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EXECUTIVE DIRECTOR

DATE: April 26, 2013

TO: Senator Craven, Representative Farnsworth and Members of the Joint Standing Committee on Health and Human Services

FROM: Karynlee Harrington, Executive Director, Dirigo Health Agency/Maine Quality Forum

CC: Jane Orbeton, Legislative Analyst
Commissioner Mayhew, DHHS
Holly Lusk, Senior Health Policy Advisor for Governor LePage
Stephen Sears MD, DHHS-MeCDC
Robert Keller MD, Chair of Maine Quality Forum Advisory Council

RE: 2013 Annual Report of Healthcare Associated Infections in Maine

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On behalf of the Dirigo Health Agency's Maine Quality Forum and in collaboration with the Maine CDC, I am pleased to submit to the Joint Standing Committee on Health and Human Services our 2013 Annual Report on Healthcare Associated Infections (HAI) in Maine

The report provides a significant amount of information on the specific HAI data that the MaineHealth Data Organization (MHDO) collects from Maine hospitals and from the National HealthSafety Network (NHSN) per Rule Chapter 270. The data contained in this report reflects compliance and performance rates in the aggregate and by hospital by peer group for the most recent reporting period (July 2011-June 2012). The report also provides data on prior years (when available) in order to establish a trend line.

While there remain opportunities for improvement on some of the measures and by specific hospitals, our conclusions show that Maine hospitals continue to show progress in reducing the incidence of healthcare associated infections.

Please do not hesitate to contact me with questions.

2013 Annual Report

Healthcare Associated Infections in Maine

Submitted to:

Joint Standing Committee on Health and Human Services

Prepared by:

Karynlee Harrington, Executive Director

Dirigo Health Agency/Maine Quality Forum

May, 2013 (revised post release on 5.6.13)

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This report is being submitted by the Dirigo Health Agency's Maine Quality Forum in collaboration with the Maine Centers for Disease Control as part of its legislative responsibility to provide an annual report to the Maine State Legislature on the status of healthcare associated infections in Maine.[1]

[1] 24-A MRSA §6951.

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What are Healthcare Associated Infections (HAIs)?

As the name implies, Healthcare Associated Infections (HAIs) may occur during the course of receiving healthcare treatment for other conditions. They can happen following treatment in healthcare facilities including hospitals as well as outpatient surgery centers, dialysis centers, long-term care facilities such as nursing homes, rehabilitation centers, and community clinics. They can also occur during the course of treatment at home. They are caused by a wide variety of common and unusual bacteria, fungi, and viruses.

Four specific infections together account for more than 80 percent of all HAIs nationally:[2]

- Surgical site infections (SSI)
- Catheter-associated urinary tract infections (CAUTI)
- Central line catheter-associated bloodstream infections (CLABSI)
- Ventilator-associated pneumonia (VAP)

Also, infections caused by Clostridium difficile (a bacterium that can cause symptoms after exposure to antibiotics ranging from diarrhea to life-threatening inflammation of the colon) are rapidly becoming more common in hospitals.[3] Preventing the transmission of Clostridium difficile (c. difficile) and antibiotic-resistant bacteria such as methicillin-resistant Staphylococcus aureus (MRSA) is an ongoing focus of attention in Maine and nationally.

Why do HAIs matter?

Although the rate of HAI infections occurs at relatively low frequency, their impact is significant—these infections are associated with morbidity, mortality, and excess health care costs. These complications strike when a patient is already weak because of the original disease or surgery, which is why the resulting conditions can be devastating. Infections prolong hospital stays and can create long term disability and decrease resistance to other diseases. Beyond the personal burden, HAIs contribute to higher healthcare costs. Citing the most recent study conducted in this area, the federal CDC states that 99,000 people lost their lives to these infections in 2002 in the US.[4] The CDC also reports that this group of complications added on average, between $16,000 and $19,000 to each hospital patient's bill in 2009 costing the healthcare system an extra $28.4- $33.8 billion in total.[5]

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[2] Agency for Healthcare Research and Quality. Patient Safety Network. *Patient Safety Primer: Health Care-Associated Infections.* [Web Page]. 2012, October. Available at: http://www.psnet.ahrq.gov/primer.aspx?primerID=7. Accessed April 1, 2013.

[3] Curran L. Clostridium difficile Infection Incidence, Costs Reach Historic Highs: Community-onset Cases More Likely to Require Colectomy, Study Finds. [Web Page]. 2012, April 30. Available at: http://www.aafp.org/online/en/home/publications/news/news-now/health-of-the-public/20120430community-onsetcdi.html. Accessed April 1, 2013.

[4] Klevens RM, Edwards, JR, Richards CL, Horan TC, Gaynes RP, Pollack DA, and Cardo DM. Estimating Healthcare Associated Infections and Deaths in U.S. Hospitals, 2002. Public Health Reports 2007:122.

[5] Scott RD II. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. Atlanta, GA: Centers for Disease Control and Prevention, Division of Healthcare Quality Promotion; March 2009. http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf

Healthcare associated infections are a national and state priority because we have learned that there are basic and effective strategies that can be taken by consumers, their caregivers and healthcare providers to reduce and even eliminate their incidence. Initial focus in prevention has been on hospitals where strong infection control practices have been instituted, such as the use and maintenance of medical devices (e.g., ventilators and catheters), training of health care workers on proper procedures during post-surgical care, and the physical layout of hospital rooms (e.g., movement to private rooms to reduce spread of infections). Yet we know that medical care that once occurred only in hospitals is now happening in ambulatory surgical centers, nursing facilities, and at home. Many HAIs in these settings are due to poor basic infection-control practices such as improper sterilization and disinfection methods, reuse of syringes and needles, and using single-use medication vials for multiple patients.[6]

How does Maine measure HAIs?

Hospitals have been the focus of HAI measurement since the acute care setting is where infections are the most common complication of care and where there is the greatest opportunity for prevention. With guidance from the Maine Centers for Disease Control (MeCDC) and the Maine Infection Prevention Collaborative (MIPC), the Dirigo Health Agency's Maine Quality Forum (MQF) adopts nationally recognized measures that are based on a rigorous national consensus process using available scientific evidence. Under the rulemaking authority of the Maine Health Data Organization, the MQF requires hospitals to report data on each HAI measure using a consistent and standard format.

There are two types of HAI measures. The first, ***process measures***, focus on a hospital's compliance with specific practices or "bundles" of practices that research has shown to be effective in preventing HAIs (*e.g.*, hand hygiene). Process measures are straightforward to collect and to interpret and require no adjustment to the data based on the severity of a patient's condition. The second, ***outcomes measures***, assesses whether preventive practices have the desired impact in reducing the rate of HAIs.

As a result of a recent change in Maine law,[7] the MQF has access to HAI data submitted by hospitals to the National Health Safety Network (NHSN), a secure internet surveillance system at the Centers for Disease Control (CDC) to track HAIs. For the first time, these data allow Maine to conduct more meaningful analyses on how well hospitals are conforming to evidence-based guidelines to prevent HAIs and the actual impact those practices have on two new outcome measures - MRSA and c. difficile. In both cases, the MeCDC validates data received from NHSN before publicly reporting the data.

TABLE 1 summarizes the process and outcome measures that are currently collected in Maine and the period for which data are available. APPENDIX A lists all Maine hospitals by peer group. APPENDIX B provides a more detailed discussion of each measure. Measures are all collected at the hospital-specific

[6] HealthyPeople.gov. HealthyPeople 2020 Topics & Objectives: Healthcare-Associated Infections. [Web Page]. 2012, September 6. Available at: http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=17. Accessed April 1, 2013.

[7] Chapter 166 LD 2163, item 1, 123rd Maine State Legislature Resolve, Regarding Legislative Review of Portions of Chapter 270: Uniform Reporting System for Health Care Quality Data Sets, a Major Substantive Rule of the Maine Health Data Organization

level and all but three measures (MRSA, c.difficile and SCIP-10) have been collected for at least five years.

TABLE 1 – Summary HAI Process and Outcome Measures Collected in Maine

Type of Infection	Data Availability	Process Measures	Outcome Measures
Central line catheter-associated bloodstream infections (CLABSI)	July 2006 – June 2012	• Compliance with all 5 evidence-based interventions for patients with intravascular central catheters in intensive care units (HAI-3). • Compliance with the 4 insertion-related evidence-based interventions for patients with intravascular central catheters placed preoperatively, in pre-operative areas, operating rooms and recovery areas (HAI-4)	• The weighted average rate of central line catheter-associated blood stream infections per 1,000 intensive care unit central line days (HAI-1) • Number of catheter-related blood stream infections among neo-natal intensive care unit patients per 1,000 central line catheter or umbilical days (HAI-2).
Surgical site infections (SSI)	July 2006 – June 2012 (except SCIP-10 for which data is available for only one year – July 2011 – June 2012)	• Percent of all patients receiving an antibiotic within 1 hour prior to any surgery (SCIP-1A) • Percent of surgery patients receiving the recommended antibiotic for their procedure (SCIP-2A) • Percent of surgery patients whose preventive antibiotics were discontinued within 24 hours after anesthesia ended (SCIP-3) • Percent of cardiac surgery patients with controlled 6 AM post-operative serum glucose (SCIP-4) • Percent of all surgery patients with appropriate hair removal (SCIP 6) • Percent of surgery patients with perioperative temperature management (SCIP-10)	No outcome measures collected
Ventilator associated pneumonia (VAP)	July 2007 – June 2012	Percent documented compliance with pneumonia prevention measures among intensive care unit patients on ventilators (HAI-5)	No outcome measures collected

Type of Infection	Data Availability	Process Measures	Outcome Measures
Methicillin-resistant Staphylococcus aureus (MRSA)	Jan 2011 – Dec 2011	No process measures collected	MRSA rates per thousand patient days
C. difficile	Oct 2011 – Sept 2012	No process measures collected	Maine hospital onset and community-onset healthcare facility associated C. difficile rate per 10,000 patient days

The practice and science of measuring HAIs is still evolving. The MQF is committed to using the most current evidence to examine how well Maine is doing in preventing HAIs. The MQF will continue to work with the MeCDC, the Maine Infection Prevention Collaborative and other stakeholders to add new measures that can provide reliable and actionable information on how Maine can reduce the devastating impact of these infections.

How well is Maine doing in preventing HAIs?

There are encouraging trends to report on Maine's progress in preventing HAIs. Where compliance is high, our shared goal is to sustain improvement. Where aggregate trends are not as favorable, our data helps us better target improvement efforts in specific settings of care.

For the sake of simplicity, we have grouped the measures into five categories – 1 to 5. APPENDIX B includes hospital-specific details on each of these measures for the most recent reporting period and statewide average trend charts for the past five years where data are available.

Category 1 measure – All hospitals are at 99 or 100 percent compliance

There is little room for improvement on one surgical site infection measure. Ninety-nine to 100 percent of all Maine hospitals are appropriately removing hair near a patient's incision prior to surgery.

Category of Infection	Outcome Measure	Measure #	Hospital-Specific & Trend Rates
Surgical Site Infections (SSI)	Percent of all surgery patients with appropriate hair removal	SCIP-6	Page 25, 26

The State's goal is to continue to sustain the goals that have been achieved for this Category 1 measure.

Category 2 measures - Statewide performance improved steadily over 5 years

Overall, Maine hospitals continue to do better each year on five measures related to CLABSI and SSI. While a group of hospitals are at or close to 100 percent compliance, compliance for others can be significantly lower.

Category of Infection	Process Measure	Measure #	Hospital-specific & Trend Rates
Central line catheter-associated bloodstream infections (CLABSI)	Compliance with all 5 evidence-based interventions for patients with intravascular central catheters in intensive care units	HAI-3	Page 14, 15
	Compliance with the 4 insertion-related evidence-based interventions for patients with intravascular central catheters placed preoperatively, in pre-operative areas, operating rooms and recovery areas	HAI-4	Page 16, 17
Surgical Site Infections (SSI)	Percent of all patients receiving an antibiotic within 1 hour prior to any surgery	SCIP-1A	Page 18, 19
	Percent of surgery patients receiving the recommended antibiotic for their procedure	SCIP-2A	Page 20, 21
	Percent of surgery patients whose preventive antibiotics were discontinued within 24 hours after anesthesia ended	SCIP 3	Page 22, 23

The goal for Category 2 measures is to target improvement within specific hospitals and to sustain the performance of the others.

Category 3 measures - Statewide performance varies year to year but the overall five-year trend is improving

There is fluctuating performance on three measures where the statewide average may go up one year and down another. This may in part be due to the small numbers that can easily skew an average.

Category of Infection	Outcome Measure	Measure #	Hospital-specific & Trend Rates
Central line catheter-associated bloodstream infections (CLABSI)	The weighted average rate of central line catheter-associated blood stream infections per 1,000 intensive care unit central line days	HAI-1	Page 10, 11
	Number of catheter-related blood stream infections among neo-natal intensive care unit patients per 1,000 central line catheter or umbilical days	HAI-2	Page 12, 13
Category of Infection	**Process Measure**	**Measure #**	**Hospital-specific & Trend Rates**
Surgical Site Infections (SSI)	Cardiac surgery patients with controlled 6 AM post-operative serum glucose	SCIP-4	Page 24, 25

Since there is no consistent trend, continued vigilance is needed for Category 3 measures.

Category 4 measure - Statewide performance is declining

The Maine statewide average has declined over the past five years for one measure. The good news is that 24 of the 29 hospitals with patients eligible for the pneumonia prevention measure had a greater than 90 percent compliance rate in the most recent reporting year; five hospitals had a significantly lower compliance rate.

Category of Infection	Process Measure	Measure #	Hospital-specific & Trend Rates
Ventilator associated pneumonia (VAP)	Percent documented compliance with pneumonia prevention measures among intensive care unit patients on ventilators	HAI-5	Page 29, 30

The goal for this Category 4 measure is targeted improvement in low performing hospitals and sustained improvement for those that are at or close to 100 percent compliance.

Category 5 measures – New measure; no trend data available

There are three measures for which only one year of data has been collected. Since no trend can be established, close observation is warranted.

Category of Infection	Process Measure	Measure #	Hospital-specific Rates
Surgical site infection (SSI)	Percent of surgery patients with perioperative temperature management	SCIP-10	Page 27
Methicillin-resistant Staphylococcus aureus (MRSA)	MRSA rates per thousand patient days		Page 32
C. difficile	Maine hospital onset and community-onset healthcare facility associated C. difficile rate per 10,000 patient days		Page 34

Hospital performance across all process measures is shown in APPENDIX C. This chart provides an easy reference for identifying hospitals whose performance is at or above 95 percent compliance and where there are opportunities for continued improvement within a hospital and/or a measure.

Conclusions/Recommendations

The partnership between Maine hospitals and State government has resulted in new opportunities for training, improvement and meaningful reporting. As a result, the HAI quality indicators summarized in this report demonstrate that Maine hospitals continue to show progress in addressing the risks associated with health care associated infections.

To meet remaining challenges, the MQF recommends the following:

1. Continue to identify and propose new HAI measures for data collection that are evidence-based and nationally recognized.

2. Work with the MIPC to:
    - Identify issues contributing to fluctuating performance of Category 3 measures and collaborate with hospitals on improvement strategies.
    - Identify issues contributing to declining performance of the Category 4 measure and collaborate with hospitals on improvement strategies.

3. In collaboration with the MeCDC, convene an HAI Sub-Committee to build broader awareness about the importance of HAI and the roles to be played by consumers, providers and policymakers. APPENDIX D lays out the charge and composition of this sub-committee.

4. Conduct a validation study of hospital reported data on CLABSI in coordination with the MeCDC to assure consistent and reliable data collection.

5. Support the ongoing prevention and surveillance efforts of the MeCDC around HAI as described in the Maine State Healthcare Associated Prevention Plan, 2013 (see APPENDIX F).

6. Support the Maine Infection Prevention Collaborative in achieving its objectives as set out in its 2012 Annual Report (see APPENDIX E).

Appendix A

Maine Hospitals Listed by Hospital Peer Group

The Maine hospital peer groups were created by the Maine Hospital Association to facilitate comparisons between similar hospitals.

Peer Group A

Central Maine Medical Center	Lewiston
Eastern Maine Medical Center	Bangor
Maine Medical Center	Portland
MaineGeneral Medical Center	Augusta/Waterville

Peer Group B

Aroostook Medical Center, The	Presque Isle/Fort Fairfield
Mercy Hospital	Portland/Westbrook
Mid Coast Hospital	Brunswick
Penobscot Bay Medical Center	Rockport
Southern Maine Medical Center	Biddeford
St Joseph Hospital	Bangor
St Mary's Regional Medical Center	Lewiston
York Hospital	York

Peer Group C

Cary Medical Center	Caribou
Franklin Memorial Hospital	Farmington
Goodall Hospital	Sanford

Peer Group D

Maine Coast Memorial Hospital	Ellsworth
Inland Hospital	Waterville
Miles Memorial Hospital	Damariscotta
Northern Maine Medical Center	Fort Kent
Parkview Adventist Medical Center	Brunswick

Peer Group E

Blue Hill Memorial Hospital	Blue Hill
Bridgton Hospital	Bridgton
Calais Regional Hospital	Calais
Charles A. Dean Memorial Hospital & Nursing Home	Greenville
Down East Community Hospital	Machias
Houlton Regional Hospital	Houlton
Mayo Regional Hospital	Dover-Foxcroft
Millinocket Regional Hospital	Millinocket
Mount Desert Island Hospital	Bar Harbor
Penobscot Valley Hospital	Lincoln
Redington-Fairview General Hospital	Skowhegan
Rumford Hospital	Rumford
Sebasticook Valley Hospital	Pittsfield
St Andrews Hospital & Healthcare Center	Boothbay Harbor
Stephens Memorial Hospital	Norway
Waldo County General	Belfast

Appendix B

Description and Trends in Hospital-Reported Measures Relating to Healthcare Associated Infections in Maine

This appendix describes each of the following measures which hospitals are required to submit:

I. Central line catheter associated bloodstream infections (CLABSI)

- The annual weighted average rate for central line catheter-associated blood stream infections per 1,000 intensive care unit central line days (HAI-1).
- Number of catheter-related blood stream infections among neo-natal intensive care unit patients per 1,000 central line catheter or umbilical days (HAI-2).
- Compliance with all five evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) in intensive care units (HAI-3).
- Compliance with the four insertion-related, evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) placed preoperatively, in pre-operative areas, operating rooms, and recovery areas (HAI-4).

II. Surgical site infections (SSI)

- Percent of all patients receiving an antibiotic within one hour prior to any surgery (SCIP-1A).
- Percent of all surgery patients receiving the recommended antibiotic for their procedure (SCIP-2A).
- Percent of all surgery patients whose preventive antibiotics were discontinued within 24 hours after anesthesia ended (SCIP-3).
- Percent of cardiac surgery patients with controlled 6 AM post-operative serum glucose (SCIP-4).
- Percent of all surgery patients with appropriate hair removal (SCIP-6).
- Percent of surgery patients with perioperative temperature management (SCIP-10).

III. Ventilator associated pneumonia (VAP)

- Percent documented compliance with pneumonia prevention measures among ICU patients on ventilators (HAI-5).

IV. Methicillin-resistant Staphylococcus aureus (MRSA)

- MRSA rates per thousand patient days.

V. C. difficile

- Maine hospital onset and community-onset healthcare facility associated C. difficile rate per 10,000 patient days.

I Central line catheter associated bloodstream infections (CLABSI)

HAI-1: The annual weighted average rate for central line catheter-associated blood stream infections per 1,000 intensive care unit central line days

HAI-2: Number of catheter-related blood stream infections among neo-natal intensive care unit patients per 1,000 central line catheter or umbilical days

HAI-3: Compliance with all five evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) in intensive care units

HAI-4: Compliance with the four insertion-related, evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) placed preoperatively, in pre-operative areas, operating rooms, and recovery areas

Some patients need large intravenous (IV) catheters – sometimes called "central lines" – which are inserted into the body to deliver concentrated solutions of drugs, to monitor special types of pressures, or to measure certain aspects of heart performance. For adults, central line catheters are ordinarily inserted into the large veins of the chest or into the heart itself. Newborns can also have central lines, but these lines usually enter the body through the umbilical cord.

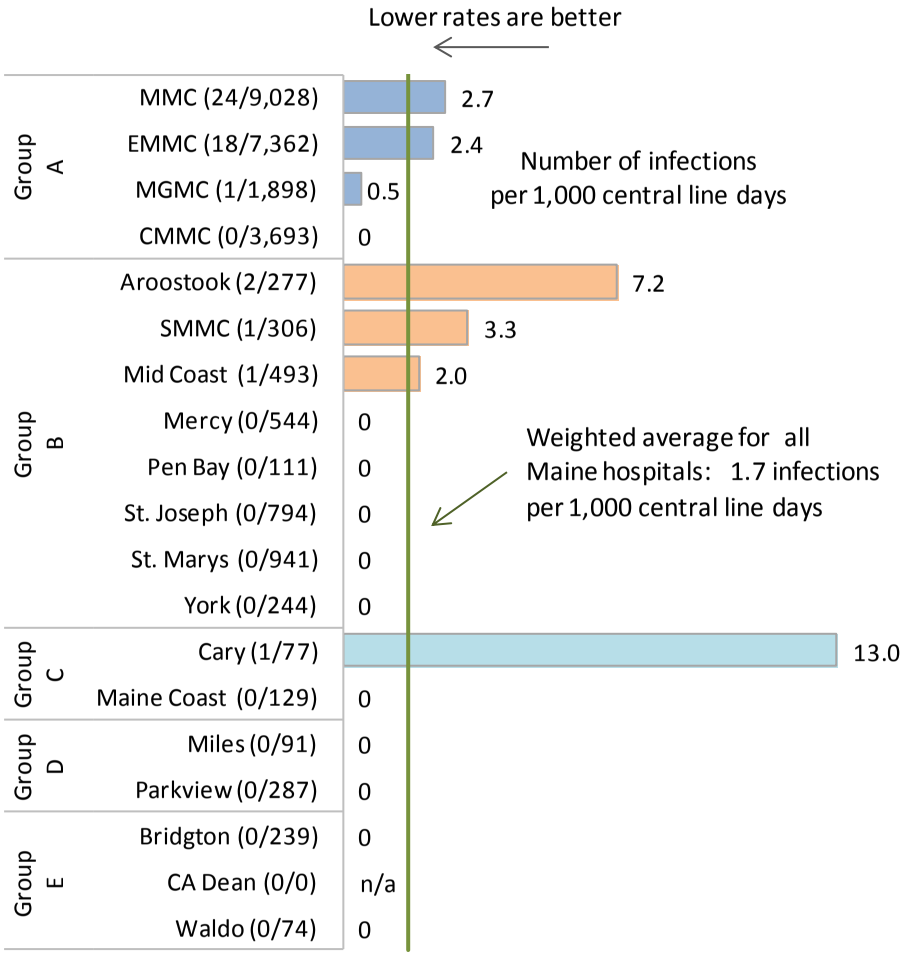
A central line associated bloodstream infection (CLABSI) is defined as an infection in the bloodstream that occurs after a central line has been placed in a patient and is unrelated to any infections the patient had previously. These types of infections lead to longer hospital stays, increase the costs of care, and even increase the risk of patient death. Hospitals can prevent CLABSI by ensuring the proper insertion and care of the central line. Tracking how often CLABSI occurs may point out some deficiencies that need to be corrected, especially given that CLABSI is a relatively rare event in healthcare settings.

The use of central lines to deliver medications and to monitor how well a patient's body is functioning is an important tool available to health care providers. But because central line bloodstream infections result in risk of morbidity and mortality to patients and because they result in longer and more costly hospital stays, it is important to take steps to effectively and efficiently reduce their incidence.

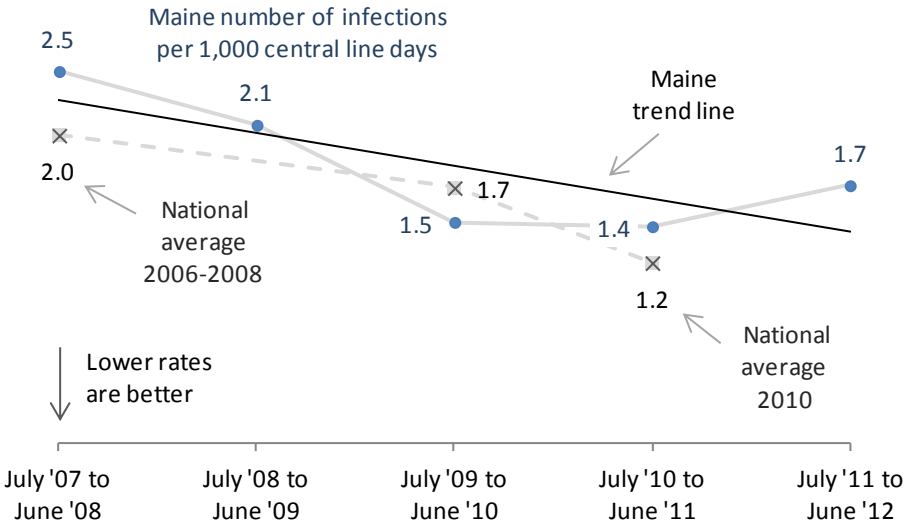
Clinicians and researchers have studied CLABSI carefully and have developed strategies designed to lower the risk of infection that goes along with the placement of a central line. These strategies have been grouped into "bundles" of best practices – practices that will reduce the risk of infection before insertion of the central line, the strategies to reduce risk at the time of insertion, and strategies to minimize the risk of infection after insertion.[8] There are standard definitions for these bundles of best practices, which include the use of appropriate sterile barrier precautions, using chlorhexidine to cleanse the patient's skin prior to inserting the catheter, avoiding insertion of the central line in a femoral site, dressing the insertion site appropriately and removal of the catheter at the earliest possible point in time. It is important that hospital personnel responsible for caring for patients who need a central line use these best practices to help reduce those patients' risk of bloodstream infection.

[8] Strategies to prevent central line-associated bloodstream infections in acute care hospitals. National Guideline Clearing House. Agency for Healthcare Research & Quality, US Department of Health and Human Services. http://www.guideline.gov/content.aspx?id=13395

HAI-1: Number of central line catheter-associated blood stream infections among intensive care unit (ICU) patients per 1,000 central line days, for Maine hospitals that reported at least one infection in the past five years, by hospital peer groups, July 2011 to June 2012
The numerators (number of infections) and denominators (number of catheter days) are in parentheses.

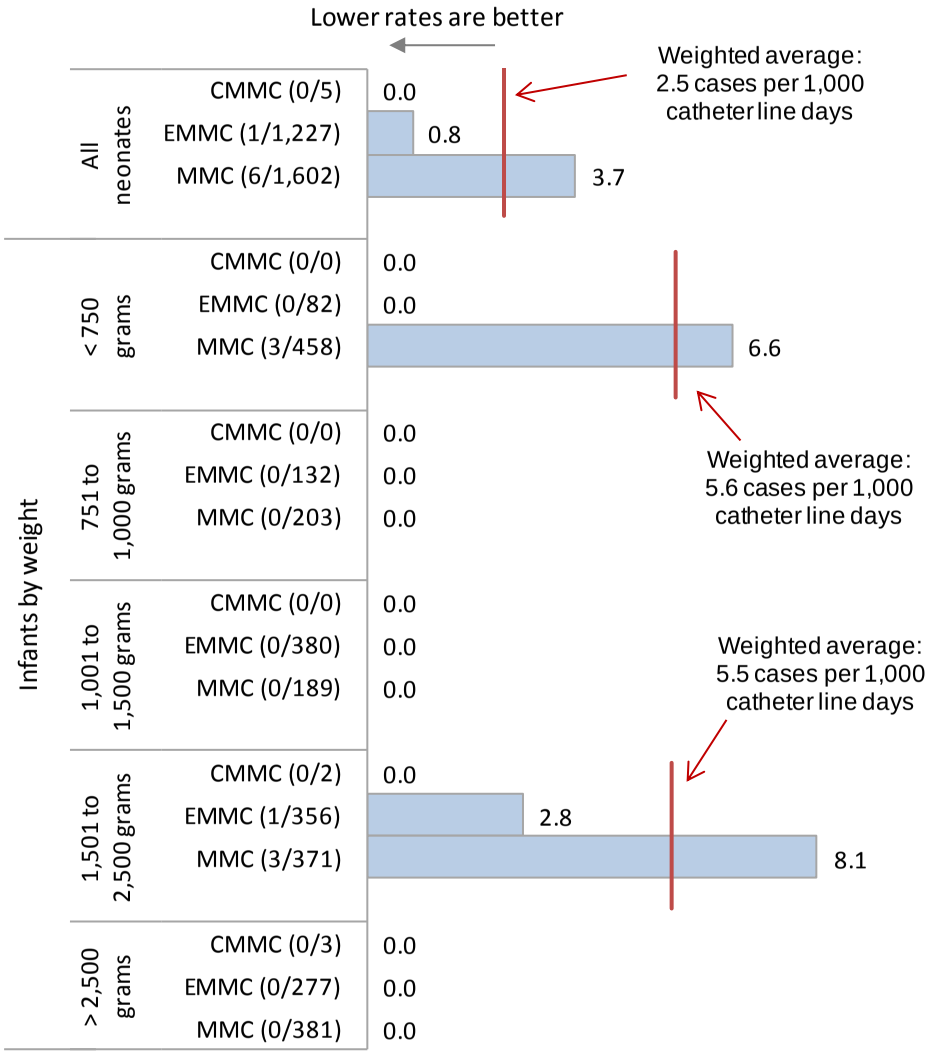


HAI-1: The annual weighted average rate for central line catheter-associated blood stream infections (CLABSI) per 1,000 intensive care unit central line days for all Maine hospitals from July 2007 to June 2012 improved by about 0.2 fewer infections per 1,000 patient days each year.

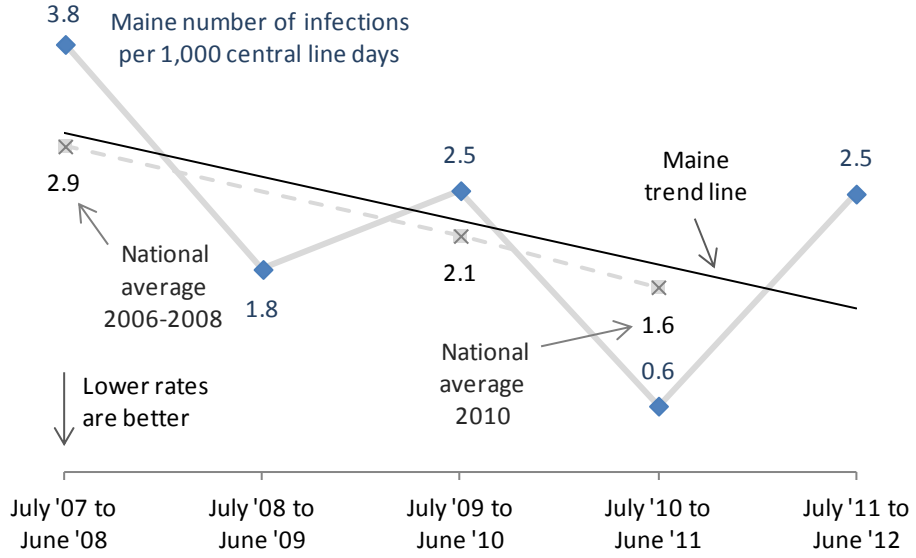


HAI-2: Number of catheter-related blood stream infections among high-risk nursery patients per 1,000 central-line or umbilical catheter days, for Maine hospitals with neo-natal intensive care units (NICU), July 2011 to June 2012

The numerators (number of infections) and denominators (number of catheter days) are in parentheses.

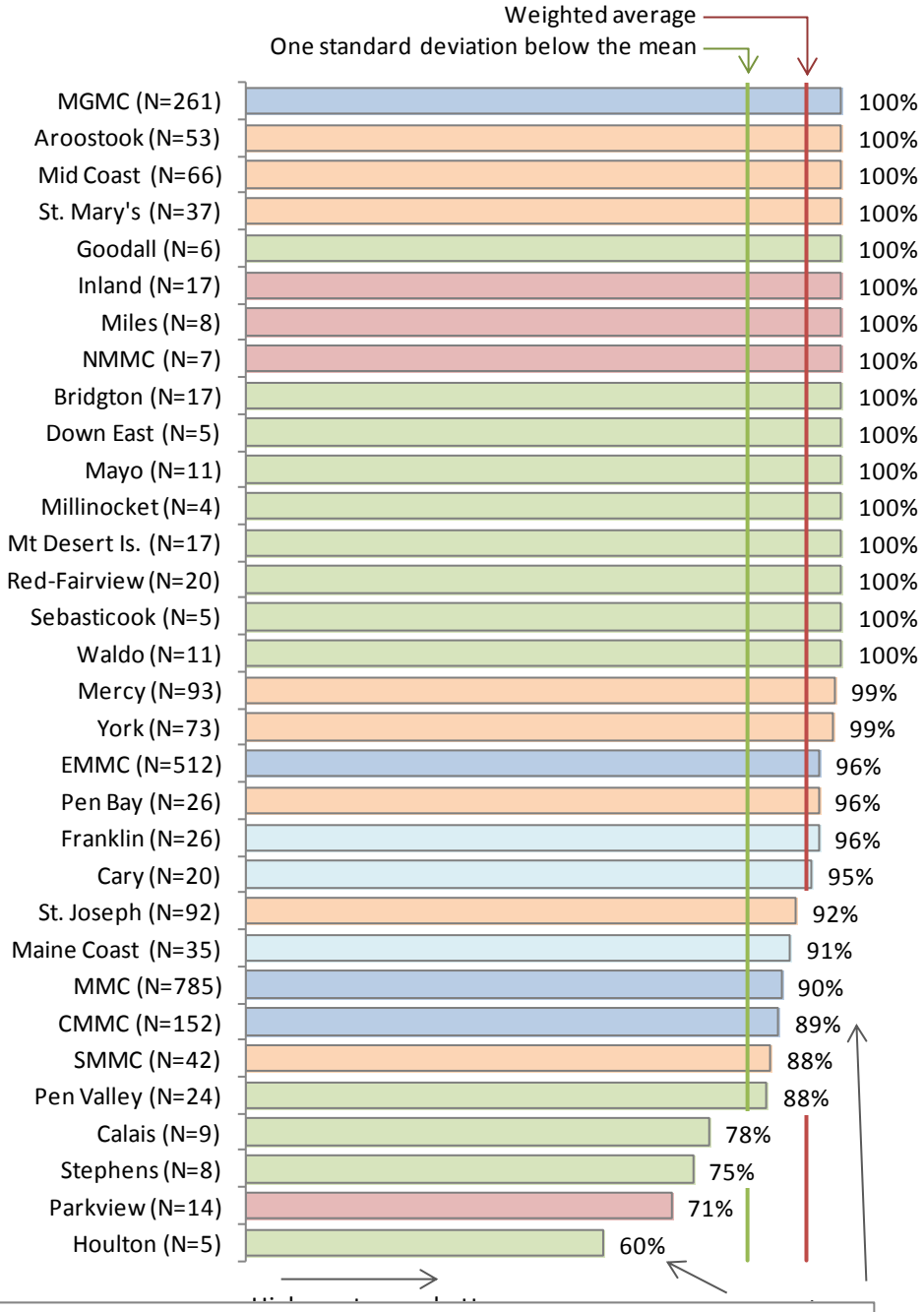


HAI-2: Number of catheter-related blood stream infections (CLABSI) among neo-natal ICU patients per 1,000 central-line catheter or umbilical days by Maine hospitals with neo-natal ICU's from July 2011 to June 2012



Note: The change in Maine infection rates between July '10–June '11 and July'11–June '12 was statistically significant at the 0.1 level.

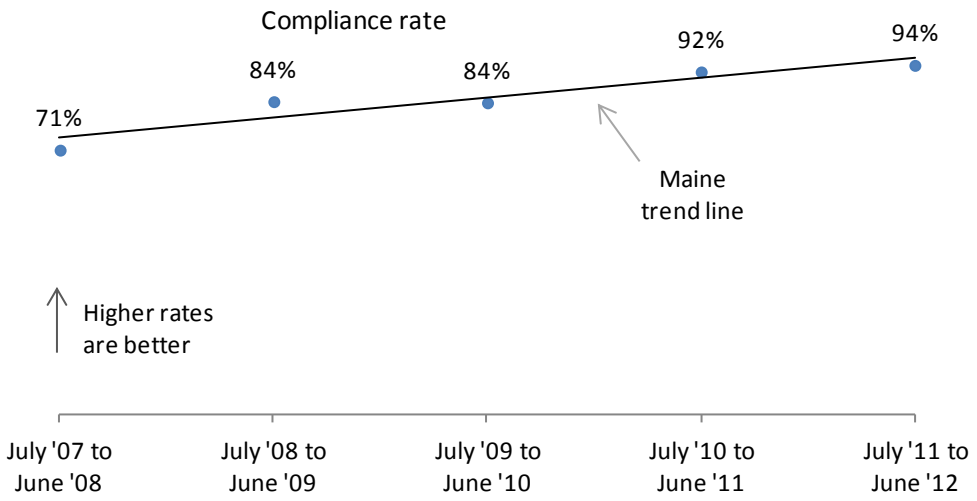
HAI-3: Percent compliance with all five evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) in intensive care units among Maine hospitals designated by peer group, July 2011 through June 2012



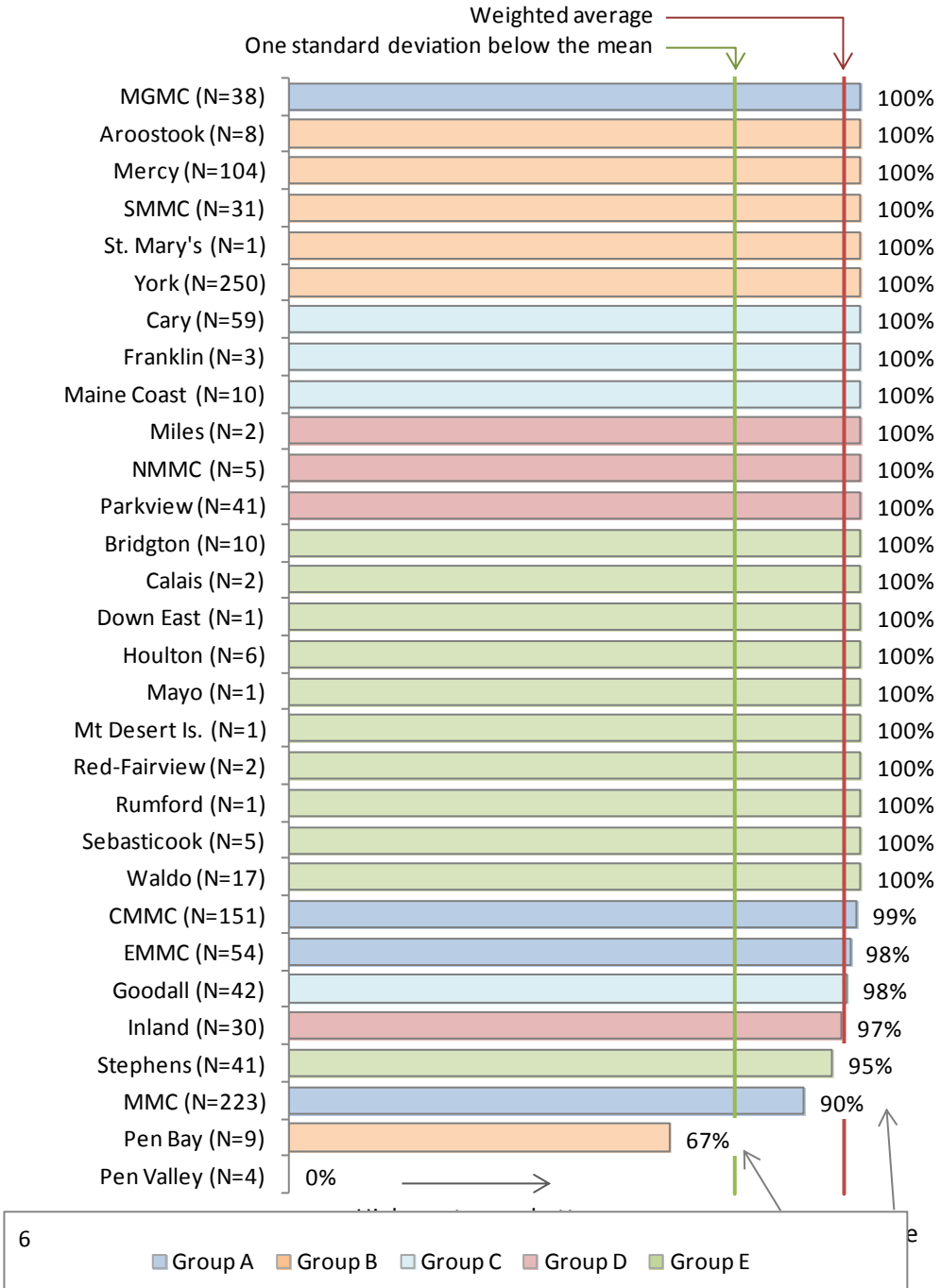
Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

Blue Hill, C.A. Dean, Rumford and St. Andrews hospitals all reported having had no patients in this category during July 2011 through June 2012.

HAI-3: The annual weighted average percent compliance with all five evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) in intensive care units across all Maine hospitals, July 2007 through June 2012



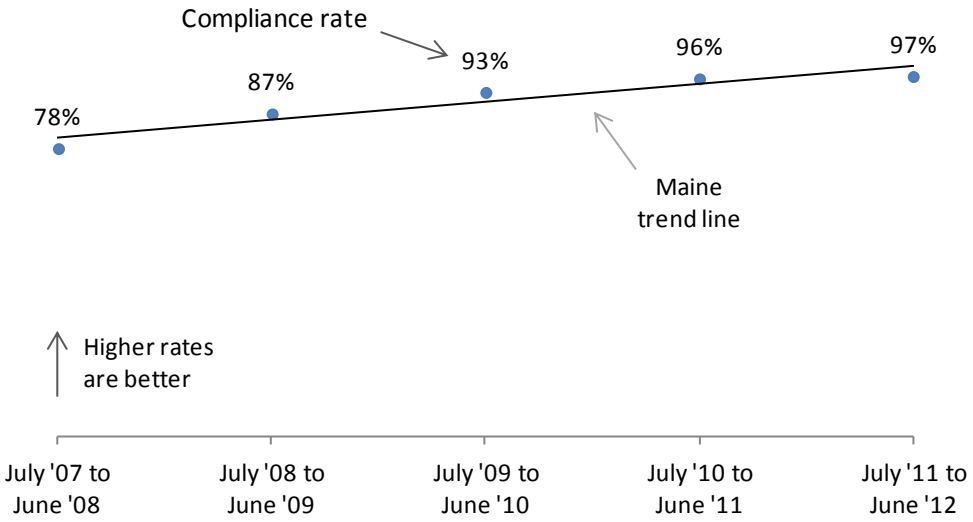
HAI-4: Percent compliance with the four insertion-related, evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) placed preoperatively, in pre-operative areas, operating rooms, and recovery areas by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

Blue Hill, C.A. Dean, Mid-Coast, Millinocket, St. Andrews and St. Joseph hospitals all reported having had no patients in this category during July 2011 through June 2012.

HAI-4: The annual weighted average percent compliance with the four insertion-related, evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) placed preoperatively, in pre-operative areas, operating rooms, and recovery areas across all Maine hospitals, July 2007 through June 2012



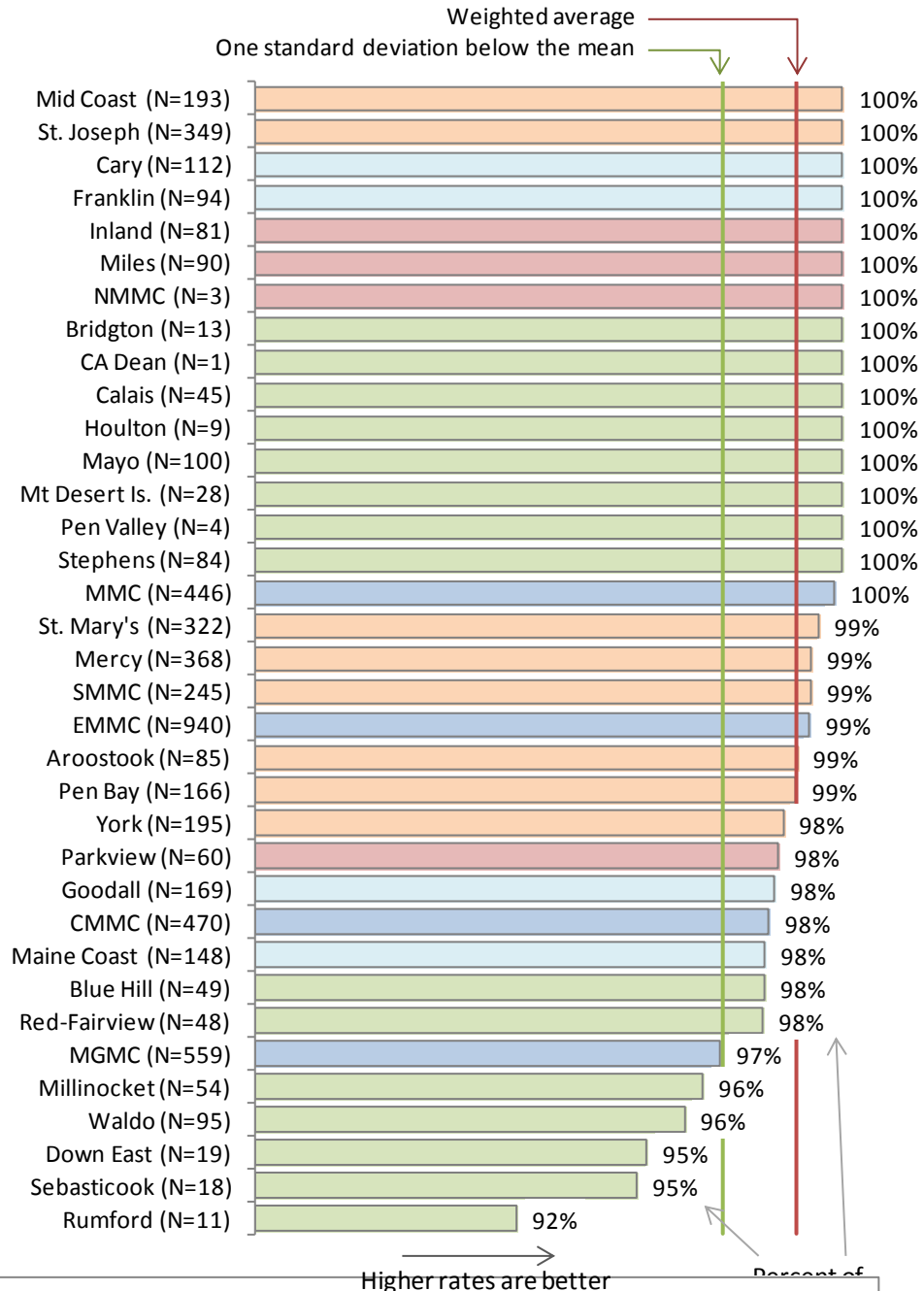
II Surgical site infections (SSI)

SCIP-1A: Percent of all patients receiving an antibiotic within one hour prior to any surgery

Antibiotics are drugs that kill bacteria that can cause infection. Medical research has shown that antibiotics are most effective in reducing the risk of infection when they are given to the patient as close to surgery time as possible and not more than one hour prior to surgery.[9] The first SCIP measure looks at the percent of surgical patients in Maine hospitals who received an antibiotic within one hour prior to surgery – more specifically, within one hour prior to the first incision. This measure reports on how well each hospital adheres to a specific process of care that is considered to be the best, evidence-based care.

[9] Note that there are some prophylactic antibiotics used that require a slow infusion of the drug; some such drugs may take longer to act than others. These drugs will be appropriately administered more than one hour prior to surgery, to allow time for proper infusion. Not all patients will receive an antibiotic before surgery as some types of operations do not require pre-surgical antibiotics.

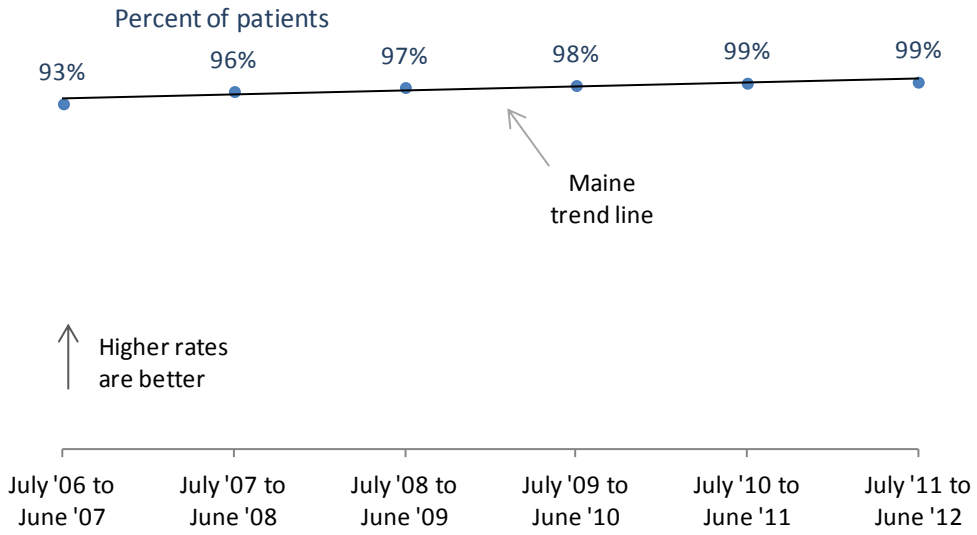
SCIP- 1A: Percent of all patients receiving an antibiotic within one hour prior to any surgery, by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

St. Andrews hospital reported having had no patients in this category during July 2011 through June 2012.

SCIP- 1A: The annual weighted average percent of all patients receiving an antibiotic within one hour prior to any surgery, across all Maine hospitals, July 2006 through June 2012

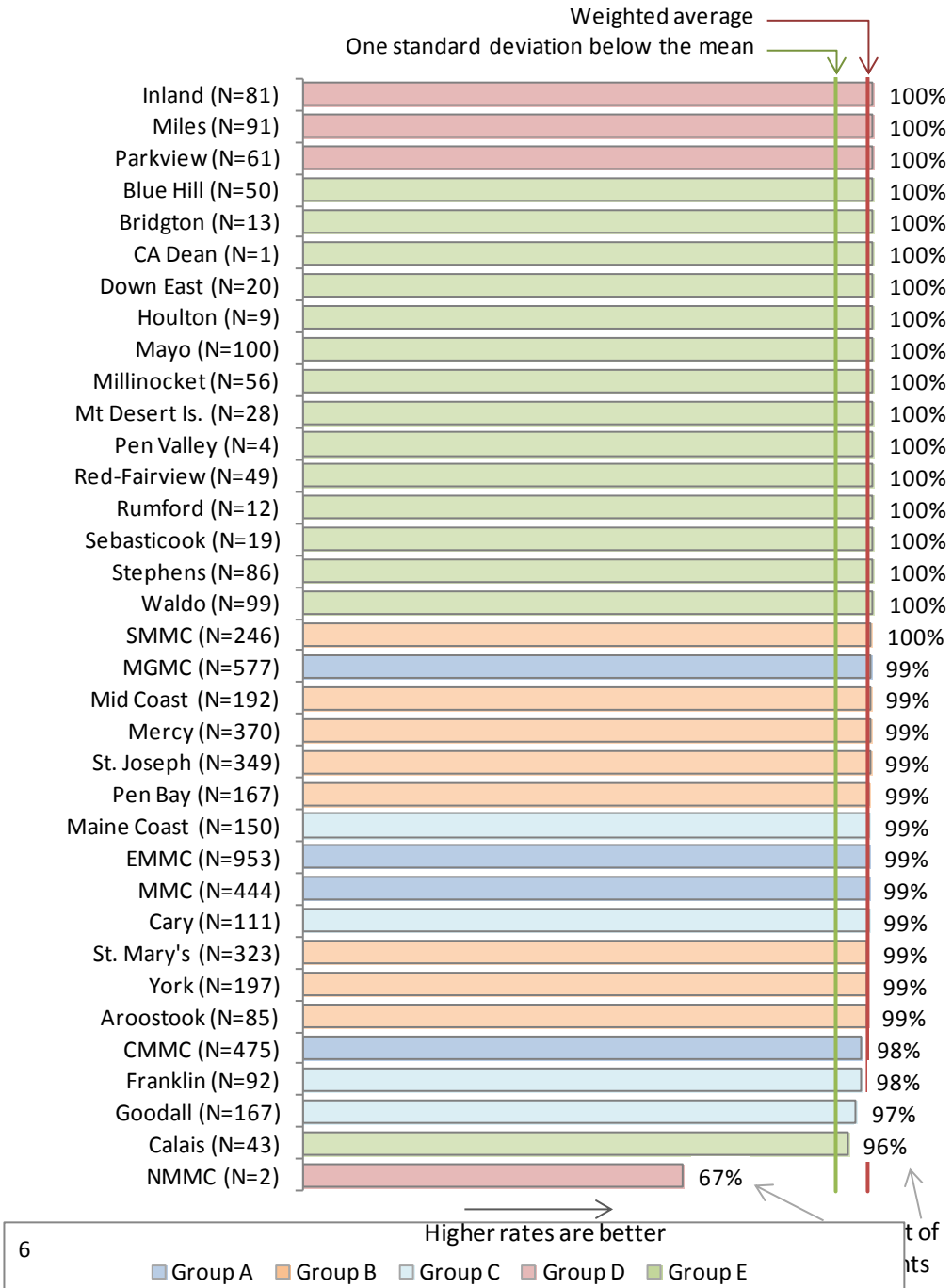


SCIP-2A: Percent of all surgery patients receiving the recommended antibiotic for their procedure

The second SCIP measure looks at how often an appropriate prophylactic antibiotic was chosen. It is important to give the right drug at the right time. When preparing the patient for surgery, doctors should choose an antibiotic that medical evidence has shown to be effective at preventing infection in similar patients under similar conditions.

It is important for surgical patients to receive prophylactic antibiotics that are consistent with current clinical guidelines specific to each particular type of surgical procedure. While one drug might be best for patients about to undergo a hip replacement, a different drug may be indicated for use in patients about to have heart surgery. The goal is to use an antibiotic that is both safe for the patient and cost effective. At the same time, the drug chosen must be able to fight off the infections the patient is most likely to face.

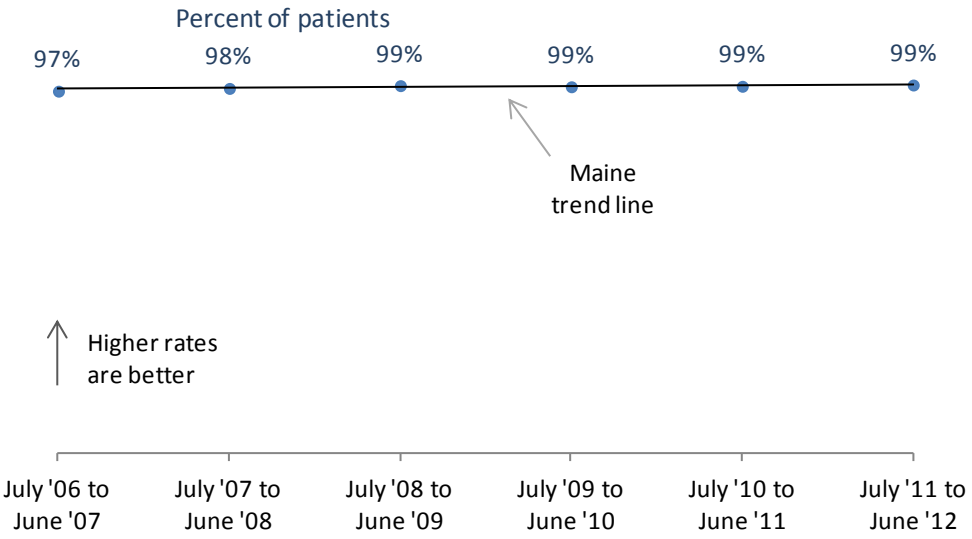
SCIP-2A: Percent of all surgery patients receiving the recommended antibiotic for their procedure, by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

St. Andrews hospital reported having had no patients in this category during July 2011 through June 2012.

SCIP-2A: The annual weighted average percent of all surgery patients receiving the recommended antibiotic for their procedure, across all Maine hospitals, July 2006 through June 2012

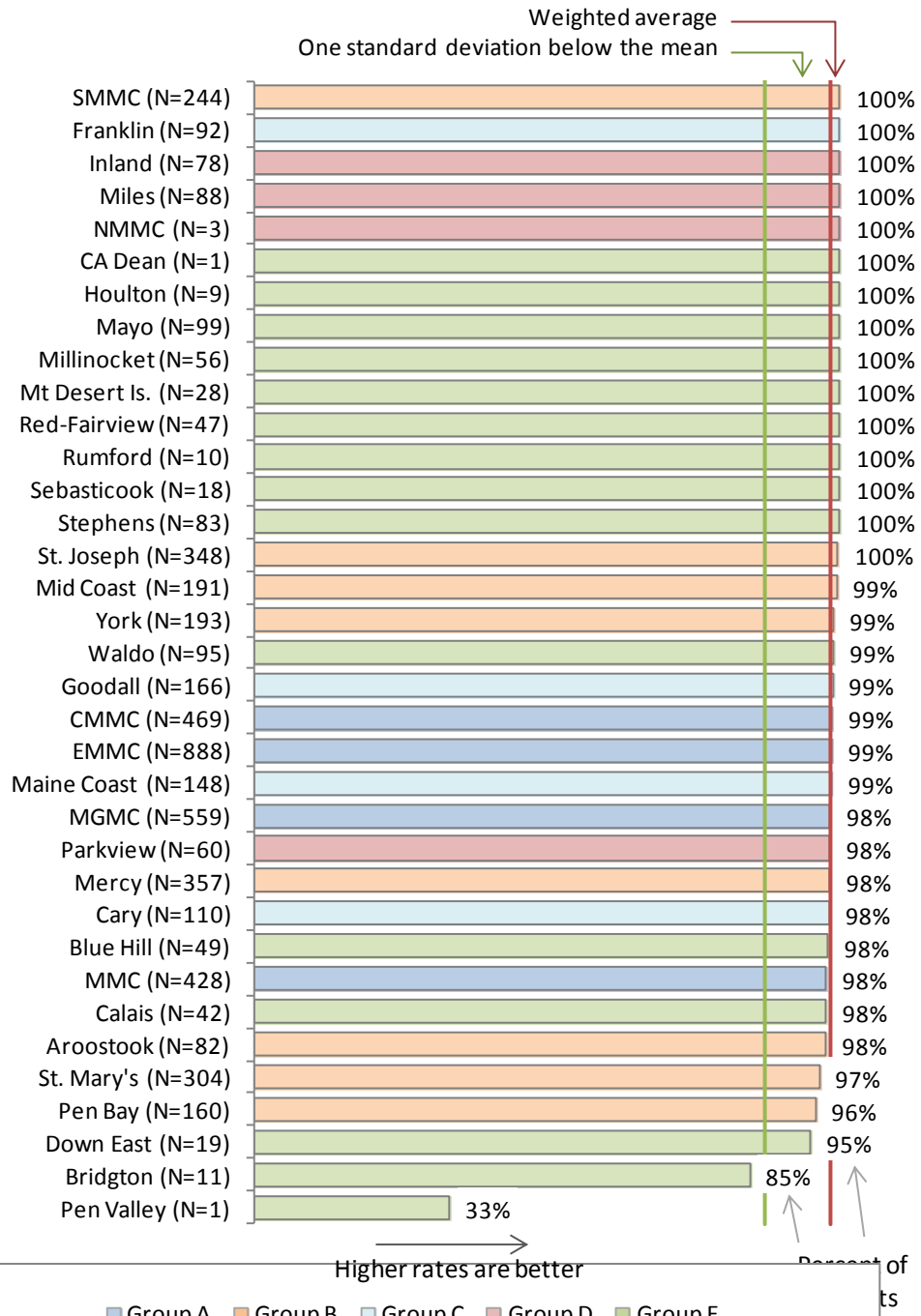


SCIP-3: Percent of all surgery patients whose preventive antibiotics were discontinued within 24 hours after anesthesia ended

Just as it is important to give the right antibiotic to the right patient at the right time, it is also important to stop that antibiotic when it will no longer provide a meaningful benefit to the patient. Continuing prophylactic antibiotics for more than 24 hours after surgery ends does not provide added benefit.[10] In fact, prolonged administration of the antibiotic can sometimes heighten the risk of a patient getting certain infections and can contribute to the development of bacteria with greater resistance to antibiotics.

[10] Sometimes doctors may prescribe an antibiotic for a post-surgical patient for a number of reasons, such as signs of infection.

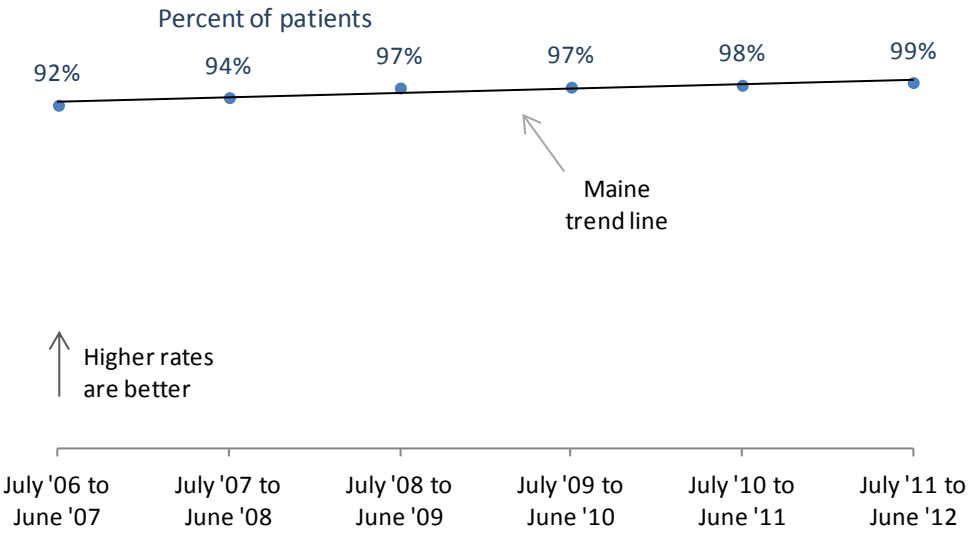
SCIP- 3: Percent of all surgery patients whose preventive antibiotics were discontinued within 24 hours after anesthesia ended, by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

St. Andrews hospital reported having had no patients in this category during July 2011 through June 2012.

SCIP- 3: The annual weighted average percent of all surgery patients whose preventive antibiotics were discontinued within 24 hours after anesthesia ended, across all Maine hospitals, July 2006 through June 2012

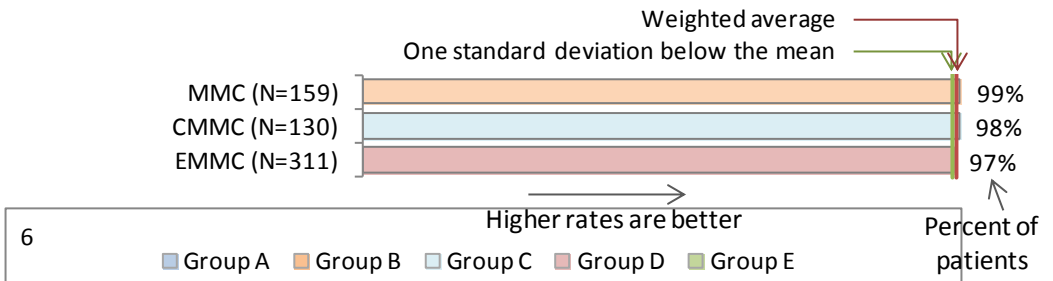


SCIP-4: Percent of cardiac surgery patients with controlled 6 AM post-operative serum glucose

Hyperglycemia – high blood sugar – has been associated with increases in both morbidity and mortality in surgical patients, especially for patients undergoing heart surgery. This occurs in both diabetic and non-diabetic patients. As the level of hyperglycemia increases, so does a patient's risk of infection. It is important to identify hyperglycemia so that steps can be taken to minimize the risk of infection and the risk of a poor outcome for heart surgery patients.

The charts below show how well Maine hospitals are doing with regard to checking and controlling levels of blood sugar in patients after heart surgery. There are only three hospitals in Maine that perform heart surgery and each hospital's performance is shown over three years.

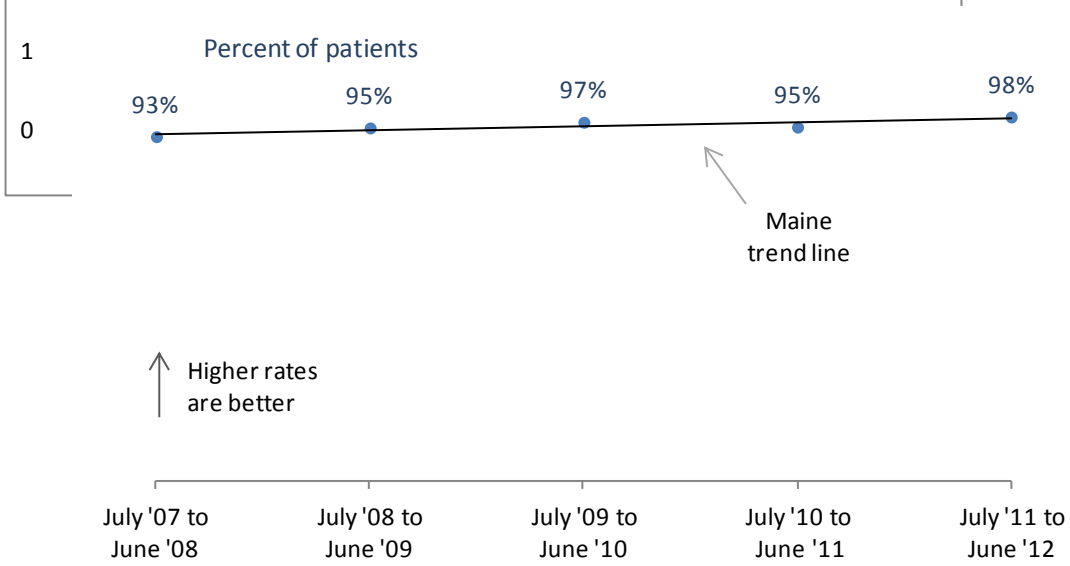
SCIP-4: Percent of cardiac surgery patients with controlled 6 AM post-operative serum glucose, by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

St. Andrews hospital reported having had no patients in this category during July 2011 through June 2012.

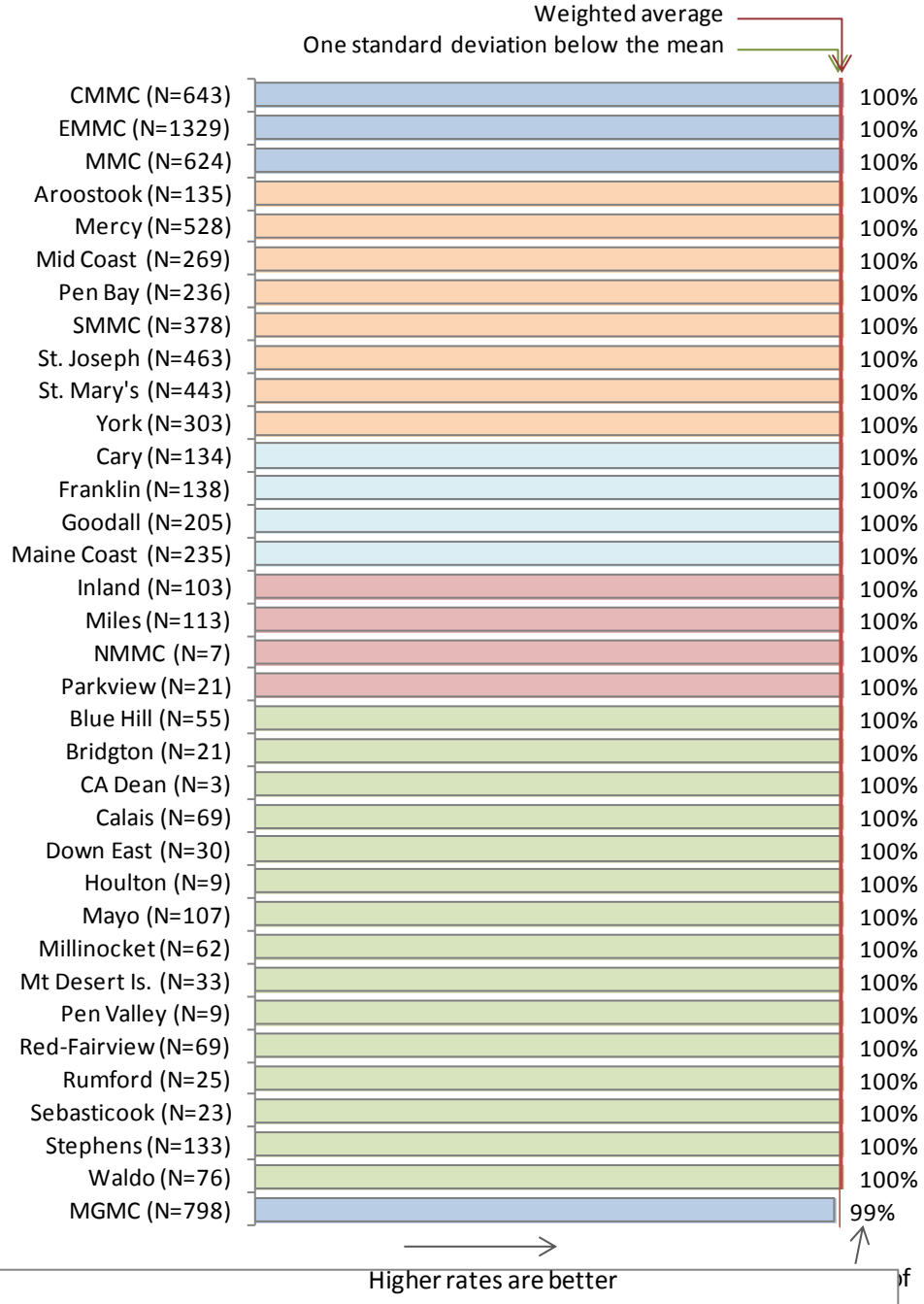
SCIP-4: The annual weighted average percent of cardiac surgery patients with controlled 6 AM post-operative serum glucose, across all Maine hospitals, July 2007 through June 2012



SCIP-6: Percent of all surgery patients with appropriate hair removal

Some types of surgery require that a patient's hair be removed near the area of the incision before the operation begins. The clinical research has found that shaving the hair with a razor increases a patient's risk by causing nicks or scratches that may become infected. Instead, hair is best removed right before surgery with electric clippers or a depilatory cream. The charts below show how Maine hospitals performed over each of three years on the measure of appropriate hair removal, as compared to their peers.

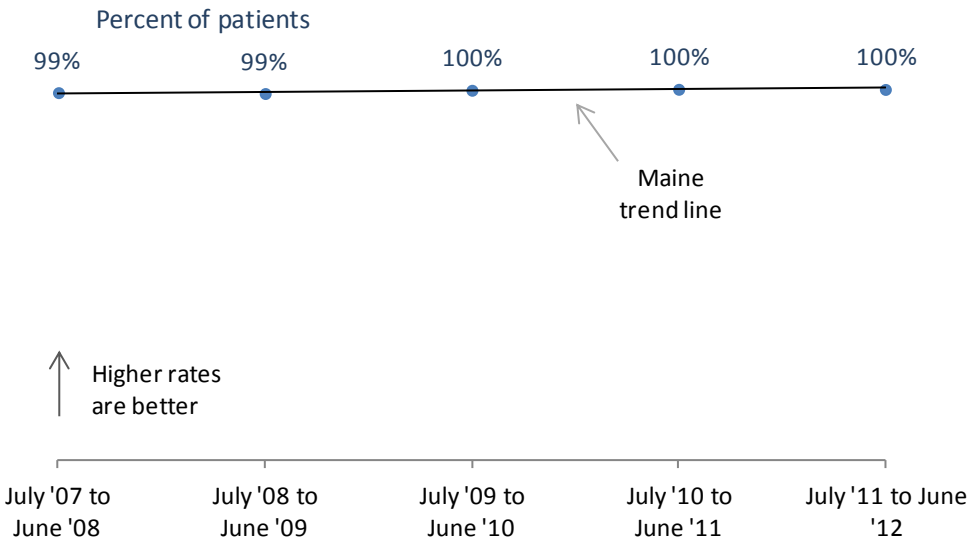
SCIP-6: Percent of all surgery patients with appropriate hair removal, by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

St. Andrews hospital reported having had no patients in this category during July 2011 through June 2012.

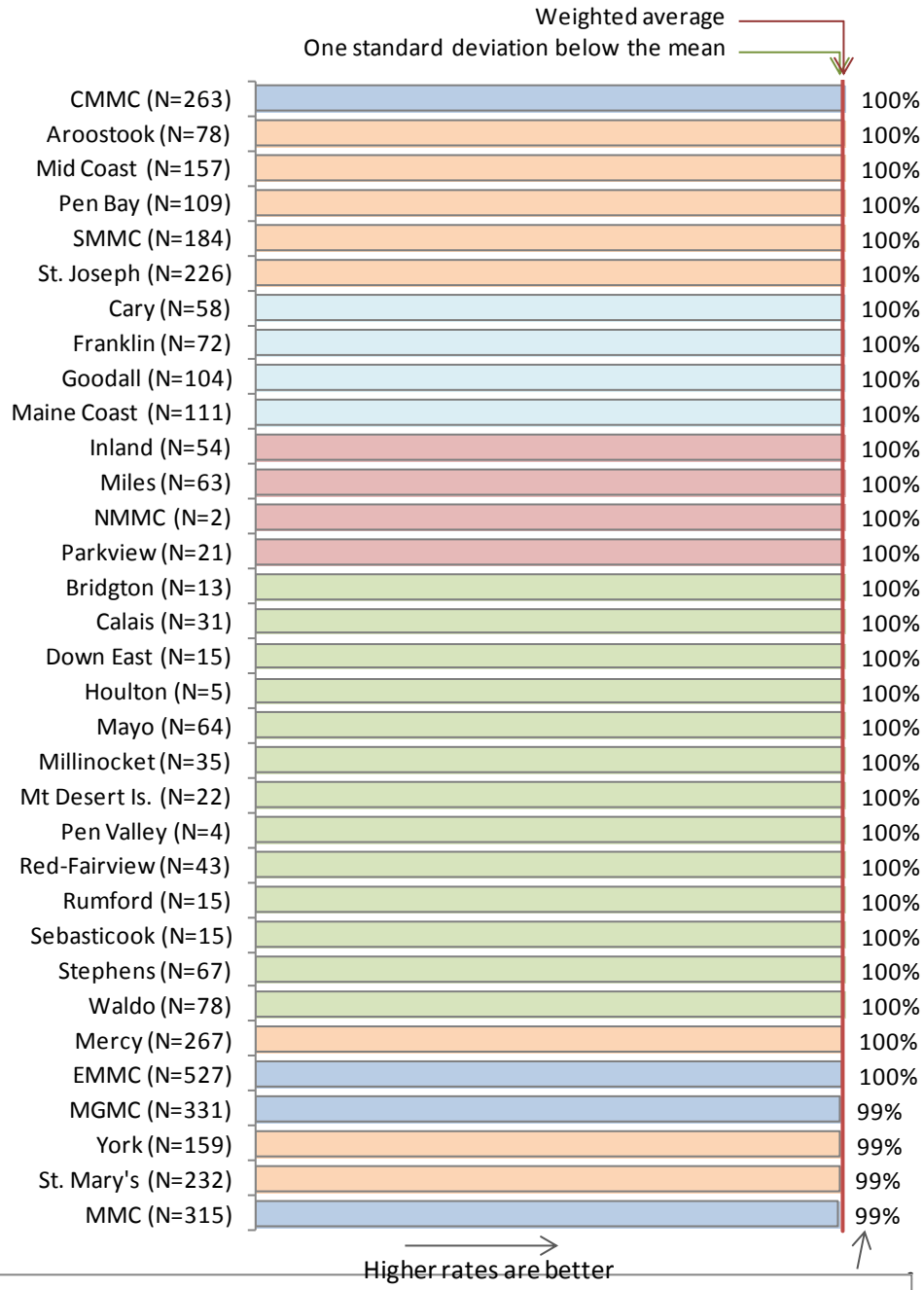
SCIP-6: The annual weighted average percent of all surgery patients with appropriate hair removal, across all Maine hospitals, July 2007 through June 2012



SCIP-10: Percent of surgery patients with perioperative temperature management

Healthcare facilities use active warming methods to achieve a temperature of 36 degrees Celsius after surgery in order to improve outcomes and reduce risk of complications after surgery. This process measure calculates the percentage of surgical patients on whom healthcare facilities have used active warming methods to achieve a 36 degrees Celsius temperature within 30 minutes before or 15 minutes after administration of anesthesia.

SCIP-10: Percent of surgery patients with perioperative temperature management, by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name.

St. Andrews hospital reported having had no patients in this category during July 2011 through June 2012.

III Ventilator associated pneumonia (VAP)

HAI-5: Percent documented compliance with pneumonia prevention measures among ICU patients on ventilators

At times, it is necessary for a doctor to take steps to open a patient's airway, to allow air to flow freely to the lungs. An endotracheal tube can be used for this purpose. Inserted into the trachea, it acts as a passage through a patient's upper airway – this is commonly called "intubation". During surgery, intubation is used to ensure that a patient is able to breathe properly while under anesthesia. In the case of some critically ill patients, the tube is connected to a mechanical ventilator to ensure respiration in patients who cannot breathe on their own. Sometimes, patients who are intubated get pneumonia; when the pneumonia occurs after the patient has been on mechanical ventilation it is referred to as "VAP" or ventilator associated pneumonia. VAP occurs about 20 percent of the time in patients on mechanical ventilation and can lead to increased severity of illness, greater risk of death, and longer, more expensive hospital stays.[11]

The risk for VAP can be related to a patient's pre-existing condition. They may have a suppressed immune system, chronic obstructive lung disease or other acute respiratory distress syndrome, which can make a patient vulnerable to pneumonia. If a patient is heavily sedated while on a ventilator they may be at increased risk of pneumonia, which can also be influenced by the position the patient is lying in (whether they are flat on their back or with head raised).

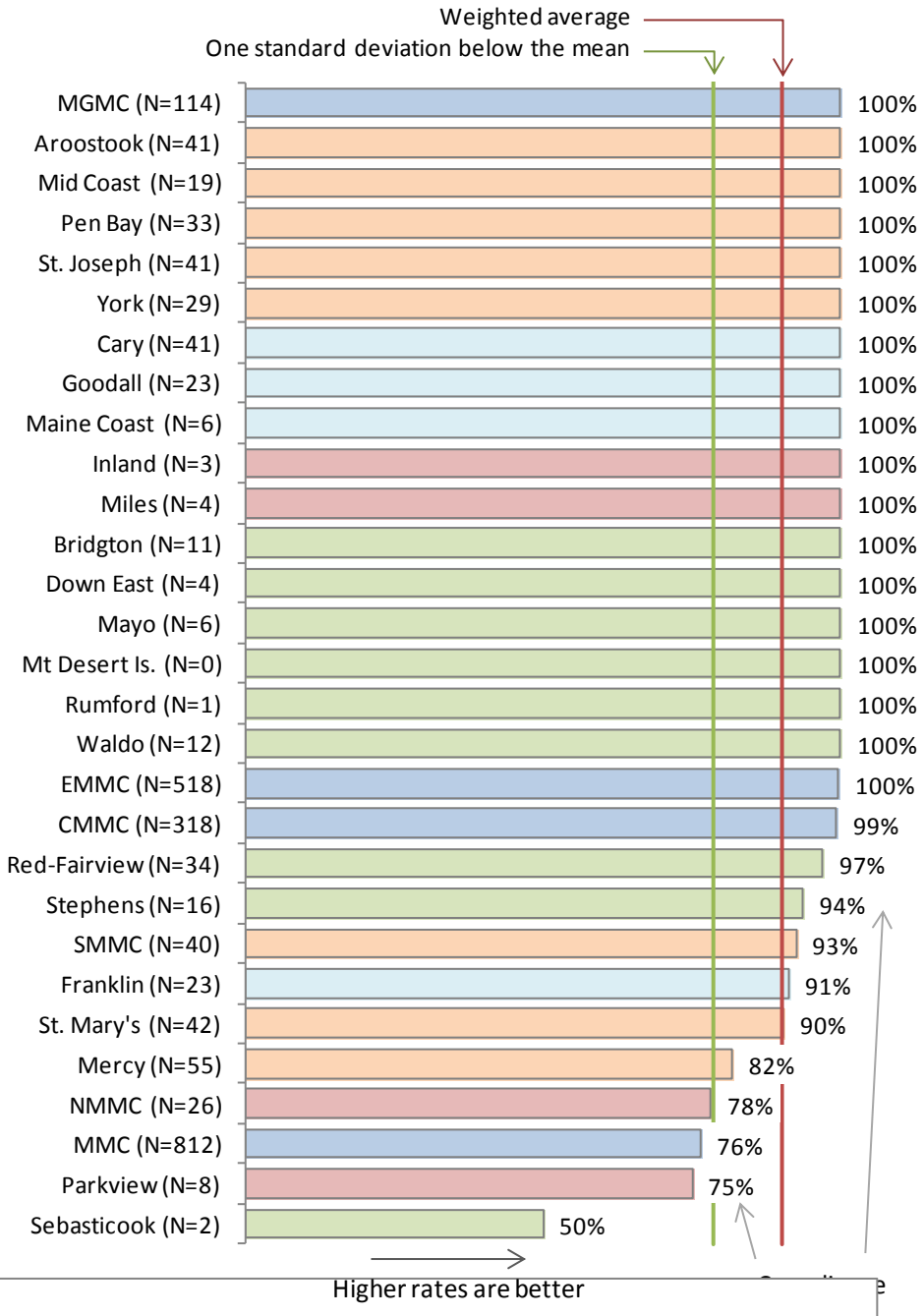
There are device-related risk factors for VAP, particularly with regard to how a specific device might influence secretions or lead to aspiration of bacteria into a patient's lungs. Poor hand hygiene in care workers is the most significant personnel-related factor in the risk of VAP.

Research has found that there are practices that can reduce the risk of VAP. When these practices are bundled and used together, they produce even better outcomes than if any one of them were used alone. The VAP bundle includes elevating the head of the patient's bed, deep vein thrombosis prevention, peptic ulcer disease prevention strategies, daily sedation "vacations" (moderating the level of sedation) and daily assessment of a patient's readiness for removal of mechanical ventilation.

The charts below show, by peer group for each Maine hospital, the degree of adherence to the use of VAP preventive protocols.

[11] Koenig SM and Truwit JD. Ventilator-associated Pneumonia: Diagnosis, Treatment and Prevention. Clin Microbiol Rev. 2006 October; 19(4): 637–657. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1592694/

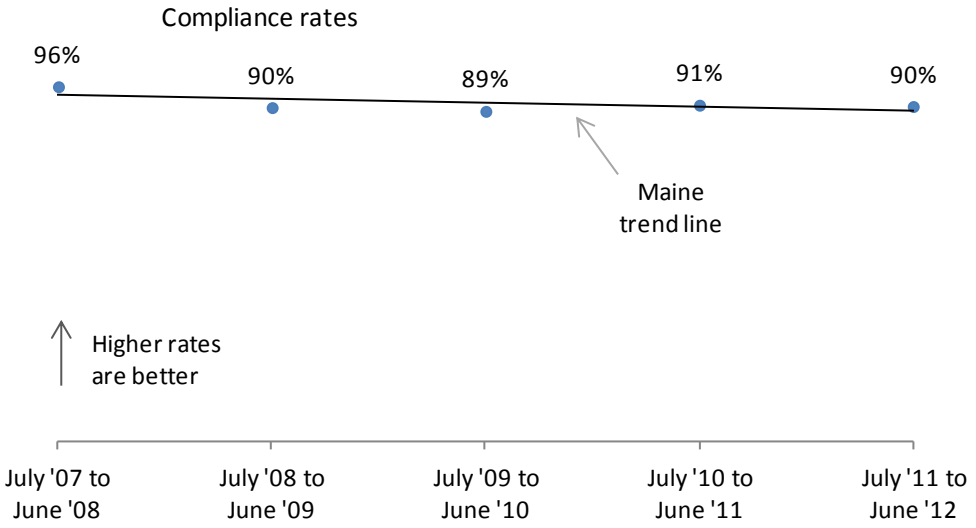
HAI-5: Documented pneumonia prevention measures among ICU patients on ventilators, by Maine hospitals designated by peer group, July 2011 through June 2012



Note: Hospitals sorted by compliance rate, then by Peer Group, and within Peer Groups, alphabetically by name

Blue Hill, C.A. Dean, Calais, Houlton, Millinocket, Penobscot Valley, and St. Andrews hospitals all reported having had no patients in this category during July 2011 through June 2012.

HAI-5: The annual weighted average percent documented compliance with pneumonia prevention measures among ICU patients on ventilators, across all Maine hospitals, July 2007 through June 2012



IV Methicillin-resistant Staphylococcus aureus (MRSA)

Methicillin-**r**esistant ***S****taphylococcus* ***a****ureus* – or MRSA, as it is commonly called, is a type of bacteria that can cause infection in human beings. "Regular" strains of staphylococcus aureus bacteria are often resistant to the effect of penicillin and other related drugs, but the antibiotic Methicillin is usually able to address a staph infection. However, over time, some strains of staph have developed that also resist the effect of Methicillin and similar drugs; these bacteria are referred to as MRSA. Because this type of bacterial infection is able to resist so many antibiotics, it is difficult to treat.

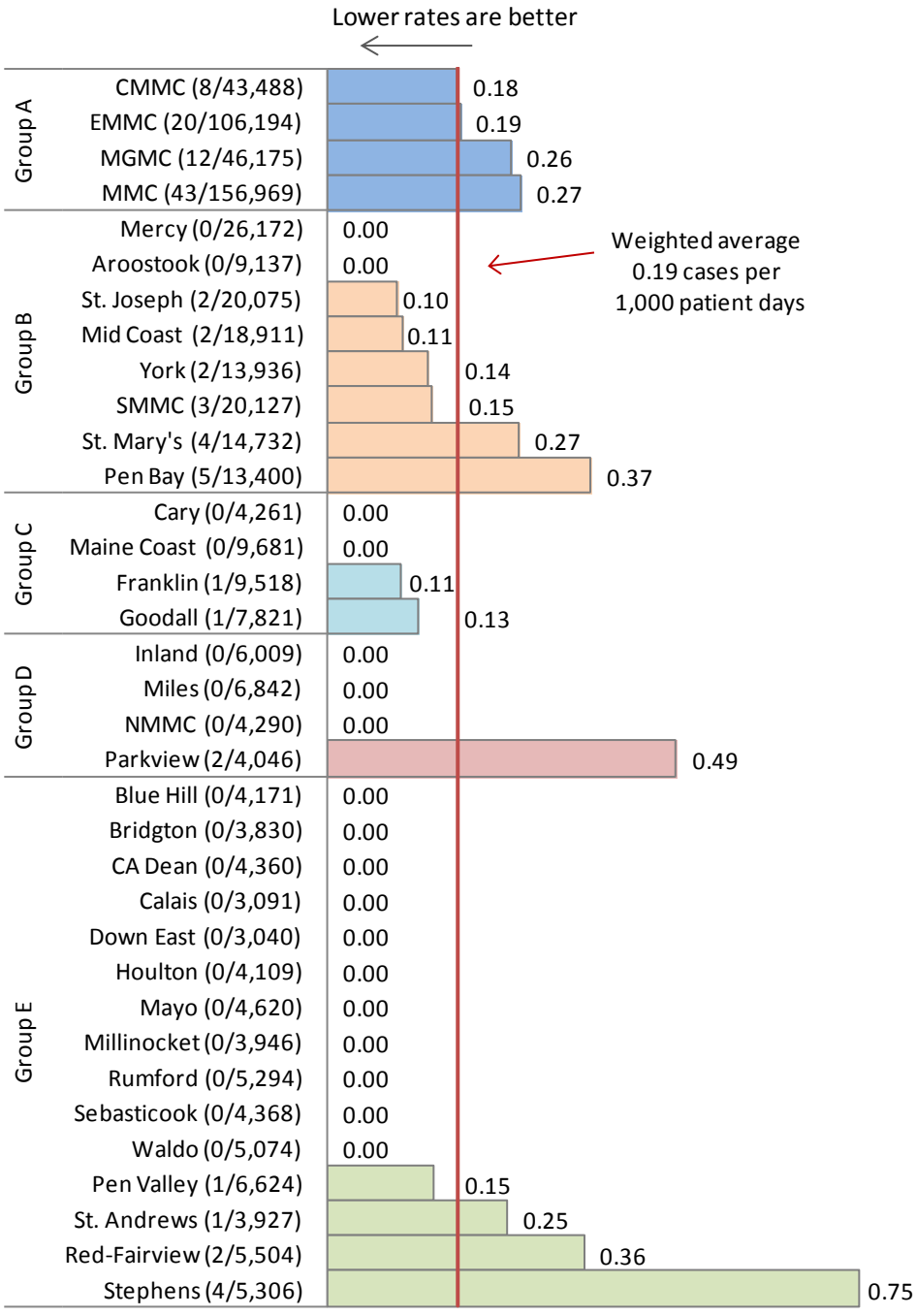
MRSA can be found both in the general community and in health care. A person can carry MRSA without having an infection; this is called being "colonized" by the bacteria. MRSA infections are often seen in the form of relatively mild skin infections that cause sores or boils. In more serious cases it can infect wounds, surgical incisions and infect the bloodstream, the urinary tract and even the lungs.

Much of the time, MRSA infections are not life threatening, but when a person is already weakened by illness or surgery – such as people in hospitals or nursing facilities – they can cause more complicated illness, increasing risk of death. MRSA infections can also increase costs because of longer hospital stays and greater health care utilization. As this bacterium becomes more and more difficult to treat, concern among health care workers, public health officials and lawmakers about the increasing rate of MRSA infection is growing.

The incidence of hospital acquired MRSA infections reported by Maine hospitals to the federal CDC's National Health Safety Network (NHSN), and presented here is a quality indicator that can help show how well infection control efforts are working at a health care facility. This incidence data, though, does not differentiate between MRSA infections that developed in individuals known to have previously been colonized with MRSA, and those whose MRSA is the result of a new infection.

MRSA: Maine Hospital MRSA HAI Rates per 1,000 Patient Days for Calendar Year 2011, by hospital peer groups

Numerators (infections) and denominators (number of patient days) are in parentheses.

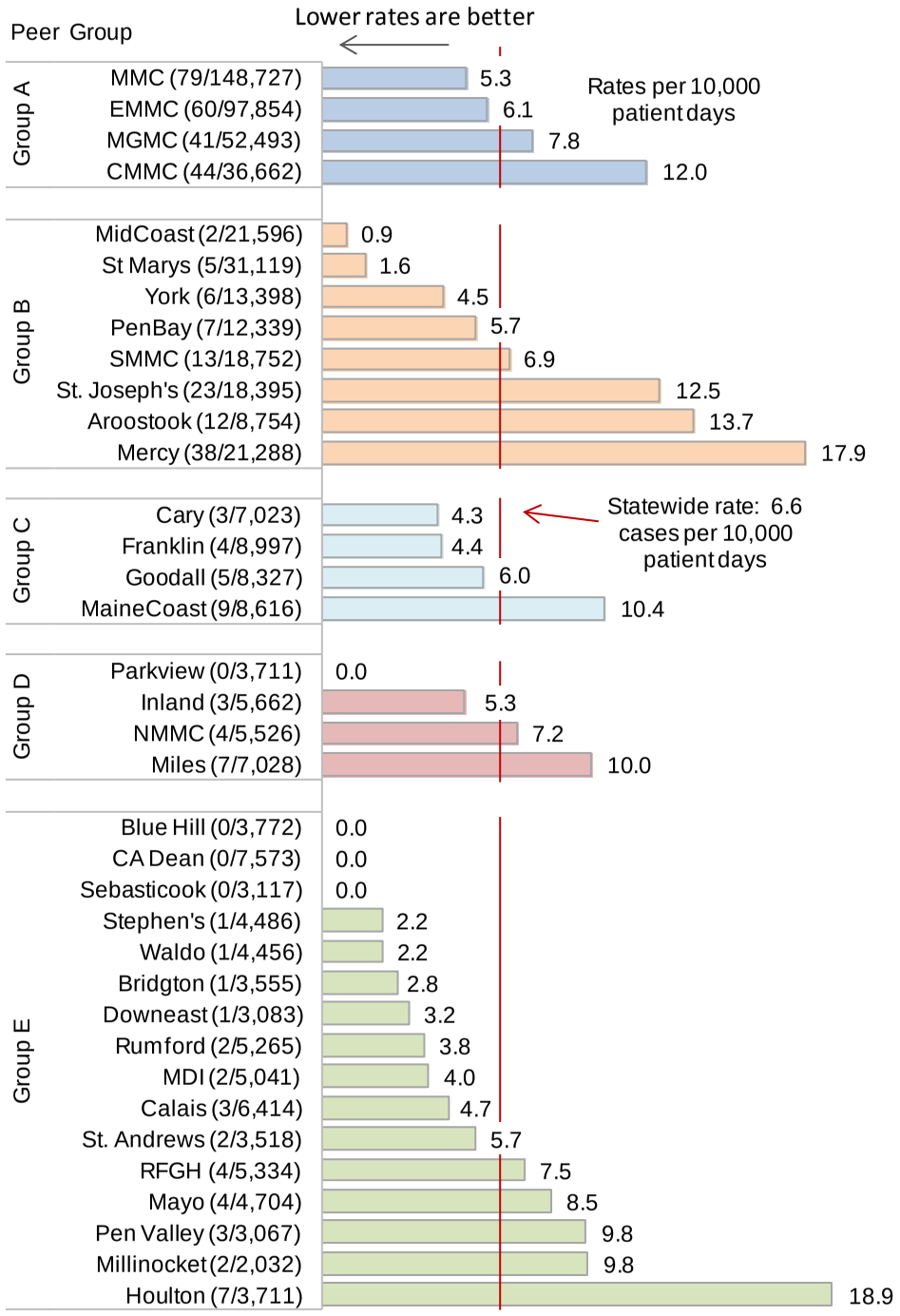


V C. difficile

Clostridium difficile also known as "c*. difficile*" is a germ that can cause diarrhea. Most cases of this complication occur in people on antibiotics; therefore, people already sick, those recovering from surgery and the elderly have an increased risk of getting this germ. Because the spores of C. difficile live for a very long time, and can be found on everyday things like bed linens and medical equipment, they can be transported on the hands of people including doctors, nurses, other care givers and visitors. This is why it is important to remind care givers to wash their hands between seeing patients. The most common symptoms are: watery diarrhea, fever, loss of appetite, nausea and belly pain and tenderness.

C. difficile: Hospital onset and community-onset healthcare facility associated c. difficile rate per 10,000 patient days for Oct. 1, 2011 to Sept. 30, 2012

Numerators (infections) and denominators (number of patient days) are in parentheses.



Appendix C

Summary of Maine Hospital Compliance Rates for HAI & SCIP Performance Measures, July 2011 to June 2012

The following table displays hospital compliance rates for three Healthcare Acquired Infection (HAI) measures and seven Surgical Care Improvement Project (SCIP) measures seen in Appendix A. For all ten measures, higher scores are better. All performance rates at 95%-or-better are highlighted in blue.

Peer Group	Hospital	HAI-3	HAI-4	HAI-5	SCIP-1a	SCIP-2a	SCIP-3a	SCIP-4	SCIP-6	SCIP-9	SCIP-10
A	CMMC	89%	99%	99%	98%	98%	99%	98%	100%	86%	100%
	EMMC	96%	98%	100%	99%	99%	99%	97%	100%	98%	100%
	MGMC	100%	100%	100%	97%	99%	98%	99%	99%	100%	100%
	MMC	90%	90%	76%	100%	99%	98%	n/a	100%	99%	100%
B	Aroostook	100%	100%	100%	99%	99%	98%	n/a	100%	98%	100%
	Mercy	99%	100%	82%	99%	99%	98%	n/a	100%	98%	100%
	Mid Coast	100%	n/a	100%	100%	99%	99%	n/a	100%	97%	98%
	Pen Bay	96%	67%	100%	99%	99%	96%	n/a	100%	94%	100%
	SMMC	88%	100%	93%	99%	100%	100%	n/a	100%	100%	100%
	St. Joseph	92%	n/a	100%	100%	99%	100%	n/a	100%	100%	100%
	St. Mary's	100%	100%	90%	99%	99%	97%	n/a	100%	98%	100%
	York	99%	100%	100%	98%	99%	99%	n/a	100%	96%	99%
C	Cary	95%	100%	100%	100%	99%	98%	n/a	100%	98%	100%
	Franklin	96%	100%	91%	100%	98%	100%	n/a	100%	94%	100%
	Goodall	100%	98%	100%	98%	97%	99%	n/a	100%	100%	100%
	Maine Coast	91%	100%	100%	98%	99%	99%	n/a	100%	100%	100%
D	Inland	100%	97%	100%	100%	100%	100%	n/a	100%	100%	100%
	Miles	100%	100%	100%	100%	100%	100%	n/a	100%	100%	100%
	NMMC	100%	100%	78%	100%	67%	100%	n/a	100%	75%	100%
	Parkview	71%	100%	75%	98%	100%	98%	n/a	100%	100%	100%
E	Blue Hill	n/a	n/a	n/a	98%	100%	98%	n/a	100%	100%	100%
	Bridgton	100%	100%	100%	100%	100%	85%	n/a	100%	100%	100%
	CA Dean	n/a	n/a	n/a	100%	100%	100%	n/a	100%	100%	100%
	Calais	78%	100%	n/a	100%	96%	98%	n/a	100%	100%	100%
	Down East	100%	100%	100%	95%	100%	95%	n/a	100%	100%	100%
	Houlton	60%	100%	n/a	100%	100%	100%	n/a	100%	100%	100%
	Mayo	100%	100%	100%	100%	100%	100%	n/a	100%	100%	100%
	Millinocket	100%	100%	n/a	96%	100%	100%	n/a	100%	100%	100%
	Mt Desert Is.	100%	n/a	100%	100%	100%	100%	n/a	100%	100%	100%
	Pen Valley	88%	0%	n/a	100%	100%	33%	n/a	100%	n/a	100%
	Red-Fairview	100%	100%	97%	98%	100%	100%	n/a	100%	96%	100%
	Rumford	n/a	100%	100%	92%	100%	100%	n/a	100%	100%	100%
	Sebasticook	100%	100%	50%	95%	100%	100%	n/a	100%	100%	100%
	St. Andrews	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Stephens	75%	95%	94%	100%	100%	100%	n/a	100%	98%	100%
	Waldo	100%	100%	100%	96%	100%	99%	n/a	100%	98%	99%

n/a = hospital did not have any patients to whom the measure applied

Appendix D

PURPOSE AND CHARGE
Maine Quality Forum Subcommittee on HAI
Dirigo Health Agency, Maine Quality Forum

Goal The Maine Quality Forum subcommittee on Healthcare Associated Infections (HAI) aims to exchange ideas between various governmental agencies, private stakeholders, and consumers to reduce HAIs in Maine. This subcommittee will act as a discussion forum to inform, educate and provide input to the Maine Quality Forum and the Maine CDC- HAI Prevention Program on HAI topics.

Members

2	members of Maine Infection Prevention Collaborative Coordinating Committee (one physician and one Infection Control Coordinator)
1	State Epidemiologist
2	nominees of State Epidemiologist (at least one of whom will be a consumer as defined below)
1	consumer representatives (as defined below) nominated by the Maine Quality Forum Advisory Council
1	consumer (as defined below) nominated by the Maine Quality Forum Advisory Council
2	nominees of the Maine Society of Health Systems Pharmacists
2	representatives of clinical labs (one from MeCDC's HETL and a Microbiologist from a clinical laboratory).

For purposes of membership on this sub-committee, the following definitions will apply:

A ***consumer*** is an individual with significant personal experience with the health care system, either as a patient or caregiver, and who is not a provider or regulator of health care services.

A ***consumer representative or advocate*** is an individual who works for a nonprofit, mission oriented organization represents a specific constituency of consumers or patients and is not a provider or regulator of health care services.

Staff

The subcommittee will be staffed by a staff member of the Maine CDC, Division of Infectious Diseases and by a staff member representing the Maine Quality Forum. A consumer is defined as an individual with significant personal experience with the health care system, either as a patient or caregiver, and who is not a provider or regulator of health care services.

Activities

1. To act as a discussion forum on HAI topics with a wide-spectrum of professionals (Infectious Disease specialists, Infection prevention coordinators, Pharmacy, Lab, others) , consumers and government,
2. To act as an incubator for developing quality improvement initiatives on HAI,
3. To have a public discussion regarding HAI public reporting metrics and to advise Maine Quality Forum on the adoption of said metrics,
4. To discuss and evaluate the collection and use of specific HAI indicators for the scope and impact of surveillance and/or public reporting on healthcare quality,
5. To raise the public awareness of HAIs and of activities, policy and strategies to reduce HAIs in the state, and
6. To identify need and consolidate resources for professional and public health education on HAI.

The HAI subcommittee will meet quarterly.

Appendix E

Maine Infection Prevention Collaborative Annual Report 2012

EXECUTIVE SUMMARY

The Maine Infection Prevention Collaborative (MIPC), established in 2008, consists of Maine hospital Infection Preventionists, Infectious Disease specialists and key partners, including the Maine Centers for Disease Control and Prevention (MeCDC), the Maine Hospital Association, the Maine Quality Forum, the Northeast Healthcare Quality Foundation and OMNE, Nursing Leaders of Maine . The mission of the MIPC is to improve the health of the people of Maine by preventing and controlling healthcare-associated infections and the burden of drug resistant organisms.

Major accomplishments of the group in 2012 included:

- Developed and implemented a self sustaining model for external hand hygiene observations statewide, collecting compliance information at each hospital twice per year.
- Assisted the MeCDC in developing a process for validation of data entered for National Healthcare Safety Network (NHSN) Multiple-Drug Resistant Organism/Clostridium Difficile Infection (CDI) Module. Validation was completed for all Maine hospitals on Methicillin Resistant Staphyloccus Aureus (MRSA) data and CDI data validation is pending.
- Continued to clarify, educate and review definitions and reporting requirements for NHSN.
- Supported and helped facilitate a national presentation by a Maine Infection Preventionist (at the Association for Professionals in Infection Control and Epidemiology (APIC) annual meeting. The presentation described Maine's statewide Hand Hygiene Compliance measurement model.
- Developed and utilized a formalized risk assessment process to identify priorities for MIPC focus.
- Served as the state's Healthcare-Associated Infection Prevention Advisory Council for implementation of the state plan.
- Initiated gap analysis for recommendations of minimum dedicated infection prevention resources in Maine Hospitals.
- Commenced data entry (Maine non-critical access hospitals) to NHSN for the Surgical Site Infection (SSI) Module on colon surgery and abdominal hysterectomy and also for Cather- Associated Urinary Tract Infection (CAUTI) in Adult and Pediatric ICU on January 1, 2012.
- Provided leadership and commitment to the goals outlined in the state plan for the surveillance and prevention of healthcare-associated infections.

The MIPC's major goals for 2013 include:

- Share infection prevention data and tools/activities aimed at reducing the risk of healthcare-associated infection (HAI).
- Develop a consistent, standardized process for post-discharge surveillance for surgical site infection information reported to NHSN.
- Develop talking points for publicly reported infection prevention data.
- Collaborate with APIC Pine Tree Chapter in furthering understanding of Infection Prevention issues including Standardized Infection Ratio (SIR), NHSN definitions, case studies and data reporting requirements.
- Create opportunities enabling Infection Preventionists to share ideas, information and experience to help work through NHSN reporting questions.
- Develop mentorship program for new Infection Preventionists.
- Continue to serve as the state's multidisciplinary advisory group to guide and support the prevention and surveillance activities outlined in the state HAI plan.

1

- Continue to provide leadership and commitment to the goals outlined in the state plan for the surveillance and prevention of healthcare-associated infections.
- Continue to advocate for the utilization of NHSN as the vehicle for any public reporting efforts around HAI.
- Support the development of a statewide "dashboard" of currently available Infection Prevention Data.

FULL REPORT

In 2008, Maine's hospitals formed the MIPC in partnership with the Maine Quality Forum, the Maine Hospital Association, the Maine Centers for Disease Control and the Northeast Health Care Quality Foundation. Having been established for 5 years, Maine Infection Prevention Collaborative is still a young organization, with much to accomplish. The function of this 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 evidence based practices of infection prevention. Current strategies to achieve these goals include:

- Collaborative development and implementation of evidence-based protocols and guidelines; and
- Standardization of data collection and the analysis and sharing of infection prevention performance indicators.

Infection Prevention professionals from all Maine hospitals as well as representatives from other key organizations are invited to participate in the Collaborative. From the outset a pledge of support from hospital CEO's demonstrated a strong commitment to the efforts of the Collaborative. This important commitment aided in the formation of a cohesive group with sustained attendance. A major change has been implemented in the workflow of the collaborative for the 2012 calendar year. Using established methods, members collaborated on a risk assessment using the consensus process to determine the focus of work for the year. Elements of the risk assessment were based on established goals or requirements from the Joint Commission, the Centers for Medicare & Medicaid Services (CMS) and the U.S. Centers for Disease Control and Prevention. The current level of MIPC preparedness for meeting these goals was carefully assessed based on priority, availability of baseline data, existence of consistent methodology for collecting and reporting data, and methods for measuring improvement.

While many items were identified as needing the work of the Collaborative, consensus established the following as highest priority items on the Risk Assessment:

- For non-critical access hospitals, the collection and reporting of data to NHSN for SSI related to colon surgery and abdominal hysterectomy as required by CMS starting 1/1/12.
- For all Maine hospitals, reliable data collection and accurate reporting to NHSN related to MRSA HAI and CDI.
- Development and implementation of a self sustaining model for external hand hygiene observations.

Based on these priority items, work plans were developed within the MIPC to approach the work from the perspectives of validation, performance improvement and methodology for data collection and reporting.

SSI COLON/ABDOMINAL HYSTERECTOMY

Data collection and reporting to NHSN for these surgical procedures proved challenging for Maine non-critical access hospitals. NHSN requires large amounts of data for each colon surgery and abdominal hysterectomy. Wherever possible, hospital Infection Preventionists partnered with information technology departments in an effort to achieve more seamless data collection and transfer of information. Not all hospitals were able to interface computer systems to facilitate NHSN reporting, however Infection Preventionists continue to partner with hospital Information Technology departments in ongoing efforts to develop and improve processes. In addition, MIPC members found that the reporting process was improved through the sharing of experience. Such vital experience included members' information related to NHSN data requirements, information technology interfaces, denominator data, and codes for procedures. Definitions and case studies were shared formally and frequently to facilitate competence and accuracy in the identification of infections. Important work related to SSI still remains in the areas of post-discharge surveillance and data validation.

NHSN MDRO MODULE CDI/MRSA

All Maine hospitals are required to report Healthcare Associated Infection (HAI) MRSA and C (CDI) to MeCDC via NHSN. By January 2012, while all hospitals had completed the requirements for membership in the NHSN reporting system and a group relationship via NHSN with MeCDC, work remained to improve the reliability and accuracy of reporting processes. Because the reporting of LabID Cdiff was identified as an acceptable proxy measure for assessing the burden of Cdiff in Maine hospitals, a goal was established to move to this reporting method. For some hospitals this may have the effect of standardizing (and potentially streamlining) reporting processes. There were some challenges associated with this proposed change pre-established reporting systems can be burdensome and time consuming to adjust and test. In addition, NHSN surveillance definitions of HAI are not always a complete match with NHSN identification of HAI via NHSN algorithm through LabID reporting. A further challenge was presented in the need for data validation. A work group of MIPC members was developed to collaborate with MeCDC on a system of validation for MRSA and Cdiff HAI reporting via NHSN. By the end of 2012 calendar year, the validation of MRSA HAI for all Maine hospitals was complete, and the validation of CDI was almost complete.

SUSTAINED EXTERNAL HAND HYGIENE OBSERVATIONS

Of key concern for the Collaborative in 2012 was the development and implementation of a self sustaining model for external hand hygiene observations. Infection Preventionists agreed that external observation reporting is a valuable tool highlighting the need to direct hospital resources to improve hand hygiene compliance. A work group was established within MIPC to collaborate with MeCDC on the formation of a self sustaining plan. The goal of the plan was consistent, accurate twice yearly hand hygiene observations performed by expert unidentified observers at all Maine hospitals. After in-depth discussion, clear consensus regarding the observation and documentation method was achieved by MIPC members. External observations were performed at all Maine hospitals in June and December 2012. Maine CDC compiled observations which were compared by hospital peer group and shared with MIPC members and subsequently with hospital CEOs. While a discrepancy between internal and external observations still exists, external observation rates increased in general over the period from June 2011 to June 2012. External hand hygiene observation rates for December 2012 observations are pending.

GENERAL

The MIPC has undergone substantial changes during 2012, responding with continued passion and action to further the efforts of Infection Preventionists to reduce hospital infection risk. In response to increasing IP workloads, the structure of MIPC changed from standing subcommittees to selected work groups which convened as needed. While effectively redistributing the workload of members, this change also slowed the momentum of the collaborative. Infection Preventionists anticipate increased reporting requirements as time goes on. Each IP is dedicated to the needs of his or her own hospital; however the work of the MIPC to share information, provide insight, advocate for standardized infection reporting through NHSN and further the work of decreasing hospital infection risk is profoundly important. Clearly, the demand for infection prevention data has increased, making shared knowledge and insight critical to the collection and reporting of accurate data. The need for this type of collaboration is sure to grow.

Also during 2012, a shift was made in the reporting process for hand hygiene observations. While MIPC has appreciated the help of Maine Health Data Organization as repository for Internal Hand Hygiene observations, members agreed to send internal observations to MeCDC quarterly starting 2012. This has resulted in a very satisfactory flow of information and feedback concerning both internal and external hand hygiene observations for all hospitals in Maine.

In April 2012, Maine hospitals were no longer legally required to perform active surveillance for MRSA on high risk patients. Hospitals made changes in MRSA active surveillance activities resulting in individualized active MRSA surveillance plans, taking into consideration patient community, hospital services and other aspects of the hospital infection control risk assessment.

MIPC membership has undergone a significant change during 2012; there has been increased turnover of Infection Preventionists in Maine Hospitals. As of September of 2012, new Infection Preventionists comprised approximately 50% of MIPC membership with less than 2 years' experience in infection prevention; half of these new IP's possess less than 6 months' experience. Education and certification are needed as well as support and mentoring to guide new IP's in their work and to help them fulfill their hospitals' surveillance and reporting requirements.

The MIPC Coordinating Committee continues to support the efforts of the MIPC, helping to access resources of supportive partners, collaborate on the State HAI plan, and provide leadership and commitment to infection prevention goals.

The Maine Pine Tree Chapter of the Association for Professionals in Infection Control and Epidemiology (APIC) also continues to support the efforts of MIPC. Representation from primary care, long term care, home health and public health adds perspective, helping to pave the way for improvement in infection prevention activities across the healthcare continuum. Because a primary focus of APIC is education for its members, substantial time has been given to the identification of HAI through specific and challenging case studies utilizing NHSN resources under the tutelage of Northeast Healthcare Quality Foundation representative.

The MIPC is a dynamic and knowledgeable group of impassioned Infection Preventionists. Their work is essential to the health of the population of the state of Maine. They do not function alone in this endeavor and must rely on the dedicated work of many stakeholders and healthcare professionals across the continuum of our healthcare system. These efforts combine to improve the health of the people of Maine by preventing and controlling healthcare-associated infections and the burden of drug resistant organisms in our hospitals and communities. The MIPC looks forward to

continued collaboration with key stakeholders and anticipates new connections with stakeholders who have yet to be identified in our continued efforts to accomplish our mission.

Respectively submitted by

The Maine Infection Prevention Collaborative

Appendix F

Overview of the Maine State Healthcare Associated Prevention Plan, 2013

Healthcare-associated infections (HAIs) are now the fifth leading cause of death in the U.S. The number of HAIs per year is estimated at 1.7 million infections[i], and prevention strategies could likely reduce 70% of these infections.[ii] Federal CDC estimates that urinary tract infections, surgical site infections, bloodstream infections, and pneumonia account for more than 80% of HAIs. Often, the cause of an HAI is an organism introduced by an invasive procedure, such as surgery or the insertion of a urinary catheter, central line, or ventilator.[iii]

The prevention of health care associated infections is a new initiative for the Maine Center for Disease Control and Prevention. The Healthcare Associated Infection Prevention Plan was funded in 2010 by the American Recovery and Rehabilitation Act (ARRA). Although that funding source has ended, federal CDC continues to provide some financial support. The Maine CDC works closely with a technical advisory group, the Maine Infection Prevention Collaborative (MIPC) and their Coordinating Committee. Currently, the MIPC represents all hospitals in Maine. The focus of the plan is ultimately to reduce healthcare acquired infections in Maine. In order to measure the progress made, it is necessary that all hospitals report health care associated infections using uniform definitions through the National Health care Safety Network (NHSN). The focus is to reduce:

1. central line associated blood stream infections (CLABSIs),
2. Methicillin Resistant Staphylococcus aureus infections,
3. Clostridium difficile infections,
4. surgical site infections (SSIs), and
5. Catheter associated urinary tract infections (CAUTI).

The focus also includes improving hand hygiene compliance in healthcare facilities.

Maine CDC has created an infrastructure which performs HAI surveillance and prevention activities. Below are some of the activities and accomplishments to date:

- The infrastructure has been built, consisting of an advisory group, a full-time HAI Prevention Coordinator, and a CSTE fellow.
- Maine CDC participates in monthly meetings with the MIPC, and bimonthly with the MIPC Coordinating Committee.
- The HAI coordinator collaborates with the Maine Health Data Organization (MHDO) and the Maine Quality Forum to streamline reporting by hospitals.
- Hand hygiene data has been collected by external observers twice a year in every hospital and the results shared with every CEO and infection preventionist.

- Every Maine hospital is enrolled in NHSN and reporting HAI-MRSA hospital-wide since January of 2011 and Clostridium difficile as of September of 2011.
- Maine CDC had 9 day long meetings with long term care facilities held in all regions of Maine. Each meeting contained 6 hours of education and the distribution of tools and resources to improve infection control and prevention.
- Maine CDC has offered increased training on hospital outbreak investigations, and has assisted in C. difficile outbreaks in long term care and hospital facilities.
- In collaboration with the state lab (HETL), Maine CDC has increased lab capacity to identify C. difficile genotypes using PFGE in outbreak investigations. Maine CDC has presented the findings from C. difficile outbreaks to several professional groups.

The HAI plan includes these objectives for 2013:

- Increased HAI surveillance: Develop metrics to measure prevention processes and HAI outcomes and to examine trends. The HAI program has validated the MRSA-HAI data and the C. difficile LabID Events to ensure the quality of the data. Collaborate with the MHDO to promulgate rules to enhance HAI surveillance in Maine hospitals.
- Develop hospital-specific dashboard reports for process and outcome measures of HAI data and provide feedback to hospital CEOs.
- Antibiotic stewardship and antibiogram analysis: Maine CDC is reviewing and analyzing antibiograms to determine regional resistance. Maine CDC is also developing an information sheet regarding best prescribing practices for UTIs, depending on the local antibiogram. Maine CDC is distributing an algorithm for treatment for C. difficile infection and recurrences.
- Reduction of C. difficile and CAUTI: The HAI program, in collaboration with the QIO, is working with four nursing homes, a local hospital, and medical directors in Augusta to reduce C. difficile occurrences by using evidence based practices.
- External Observations and Reporting of Hand Hygiene Compliance: The HAI program continues to work with the MIPC to do external observations at every hospital twice a year and report results to the hospital CEO.
- C. difficile reduction: The HAI program offers outbreak assistance and molecular lab testing. Patient education brochures have been developed and distributed, and presentations made to professionals at statewide conferences.
- Influenza in Healthcare Workers: Maine CDC continues to collect and report this data.
- Facilitate peer-to-peer learning of best practices among hospital infection preventionists.

Maine CDC, as administrator of the HAI Plan, is responsible for surveillance of health care acquired infections statewide. The focus for Maine CDC is primarily on outcomes, i.e. health care associated infections. However, to accomplish surveillance and determine improvements requires data. This data must be validated and collected in a uniform manner using standard definitions, such as those used by CDC's National Healthcare Safety Network (NHSN). Hence, much of the work of Maine CDC is to build a surveillance system whereby hospital data is

collected, analyzed, and validated. That way, unusual HAI activity can be detected in a timely fashion and controlled more effectively.

Simultaneously, a national focus on HAI reduction is growing. The Centers for Medicare and Medicaid Services (CMS) have instituted additional reporting mandates for HAI that affect reimbursement. CMS has also enlarged their focus from hospitals to include dialysis centers and long term care hospitals. Maine also has increased HAI reporting requirements for hospitals. Maine CDC realizes that current reporting requirements have increased the burden on hospitals, and the state agencies are working together to streamline the reporting process.

[i] U.S. Government Accountability Office (September, 2008): Health-Care Associated Infections in Hospitals: An Overview of State Reporting Programs and Individual Hospital Initiatives to Reduce Certain Infections.

[ii] U.S. Department of Health and Human Services (June 2009): HHS Action Plan to Prevent Healthcare-Associated Infections, http://www.hhs.gov/ophs/initiatives/hai/exsummary.html.

[iii] D. Wright: Patient Safety: Preventing Healthcare-Associated Infections, Office of Healthcare Quality, presentation.