Technological Tools in the Fight Against *Clostridium Difficile*
University of California Davis Medical Center

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Objectives

1) Recall the importance of staff feedback in Electronic Medical Record (EMR) tool development.

2) List two EMR strategies to help increase process compliance.

I have no disclosures

- Academic institution serving high-risk and medically underserved patient population
- Only adult and pediatric level 1 trauma center in inland Northern California
- 619 licensed beds
- 33,685 inpatient admissions (year ending 6/30/2014)
- 2,554 nurses
- Electronic medical record since 2006

Clostridium difficile Facts

- *Clostridium difficile* (*C difficile*) is a common hospital-acquired infection (Centers for Disease Control and Prevention [CDC], 2015; Magill et al., 2014), which affects more than 300,000 patients annually in U.S. hospitals (Lucado, Gould, & Elixhauser, 2012).
- It causes diarrhea, colitis, and occasionally death (Kelly, Pothoulakis, & LaMont, 1994; Polage et al., 2015).
- Patients can become colonized with *C difficile* without showing symptoms or clinical signs of infection (Kelly, Pothoulakis, & LaMont, 1994; McFarland, Mulligan, Kwok, & Stamm, 1989).

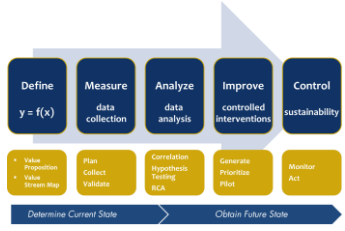
Stop C difficile Project Overview

- Purpose
  - To decrease the rate of hospital-acquired *C difficile* infection
- Interdisciplinary
  - Physician, Registered Nurses (RN), Information Technology (IT), Clinical Laboratory, Environmental Services
- Project Timeline
  - March 12, 2014 - June 24, 2015

Robust Stop *C difficile* Project EMR Utilization

- Extensive Project Scope
- Workgroup Formulated
  - Bridge bedside RNs and EMR tool development
  - Motto: Make it easy to do the right thing
- RN Screening Process Focus
  1) *C difficile* risk assessment questions at admission
  2) Surveillance at discharge

DMAIC Process Improvement Methodology



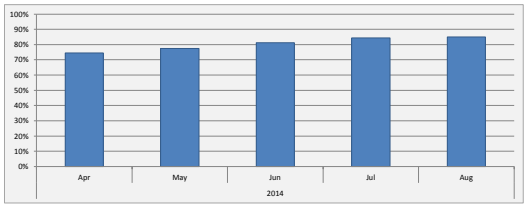
http://intranet.ucdmc.ucdavis.edu/value/performanceexcellence/dmaic.shtml

C difficile Risk Assessment Questions

- Incomplete RN documentation of *C difficile* risk assessment questions in EMR:
  1) Gather data on "high risk" population
  2) Guide laboratory analysis of *C difficile* test selection

Define Measure Analyze Improve Control

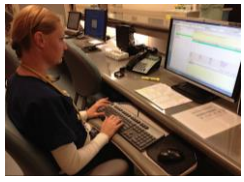
Pre-implementation Compliance Rates: *C difficile* Risk Assessment Questions RN Documentation



Define **Measure** Analyze Improve Control

C difficile Risk Assessment Questions RN Documentation Barriers

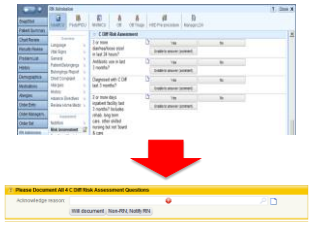
- Novelty
- Busy workflow
- Partially complete



Define | Measure | **Analyze** | Improve | Control

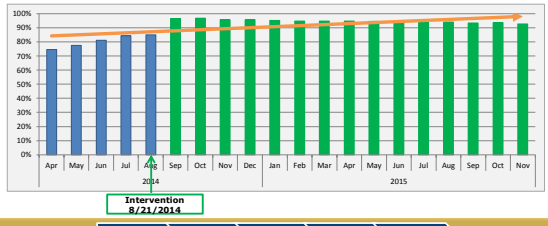
C difficile Risk Assessment Questions BPA Intervention

- Solution
  - Best Practice Advisory/Alert (BPA) reminder system
- Implementation Date
  - August 21, 2014



Define | Measure | Analyze | **Improve** | Control

Post-implementation Compliance Rates: *C difficile* Risk Assessment Questions RN Documentation



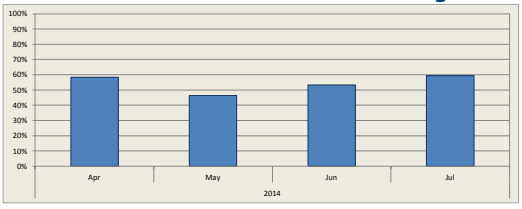
Define | Measure | Analyze | Improve | **Control**

C difficile Surveillance at Discharge

- Missed obtainment of *C difficile* surveillance at discharge by RN
  - Determine positive *C difficile* conversions

Define$_2$ > Measure$_2$ > Analyze$_2$ > Improve$_2$ > Control$_2$

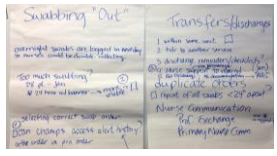
Pre-implementation Compliance Rates: *C difficile* Surveillance at Discharge



Define$_2$ > **Measure$_2$** > Analyze$_2$ > Improve$_2$ > Control$_2$

C difficile Surveillance at Discharge Barriers

- Novelty
- Equipment accessibility
- RN staff education
- Busy workflow
- Forgetfulness



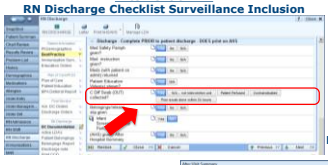
Define$_2$ > Measure$_2$ > **Analyze$_2$** > Improve$_2$ > Control$_2$

C difficile Surveillance at Discharge Interventions

- Solutions
  - Unit-based efforts
  - Housewide nonintrusive EMR reminder systems
    - RN discharge checklist surveillance inclusion
    - RN discharge checklist surveillance secondary reminder
      - Daily compliance report
- Implementation Date: July 30, 2014

Define$_2$ > Measure$_2$ > Analyze$_2$ > **Improve$_2$** > Control$_2$

Intervention #1
RN Discharge Checklist Surveillance Inclusion



Intervention #2
RN Discharge Checklist Secondary Reminder (with link)

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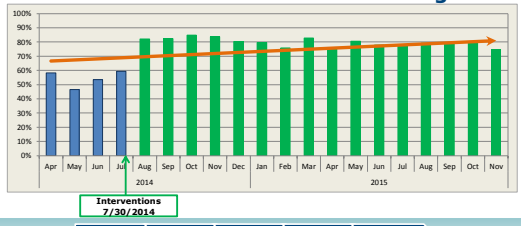
Post-implementation Compliance Rates: *C difficile* Surveillance at Discharge



Define$_2$ > Measure$_2$ > Analyze$_2$ > Improve$_2$ > **Control$_2$**

BONUS: Other EMR *C difficile* Tools Developed

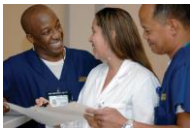
- Positive (+) result notification
- Positive (+) isolation order prompt
- Isolation checklist
- Swab done within 24 hours banner
- Swab history report
- Swab orders: RN and MD alerts

C difficile Project EMR Tool Development Outcomes

- Increased nurse buy-in
- Achieved workflow accommodations
- Improved process compliance

Objectives/Takeaways

- Bedside staff feedback in EMR tool development
  - Pursue and incorporate it
  - Encourage continual engagement
  - Demonstrate appreciation
  - Celebrate successes
- EMR leveraging strategies to help increase process compliance
  - Workflow integration
  - Foster creativity
  - Focus within interdisciplinary context
  - BPA balancing act
  - Keep it relevant and simple



Acknowledgments

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    - Project Physician Director
  - Jacqueline Stocking, RN, PhD(c), MBA, MSN
    - Program Director (Previous)
  - Stacy Hevener, RN, MSN
    - Program Director (Current)
  - Catherine Adamson, RN, BSN
    - Project Nurse Champion Lead
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  - Nursing
  - Clinical Microbiology Lab
  - Environmental Services
  - Information Technology (IT) Support
  - Infection Prevention
  - Pharmacy

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For More Information on the Stop *C difficile* Project Contact

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Questions?

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