

**4. Risk Assessment Strategies**

Identification of local risk aids planning to avoid future threats. Surveillance information can influence this planning through heightened awareness of critical personnel of the successes and failures of ongoing interventions. CDC guidelines propose providing updated feedback at least annually to healthcare providers and administrators on MDRO

infections, information on prevalence and incidence, problem assessment and performance improvement plans. The CDC guidelines do not specify which measures should be used in risk assessment, but elements of this risk assessment and the fraction of Maine hospitals which follow them can include:

- Analysis of clinical culture results and antibiogram (36/39).
- Measurement of hand hygiene by direct observation (39/39)
- Measurement of compliance with standard and/or transmission based precautions by direct observation (22/39).
- Measurement of compliance with cleaning of patient care equipment such as blood pressure cuffs, stethoscopes. Pulse oximeter probes and ECG cables by direct observation (9/30).
- Measurement of compliance with established housekeeping practices using a standard checklist such as that published by the Institute for Healthcare Improvement (26/39)

It should be noted that these five elements are examples of measurements that facilities might choose to make, not a comprehensive list of measurements suggested by the CDC for annual risk assessment. The risk assessed by these measures is the risk associated with a facility's noncompliance with its own policy. For example, while standard housekeeping practices may be established at nearly all facilities, the choice to measure compliance with these policies and report compliance to administration is made by fewer. It is not apparent whether this represents a more limited risk assessment program or a program which emphasizes measures not asked about in this survey.

**5. Laboratory Alert System**

CDC guidelines recommend that systems be in place to ensure that medical and infection control staff are notified of new antimicrobial resistance patterns. This measure, and the fraction of Maine hospitals complying with it, is as follows:

- Hospital has a laboratory-based system that identifies new patients with specified epidemiologically significant organisms (ESO) (36/39).

**6. Education**

CDC guidelines recommend education in principles of MDRO transmission prevention for health care personnel. Evidence supports education on a facility-wide or unit-targeted basis. Education programs for hospital administrative personnel and for patients and family members are theoretically advantageous. Education for patients who are infected by or carriers of MDROs is a Joint Commission National Patient Safety Goal for 2010. Results of the survey portion on education, as a fraction of hospitals responding affirmatively are as follows:

- Education for healthcare workers, covering importance of ESOs, necessity of transmission prevention, and measures for transmission prevention is used in their organization (37/39).
- Education for the board of trustees, covering facility and patient care unit-specific trends in ESO colonization, results of risk assessments, and plans to improve adherence to and effectiveness of recommended infection control practices (25/39).
- Education for patients and families (36/39). (This policy is not based on CDC guidelines; however, surveying for it yielded a high incidence of this practice in Maine hospitals.)

**7. Intensified MDRO Control Efforts**

Intensified MDRO control measures are required when incidence or prevalence of MDROs is not decreasing or an outbreak is identified. Hospitals should have in place policies to guide intensified MDRO control measures which are consistent with CDC guidelines, which specify seven areas of emphasis of effort, depending on the targeted organism and clinical setting. The areas and the fraction of Maine hospitals with policies in place in these areas are as follows:

- Administrative measures (35/39)
- Education measures (36/39)
- Measures regarding judicious antimicrobial use (32/39)
- Surveillance measures (36/39)
- Transmission precautions (38/39)
- Environmental measures (38/39)
- Decolonization as appropriate (25/39)

In this category, fewest hospitals have decolonization policies in place. This probably reflects the considerable ambiguity regarding MDRO (especially MRSA) decolonization advice. CDC guidelines do not recommend routine decolonization and advise expert consultation when considering decolonization strategy as part of a response to increase in transmission rates or outbreak containment.

The results of this survey will be shared with the membership of the Maine Infection Prevention Collaborative, the Quality Committee of the Maine Hospital Association, and the administrations of each responding hospital.

## IV. New Indicators

Considerable legislative activity occurred around the HAI topic of Methicillin Resistant *Staphylococcus Aureus*, or MRSA, during the First Regular Session of the 124th Legislature. As a result, two measures were adopted by the Legislature in 2009. These include Public Law 2009, Chapter 346, which requires hospitals to perform targeted

surveillance for MRSA colonization in high risk populations as defined by the Maine Quality Forum (MQF), and Resolve 2009, Chapter 82, which requires rulemaking by the Maine Health Data Organization in consultation with the Maine Quality Forum regarding *Clostridium Difficile* and MRSA.

Knowing what hospital patients are colonized (carriers of MRSA as opposed to actively infected with MRSA) may be important since these patients can become infected by the MRSA they carry and can transmit MRSA to other hospitalized patients through health care workers.

In the spring of 2009, the MQF convened a workgroup as specified by the Resolve. This group included representatives of the Maine Infection Prevention Collaborative, representatives of statewide organizations representing nurses, and a person representing consumers. The group also received expert consultation from the Maine and federal Centers for Disease Control and Prevention (CDC) as well as from independent authorities in hospital epidemiology outside of Maine. Over six meetings, the group ultimately recognized that active surveillance screening (cultures) for MRSA is not a first-line strategy as currently recommended by the federal CDC and that patient populations which may be at high risk of MRSA colonization in one community may not be at high risk in another. Accordingly, the group specified five groups often found to be at high risk of MRSA colonization in the literature including patients with recent hospitalizations, patients with recent nursing facility stays, patients on hemodialysis, patients transferred from jail or prison, and patients admitted to intensive care units. Members of these groups who are admitted to Maine hospitals after January 4, 2010, undergo surveillance (nasal swab cultures) for the presence of MRSA. The results of these cultures, indicating the prevalence of MRSA colonization in each of these groups in each hospital in Maine, will be analyzed by the Maine Health Data Organization after June 30, 2010 and reported publically.

MHDO Rule Chapter 270 was amended to reflect these reporting requirements. To respond directly to the Resolve, the new performance indicator HAI-6 was developed. This measure indicates the hospital's success in performing active surveillance of the above five populations.

## Attachment 1: State HAI Objectives and Completion Timeline

| **Objective** | **11/8/2009** | **12/31/2009** | **1/31/2010** | **2/28/2010** | **3/31/2010** | **6/30/2010** | **9/30/2010** | **12/31/2010** | **6/30/2011** | **12/31/2011** |
|---|---|---|---|---|---|---|---|---|---|---|
| <u>HAI Program Infrastructure</u> | | | | | | | | | | |
| 1. Establish statewide HAI prevention leadership through the formation of multidisciplinary group or state HAI advisory council | X | | | | | | | | | |
| i. Identify specific HAI prevention targets consistent with HHS priorities | | | | X | | | | | | |
| 2. Establish an HAI surveillance prevention and control program<br>i. Designate a State HAI Prevention Coordinator | | | | X | | | | | | |
| ii. Develop dedicated, trained HAI staff with at least one FTE (or contracted equivalent) to oversee the four major HAI activity areas (Integration, Collaboration, and Capacity Building; Reporting, Detection, Response and Surveillance; Prevention; Evaluation, Oversight and Communication) | | | | | X | | | | | |
| 3. Integrate laboratory activities with HAI surveillance, prevention and control efforts<br>i. Improve laboratory capacity to confirm emerging resistance to HAI pathogens and perform typing where appropriate (e.g., outbreak investigations support, HL7 messaging for laboratory results) | | | | | X | | | | | |
| 4. Facilitate use of standards-based formats (e.g., Clinical Document Architecture, electronic messages) by healthcare facilities for purposes of electronic reporting of HAI data. Providing technical assistance or other incentives for implementations of standards-based reporting can help develop capacity for HAI surveillance and other types of public health surveillance, such as for conditions deemed reportable to state and local health agencies using electronic laboratory reporting (ELR). Facilitating use of standards-based solutions for | | | | | | | | | | X |

| **Objective** | **11/8/2009** | **12/31/2009** | **1/31/2010** | **2/28/2010** | **3/31/2010** | **6/30/2010** | **9/30/2010** | **12/31/2010** | **6/30/2011** | **12/31/2011** |
|---|---|---|---|---|---|---|---|---|---|---|
| external reporting also can strengthen relationships between healthcare facilities and regional nodes of healthcare information, such as Regional Health Information Organizations. (RHIO) and Health Information Exchanges (HIE). These relationships, in turn, can yield broader benefits for public health by consolidating electronic reporting through regional nodes. | | | | | | | | | | |
| <u>Surveillance, detection, reporting, and response to HAI</u> | | | | | | | | | | |
| 1. Improve HAI outbreak detection and investigation | | | | | | | X | | | |
| i. Work with partners including CSTE, CDC, state legislatures, and providers across the healthcare continuum to improve outbreak reporting to state health departments | | | | | | | X | | | |
| ii. Establish protocols and provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAI. | | | | | | | X | | | |
| iii. Develop mechanisms to protect facility/provider/patient identity when investigating incidents and potential outbreaks during the initial evaluation phase where possible to promote reporting of outbreaks | | | | | | | X | | | |
| iv. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in HC settings (e.g., hepatitis B, hepatitis C, multi-drug resistant organisms (MDRO), and other reportable HAI) | | | | | | | | | | X |
| 2. Enhance laboratory capacity for state and local detection and response to new and emerging HAI issues | | | | | | | | | | X |
| 3. Identify priority prevention targets for surveillance in support of the HHS HAI Action Plan<br>i. Central Line-associated Bloodstream Infections (CLABSI) | | | X | | | | | | | |

| **Objective** | **11/8/2009** | **12/31/2009** | **1/31/2010** | **2/28/2010** | **3/31/2010** | **6/30/2010** | **9/30/2010** | **12/31/2010** | **6/30/2011** | **12/31/2011** |
|---|---|---|---|---|---|---|---|---|---|---|
| ii. Methicillin-resistant *Staphylococcus aureus* (MRSA) Infections<br>iii. Surgical Site Infections (SSI) | | | | | | | | | | |
| 4. Adopt national standards for data and technology to track HAI (e.g., NHSN). | | | | | | X | | | | |
| i. Develop metrics to measure progress towards national goals (align with targeted state goals). (See Appendix 1 for State HAI Plan). | | | | | | X | | | | |
| ii. Establish baseline measurements for prevention targets | | | | | | | | X | | |
| 5. Develop state surveillance training competencies<br>i. Conduct local training for appropriate use of surveillance systems (e.g. NHSN) including facility and group enrollment, data collection, management and analysis | | X | | | | | | | | |
| 6. Develop tailored reports of data analyses for state or region by state personnel | | | | | | | | | | X |
| 7. Validate data entered into HAI surveillance (e.g., through healthcare records review, parallel database comparison) to measure accuracy and reliability of HAI data collection<br>i. Develop a validation plan<br>ii. Pilot test validation methods in a sample of healthcare facilities<br>iii. Modify validation plan and methods in accordance with findings from pilot project<br>iv. Implement validation plan and methods in all healthcare facilities participating in HAI surveillance<br>v. Analyze and report validation findings<br>vi. Use validation findings to provide operational guidance for healthcare facilities that targets any data shortcomings detected | | | | | | | | | | X |
| <u>State Planning for HAI Prevention Activities</u> | | | | | | | | | | |

| **Objective** | **11/8/2009** | **12/31/2009** | **1/31/2010** | **2/28/2010** | **3/31/2010** | **6/30/2010** | **9/30/2010** | **12/31/2010** | **6/30/2011** | **12/31/2011** |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Implement HICPAC recommendations.<br>i. Develop strategies for implementation of HICPAC recommendations for at least 2 prevention targets specified by the state multidisciplinary group | | | | | | | | | | X |
| 2. Establish prevention working group under the state HAI advisory council to coordinate state HAI collaboratives<br>i. Assemble expertise to consult, advise, and coach inpatient healthcare facilities involved in HAI prevention collaborative | | | X | | | | | | | |
| 3. Establish HAI collaboratives with at least 10 hospitals (i.e. this may require a multi-state or regional collaborative in low population density regions)<br>i. Identify staff trained in project coordination, infection control, and collaborative coordination<br>ii. Develop a communication strategy to facilitate peer-to-peer learning and sharing of best practices<br>iii. Establish and adhere to feedback of a clear and standardized outcome data to track progress | | | | | | | | | | X |
| 4. Develop state HAI prevention training competencies<br>i. Consider establishing requirements for education and training of healthcare professionals in HAI prevention (e.g., certification requirements, public education campaigns and targeted provider education) or work with healthcare partners to establish best practices for training and certification | | | | | | | | | | X |
| <u>State HAI Communication and Evaluation Planning</u> | | | | | | | | | | |
| 1. Conduct needs assessment and/or evaluation of the state HAI program to learn how to increase impact | | | | | | | | X | | |
| i. Establish evaluation activity to | | | | | | | | X | | |

| **Objective** | **11/8/2009** | **12/31/2009** | **1/31/2010** | **2/28/2010** | **3/31/2010** | **6/30/2010** | **9/30/2010** | **12/31/2010** | **6/30/2011** | **12/31/2011** |
|---|---|---|---|---|---|---|---|---|---|---|
| measure progress towards targets | | | | | | | | | | |
| ii. Establish systems for refining approaches based on data gathered | | | | | | | | | X | |
| 2. Develop and implement a communication plan about the state's HAI program and progress to meet public and private stakeholders needs<br>i. Disseminate state priorities for HAI prevention to healthcare organizations, professional provider organizations, governmental agencies, non-profit public health organizations, and the public | | | | | | | | | X | |

## Attachment 2: MRSA Screening Protocol

**Methicillin-Resistant Staphylococcus Aureus (MRSA)**
**Prevalence among Higher-Risk Populations**
**Prevalence Study Protocol**

December 11, 2009

**Purpose**: Prospective active surveillance cultures of population group members admitted to Maine hospitals to determine prevalence of MRSA colonization in these population groups.

**Action:** Perform an Active Surveillance Culture (ASC) on patients who meet the inclusion criteria and who are not excluded by the exclusion criteria within 24 hours of hospital admission. The admission time is defined as the admission time on the face sheet of the chart.

- **Inclusion Criteria**
  - Patients admitted (not transferred) to intensive care and coronary
    intensive care units (including "overflow" admissions to ICU when other units full and telemetry patients in ICU)
  - Hemodialysis patients
  - Patients with prior hospitalizations (overnight stay) in the past 6 months (including interhospital transfer patients)
  - Patients with an overnight stay in a skilled nursing facility or nursing
    facility in the previous six months
  - Patients transferred from prison or jail
- **Exclusion Criteria**
  - Patient refusal
  - Patients who died, or were discharged or transferred within 24 hours whose specimen was not obtained within the 24 hour time period
  - Patients previously MRSA positive (may be rescreened at the discretion of the hospital)

- **Sampling Method**

**Procedure for Culturing Anterior Nares**

*Anterior nares specimens should be obtained with a commercially prepared sterile swab. Below is an example of a method that could be used*
.

1. Label swab container with either the patient name or patient code.
2. Explain to the patient that you will only be touching the inside of the nostril (1-2 cm or the length of fingernail from cuticle to tip of finger). Inform the patient that it may make their nose itch, eyes water, or sneeze, but it shouldn't hurt.
3. Have participant tilt head back.
4. Carefully remove swab from packaging making sure not to touch any object with the swab tip.
5. Insert swab into each nostril (about 2 cm on an adult e.g., only swab tip disappears in nostril) without touching anything but the inside or anterior part of the nostril.
6. While rotating swab contact all surfaces of the anterior, or forward, internal part of the nasal mucosa for about 3 seconds and remove.
7. Immediately return swab into its transport container, taking care not to touch anything else with it; ensure that the swab is properly labeled and secured in the transport container according to the manufacturer's instructions; and send to laboratory for processing.

• Samples will be processed in the clinical laboratory of the hospital's choice
(there will be no "central laboratory"). Culture or polymerase chain reaction (PCR) methods may be used for sample processing, depending on local hospital methods.
• Samples will be collected from hospitalized patients (including "observation" patients) within 24 hours of admission (but still reported if screened after 24 hours)

**Reporting and Analysis**

• Surveillance will begin January 4, 2010

• Hospitals will report results via a standardized spreadsheet as follows:

- The number of patients admitted in each of the above categories
  - If patients are members of more than one risk group, they should be counted in each

- The number of patients in each category who had ASC ("number of patients screened in each category") within 24 hours of hospital admission

- The number of patients in each category who had ASC after the first 24 hours after hospital admission

- The number of patients testing positive for MRSA in each category

- Exclusions (and reason)

- MQF will calculate the rate of MRSA colonization as the number of patients testing positive (numerator) divided by the number of patients screened (denominator).
- In addition, information collected on each individual screened patient will include designation of each risk group the patient belongs to and whether the patient had been previously identified as infected or colonized by MRSA.

- For hospitals electing not to screen previously identified MRSA carriers, these patients will be considered screened (added to denominator) and positive (added to numerator) for each of the five risk categories which applies.

• Categories will be deemed high risk if one of the following conditions is met:

- Category positive screening rates equal to or greater than 7% providing there are at least three positive screens, **or**

- A category with a screening rate less than 50%

• The first hospital report on information above will cover the period of January 4, 2010 – June 30, 2010, and is due at the Maine Health Data Organization no later than September 1, 2010.

• MQF will confirm and report back to the hospital the high risk classification determination based on review of the submitted data, by December 1, 2010.

• ASC will continue for the above “potential high risk” groups pending this Analysis

• After analysis and reporting, groups that fall into one of the “high risk” categories above will continue to be screened.

• Groups not meeting one of the above criteria will be considered not high risk for MRSA colonization and will not require further mandated ASC, unless subsequently implicated in a local outbreak or identified in subsequent prevalence studies.