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Successful Institution-wide Sustained Reduction in Central Line Associated Bloodstream Infection (CLABSI) Using a Multidisciplinary Approach

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Faculty Disclosure

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Goal and Objectives

- The goal of this presentation is to explain the multidisciplinary team approach utilized across the continuum of patient care to reduce institution-wide central line associated bloodstream infection (CLABSI) rates.
- Objectives:
  - To identify at least two multidisciplinary strategies to implement an institution-wide CLABSI reduction initiative.
  - To describe at least two key methods to maintain low CLABSI rates across an institution.

Central Line Associated Bloodstream Infection (CLABSI): Impact

- In the United States, CLABSIs affect 1 in 20 hospitalized patients, with an estimated mortality rate of 25% (Centers for Medicare and Medicaid Services, 2010; Centers for Disease Control, 2002)
- Each CLABSI carries excess health-care costs of $16,550, which may not be reimbursed by the Centers for Medicare and Medicaid Services (Centers for Disease Control, 2011)

CLABSI Reduction Background

- In 2002, began prevention efforts in Adult and Pediatric Intensive Care Units (ICUs)
  - Adult: Baseline rate 5.2 CLABSI/ 1000 Central Line (CL) Days
  - Pediatrics: Baseline rate 3.7 CLABSI/ 1000 CL Days
  - Neonatal ICU (2005): Baseline rate 6.4 CLABSI/ 1000 CL Days
- Expanded surveillance and prevention efforts to
  - Adult Oncology Units (2007): Baseline rate 2.9 CLABSI/ 1000 CL Days
  - Remaining Units (2009): Baseline rate 1.08 CLABSI/ 1000 CL Days
- UCM Inpatient Unit Baseline Rate (Fiscal Year 2011):

  1.06 CLABSI/ 1000 CL Days

Identify Multi-year Objectives

1) To use a multidisciplinary hospital-wide approach to reduce CLABSI by at least 10% as an annual goal for Fiscal Year 2012

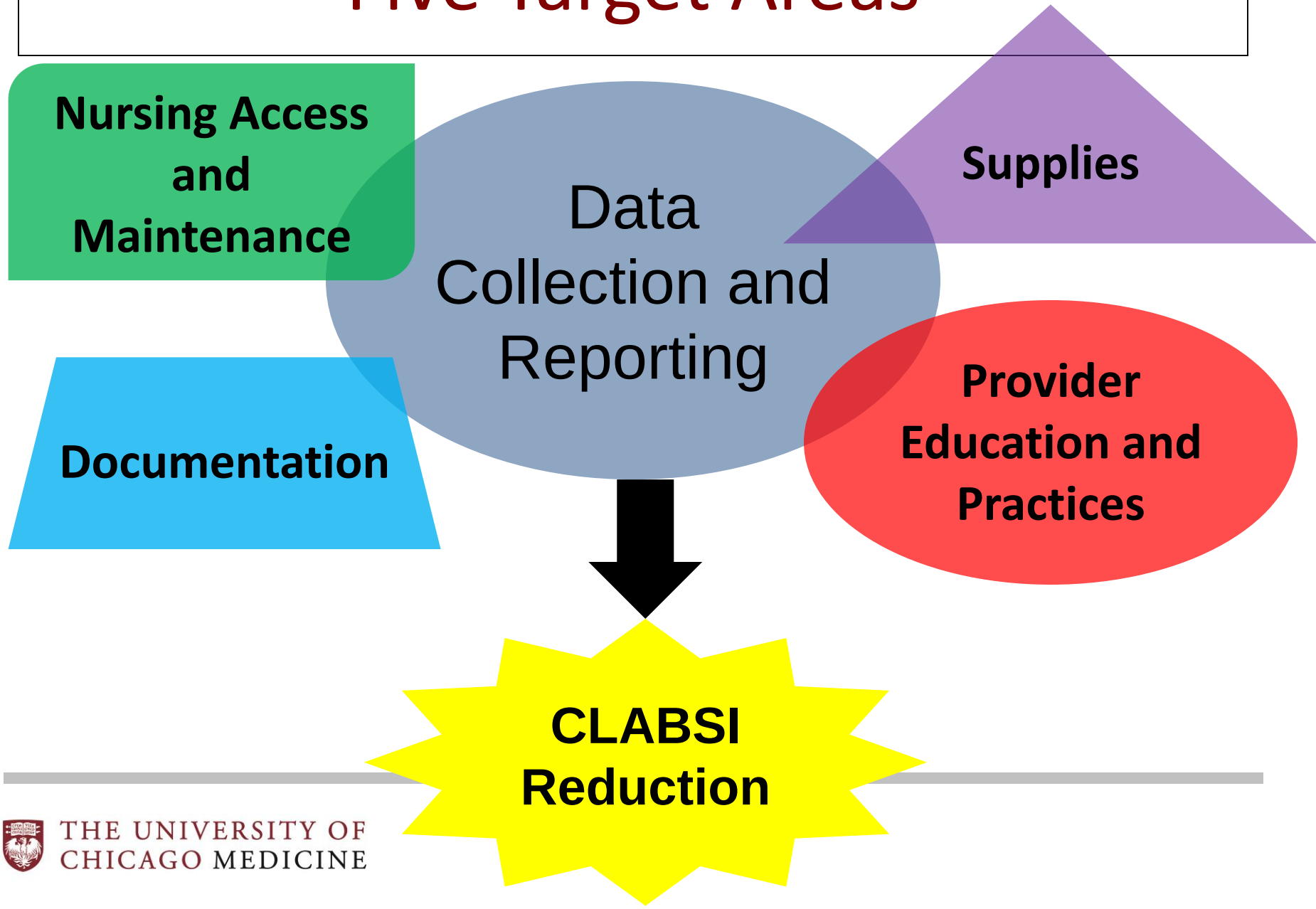
2) To reduce CLABSI to less than 0.7 per 1000 central line days in Fiscal Year 2013.

3) To reduce CLABSI to 0.5 per 1000 central line days in Fiscal Year 2014.

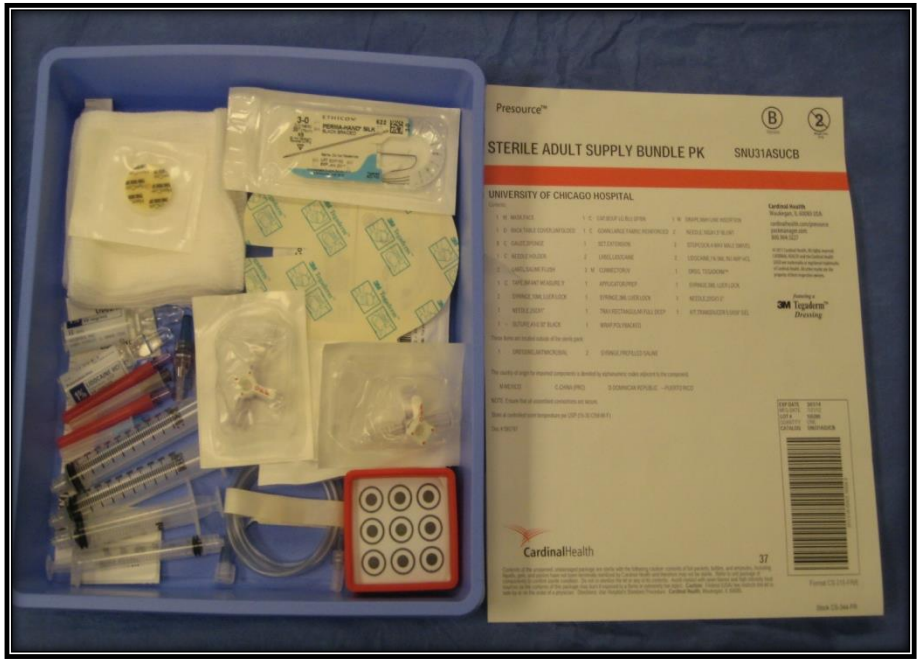
Materials and Methods

- A multidisciplinary CLABSI reduction team was created in July 2011 with representatives from:
  - Nursing
  - Infection Prevention
  - Patient Safety and Risk Management
  - Supply Chain
  - Electronic Medical Record
  - Faculty
  - House staff

Five Target Areas



Supplies



- Identified key components needed for sterile central line insertion and dressing changes
- Standardized supply bundles for each line type and patient population
- Bundles stocked in intensive care units, inpatient floors, and outpatient treatment areas

Nursing Access and Maintenance

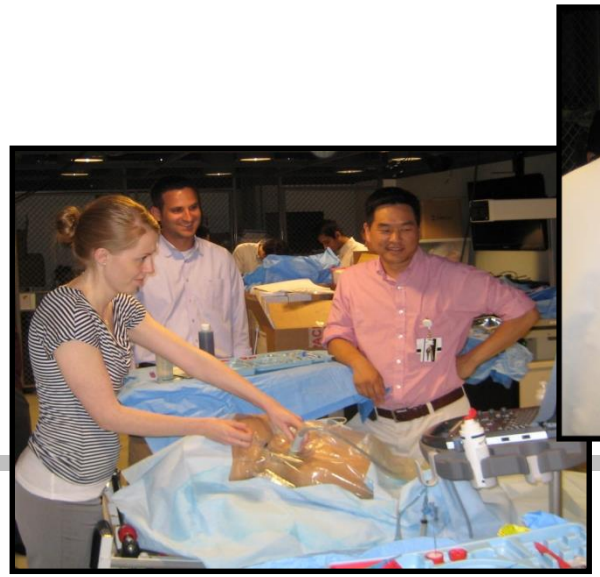
- Identified standardized nursing practices for accessing and maintaining central lines
- “Scrub the Hub” protocol 3 x/ 5 sec /complete dry

Scrub → Flush → Scrub → Med → Scrub → Flush

- Computer based training coupled with 1,452 RNs performing return demonstration; represented clinical areas across the medical center.

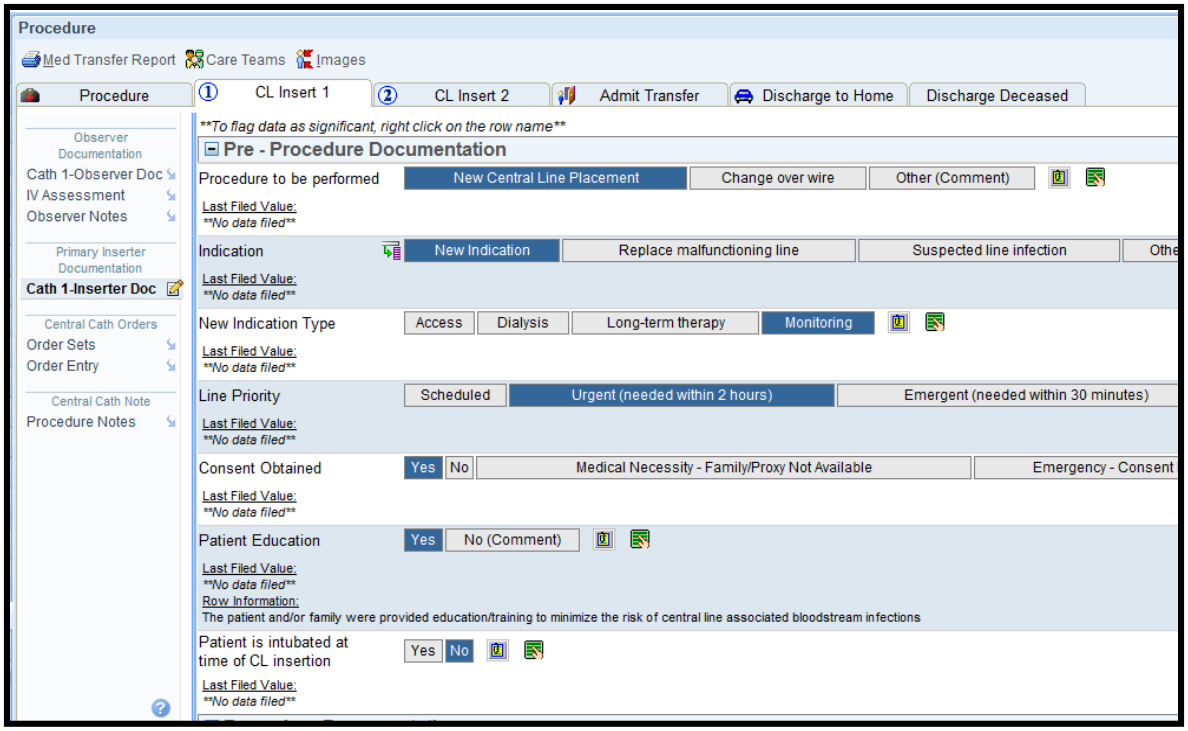
Provider Education and Practices

- Clinicians were educated on proper line placement technique via online training module, including a pre- and post-test
- This was followed by simulation training for some trainees



Documentation

- Worked with the electronic medical record programmers to create an electronic central line insertion checklist tool
- Requires both an observer and inserter to participate in and document the procedure



Training Goals: Fiscal Year 2013

- Based on case reviews and performance observation:
  - Continued nurse assessment at annual competencies
  - Include training for all agency staff
  - Include new Residents in simulation training
  - Conduct monthly central line assessments in oncology

Data Collection and Reporting

Figure 1: Monthly CLABSI Rates and Interventions Fiscal Year 2012

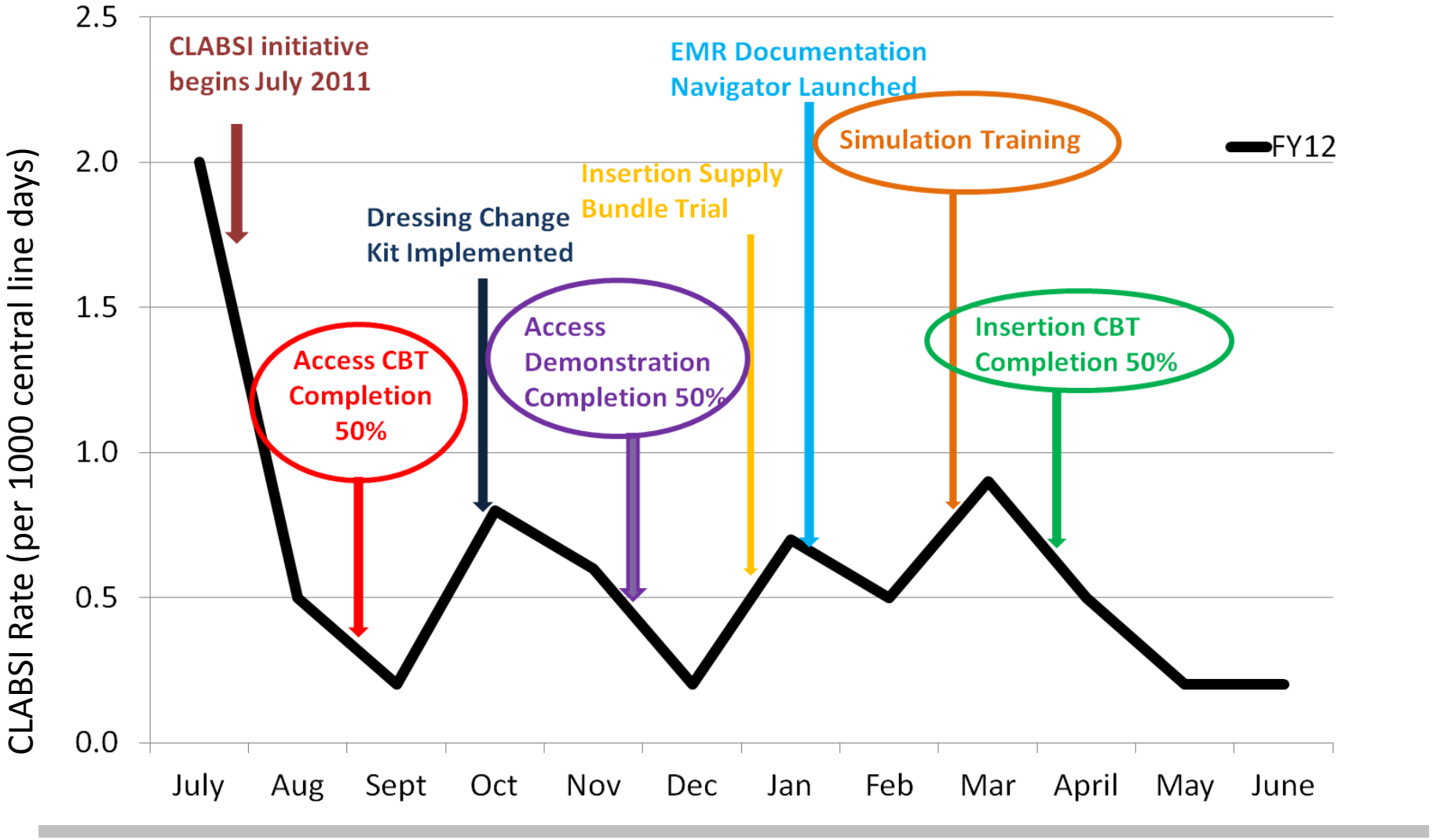
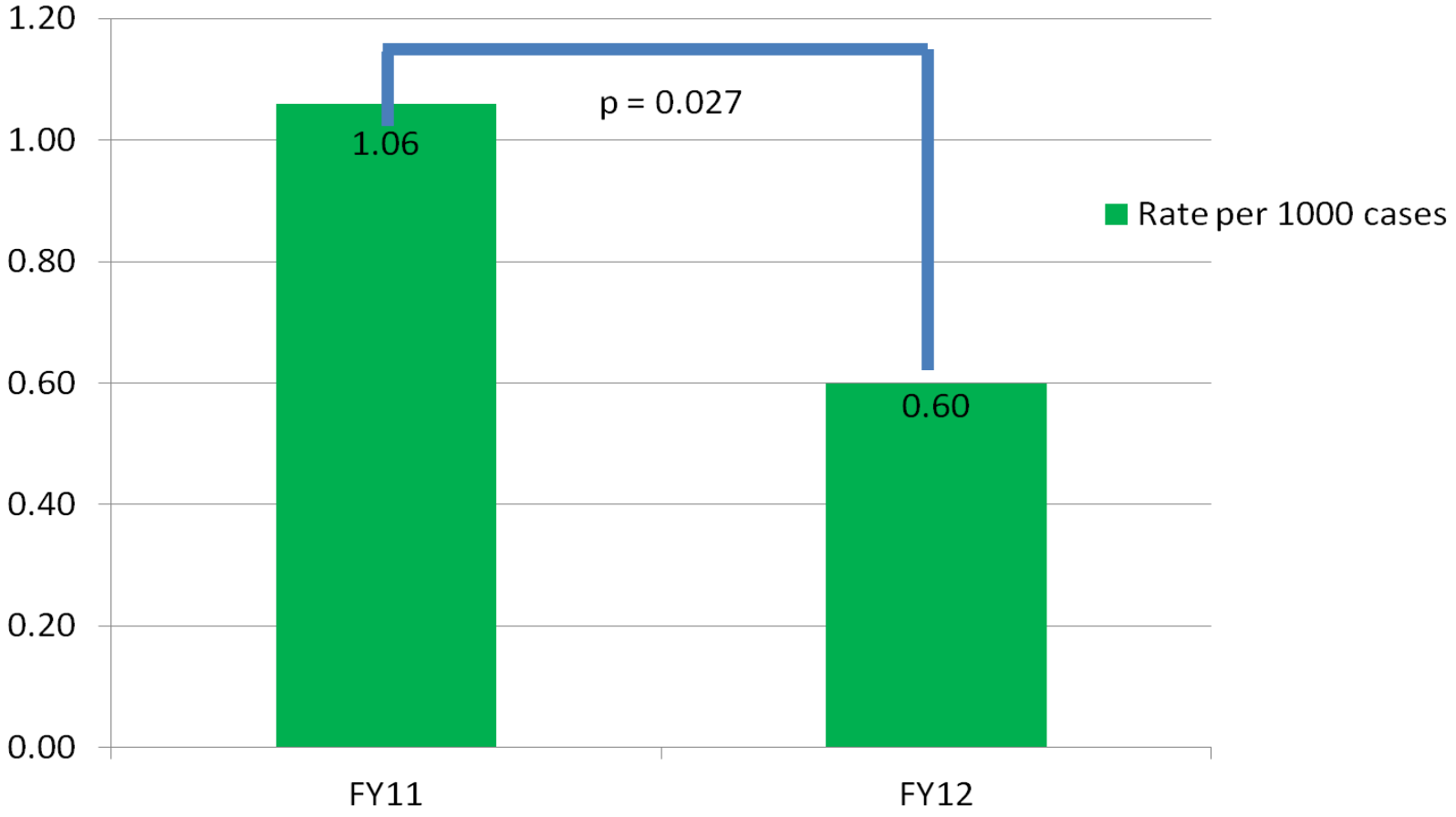


Figure 2: Annual CLABSI Rates Fiscal Year 2011 Compared to Fiscal Year 2012



Multidisciplinary Quality Reviews

- Multidisciplinary review of each CLABSI case
- Specific areas for improvement identified
- CLABSI rates reported Institution-wide monthly

Figure 3: Annual CLABSI Rates

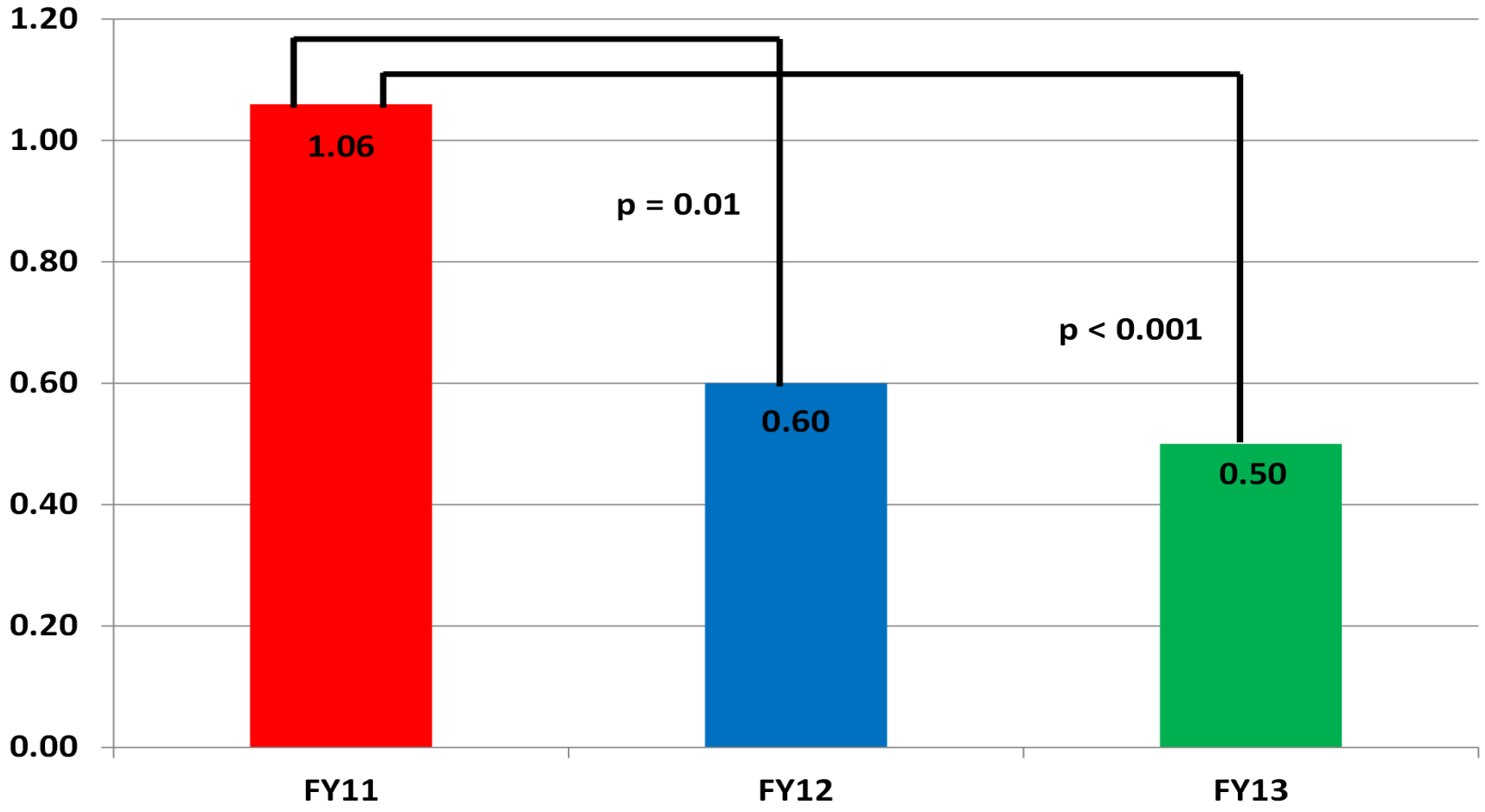


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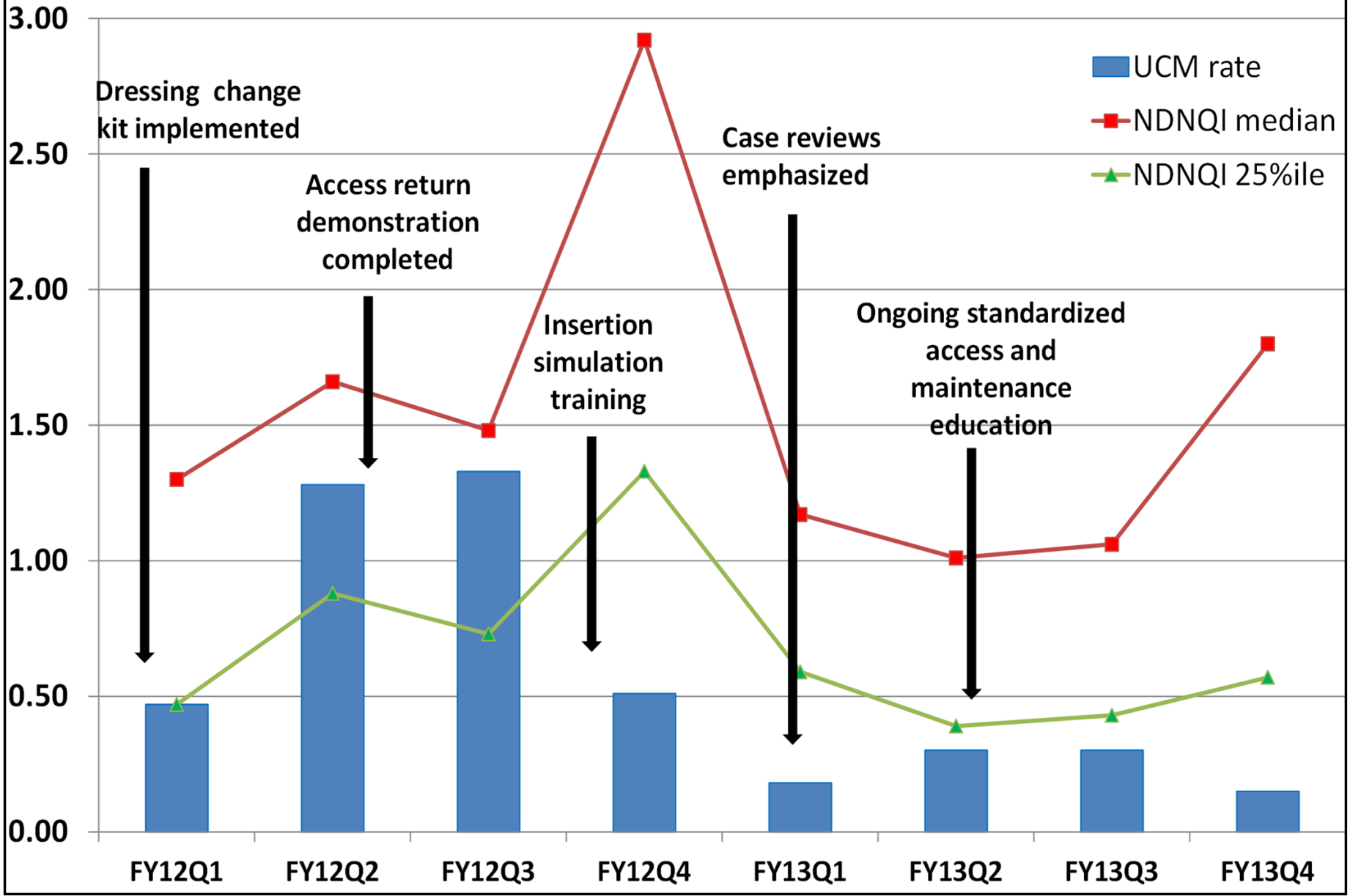
Figure 4: Quarterly NDNQI CLABSI Rates and Timeline of Interventions



Summary of Initial Efforts

- Institution-wide standardization of procedures and supplies coupled with verification of practitioner competency led to a statistically significant decrease in CLABSI from Fiscal Year 2011 to Fiscal Year 2012. CLABSI rates were reduced by 40%; surpassing our goal.
- Ongoing implementation of annual competencies and provider training continued the improvement in Fiscal Year 2013 with reduction to 0.5.

Current Fiscal Year 2014 Efforts

- Sustaining best practice requires attention every day.
- Reinforcement education improves practice.
- Ongoing surveillance helps identify any potential risks for increased infection rates.
- Continuing to include in annual competencies.
- Continuing CLABSI multidisciplinary quality reviews.

Conclusions

- Focusing on uniform access/maintenance protocols early in the intervention period helped drive success.
- Our multidisciplinary team approach offers an opportunity for improvement beyond traditional insertion best practices.
- Continuous feedback to staff and providers regarding performance outcomes helps reinforce the impact of even ONE CLABSI.

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Thank you