HEALTHCARE SYSTEMS PROCESS IMPROVEMENT
CONFERENCE 2017
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LEADING HEALTHCARE IMPROVEMENT

Utilizing PDCA for CLABSI Maintenance Bundle Improvement

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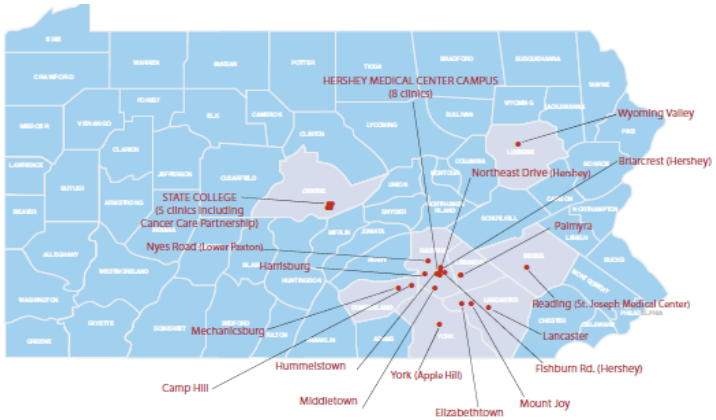
#SHS2017

Penn State Health
Milton S. Hershey Medical Center



PennState Health

Penn State Health
Milton S. Hershey Medical Center

Patient Care

Hospital Admissions (adult and pediatric): 28,654

Licensed Beds: 548

Surgical Procedures: 30,028

Emergency Room Visits: 72,493

Outpatient Visits: 1,034,663

Health Care Professionals

Physicians and other providers: 1,100+

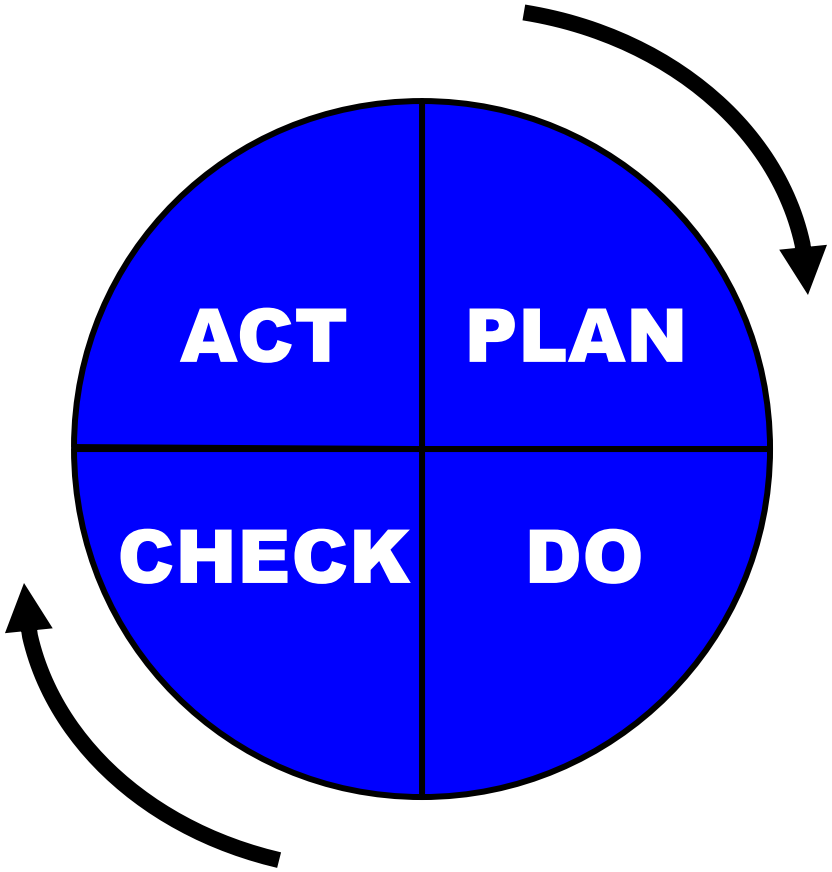
Nurses: 2,288

Total Staff - Hospital and College of Medicine: 10,000+

Penn State Health
Milton S. Hershey Medical Center

PDCA Cycle

(Source: Quality Improvement Tools & Techniques)
This template designed to help instruct, construct and present an improvement project



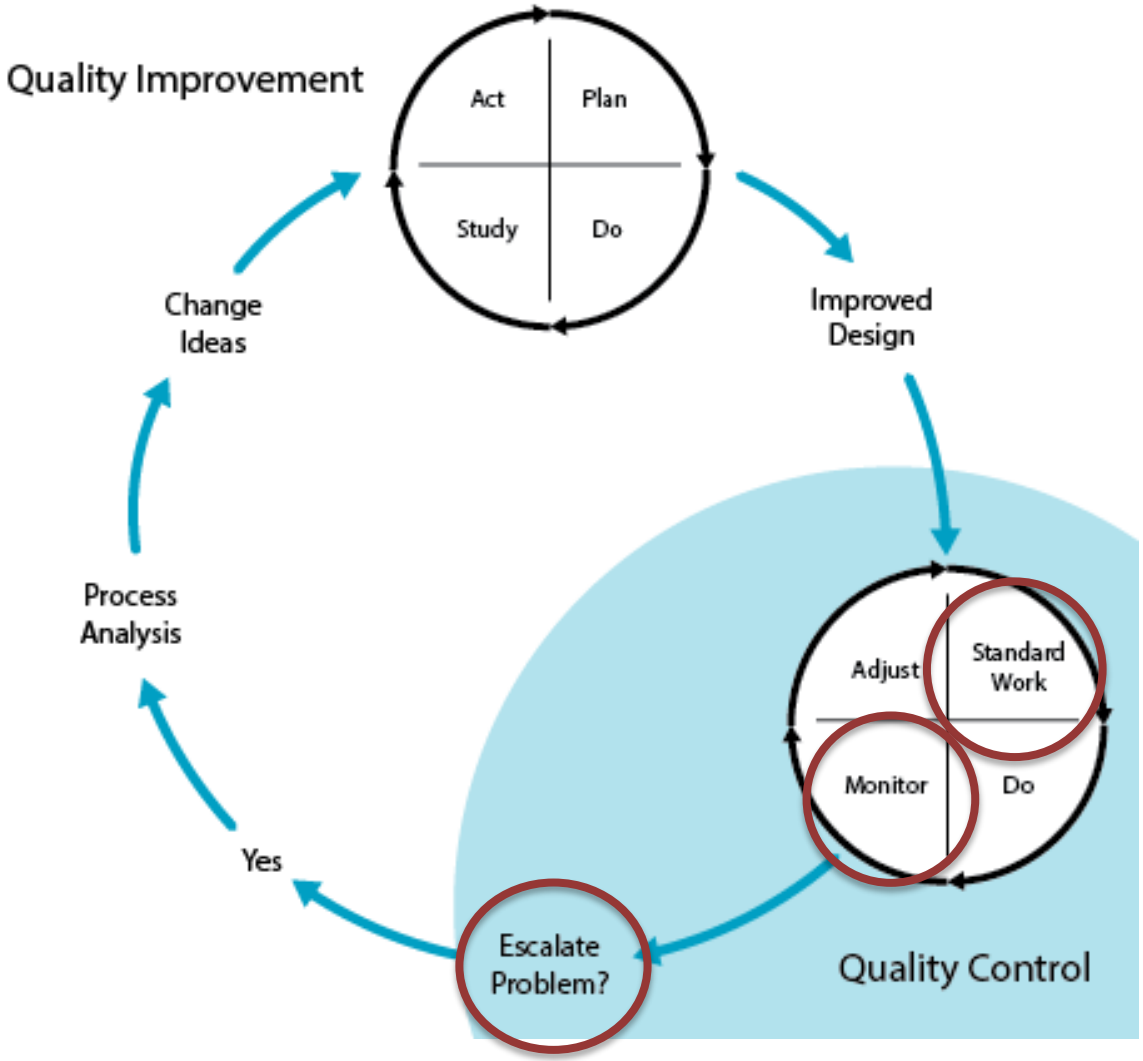
PLAN Set goals based on customer needs

DO Implement

CHECK Analyze what happened

ACT Make sure improvements are permanent

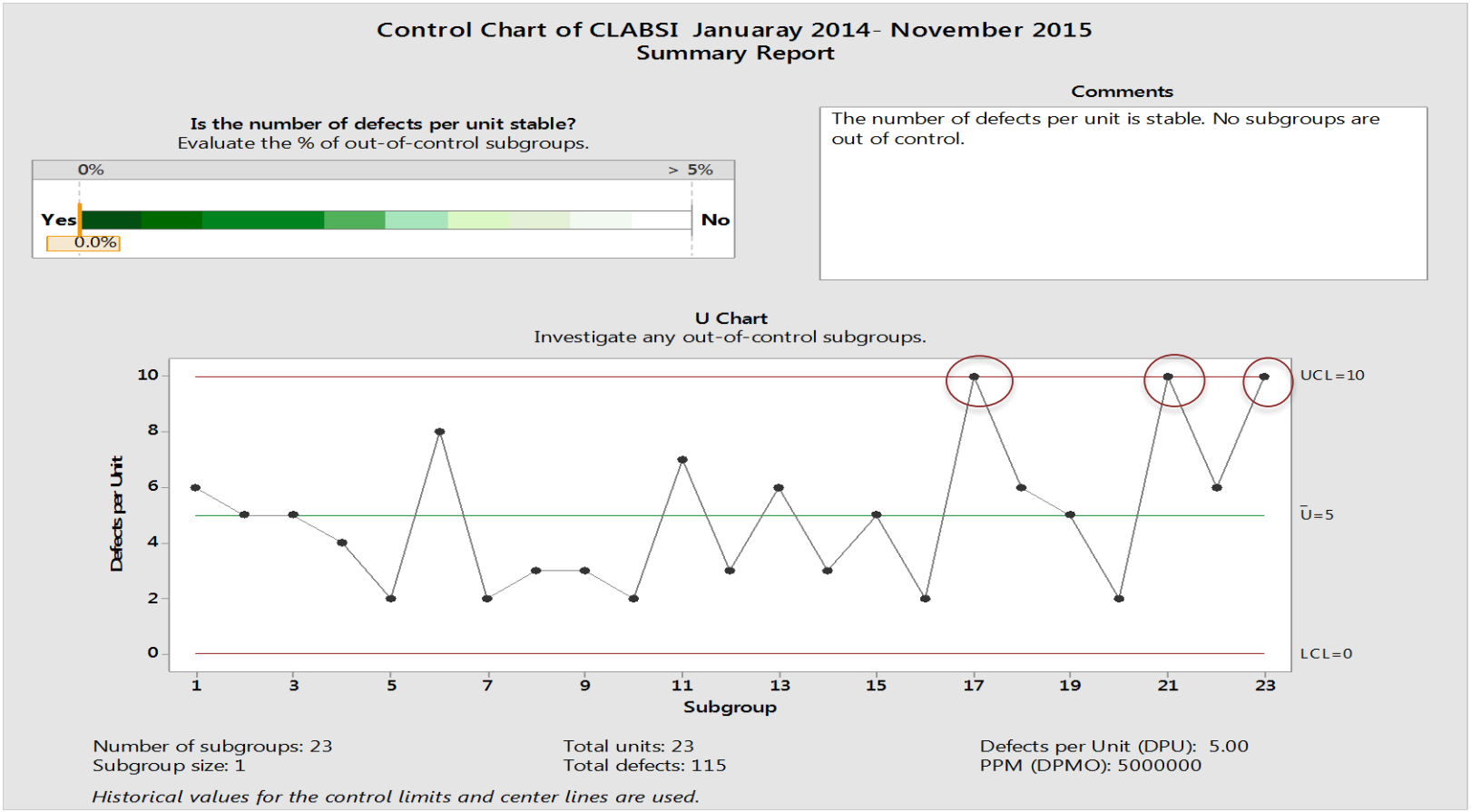
Quality Strategy at a Glance



Scoville R, Little K, Rakover J, Luther K, Mate K. *Sustaining Improvement*. IHI White Paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2016. (Available at ihi.org)

CLABSI - Control Chart

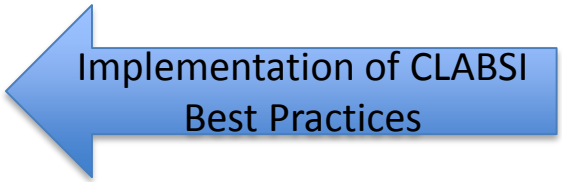
Increasing trend for CLABSI Count



Problem - Sustainability

Hospital Acquired Central Line Associated Blood Stream Infections:

- **2013= 86**
- **2014= 50**
- **2015= 72**



CLABSI Infection Top Ten Checklist

TOP TEN EVIDENCE BASED INTERVENTIONS
Process Change
Promptly removal of unnecessary central lines
Follow proper insertion practices - appropriate site and sterile barrier precautions
Handle and maintain central lines appropriately - bundle compliance
2% Chlorhexidine bathing/dressings
Staff Education/Patient/Family Education
Hand Hygiene
Empower staff to stop non-emergent insertion if proper procedures are not followed
Real Time Analysis and Feedback
Patient Education on CHG bathing
Blood Culturing Practices

Gemba Walk

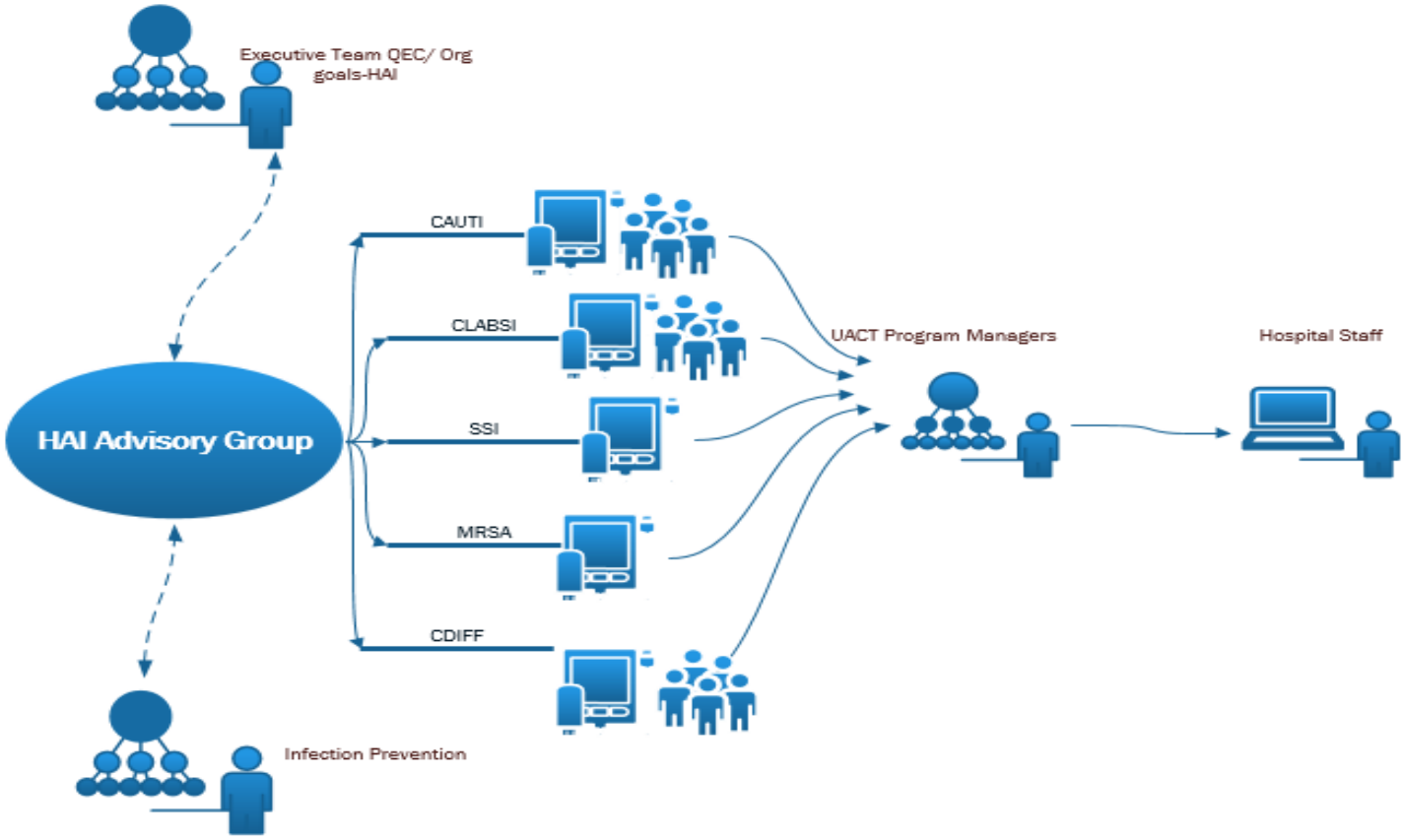
- Observation of current state

Acute Care Unit	CLABSI July 2014-June 2015	Daily Rounds	Morning Huddles	Audit Compliance of Bundles	RCA
High Performer	0	Yes	Yes	Yes	Yes
Low Performer	6	No	No	No	No

PLAN

Create the Structure

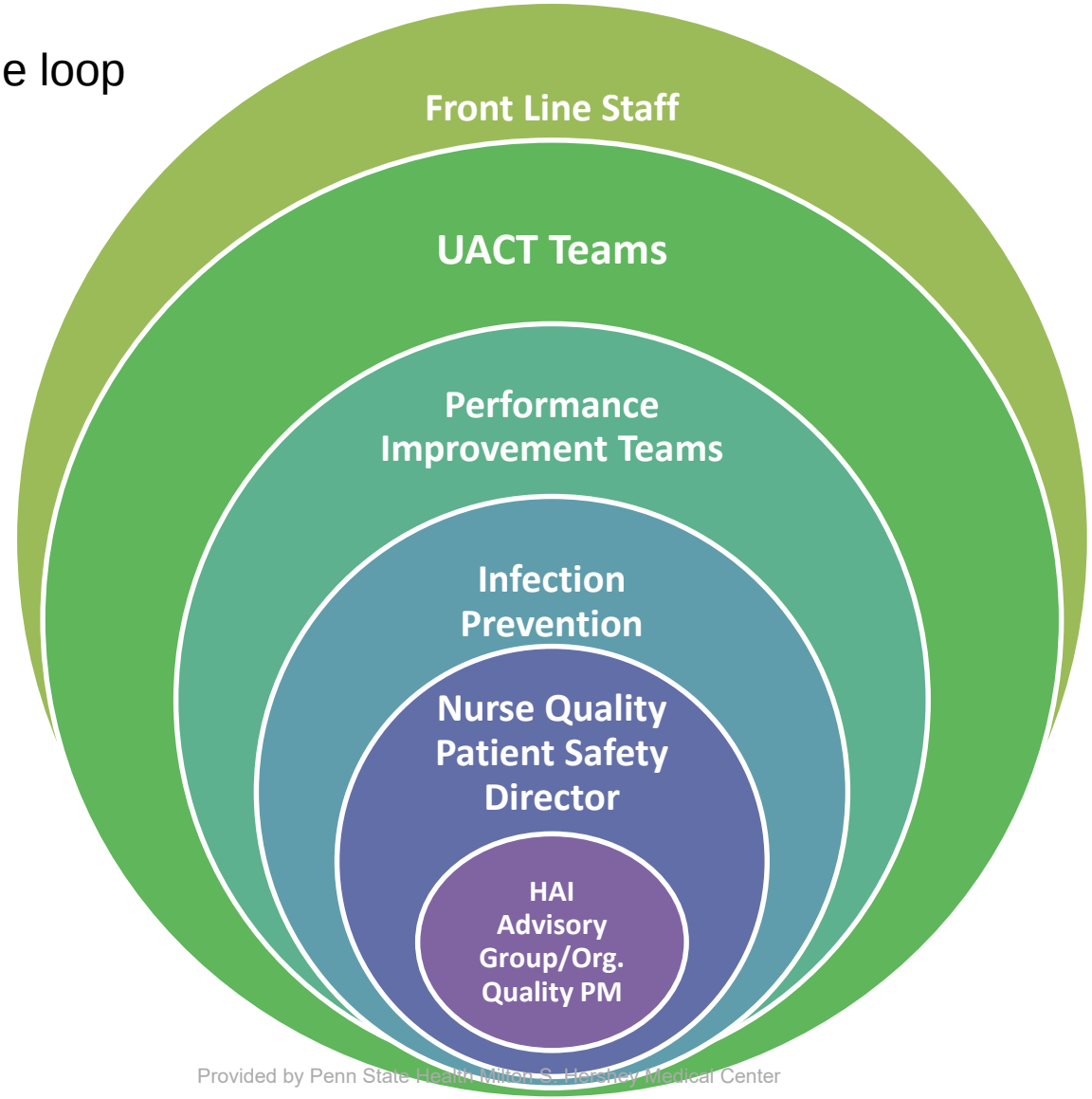
- Hospital Advisory Group - Provide a consistent approach to reduce the impact of health care associated infections on PSHMC patients



PLAN

Create a *plan* for Communication

Everyone is in the loop



PLAN

Plan of Attack

- Organizational alignment / Executive Support for escalation
- Unit / Division Road Show
- Standardization of Roles
- Standardization of auditing
- Standard work for After Action Review
- Visual Controls
- Unit level Action Plan from Bundle Compliance findings
- Reward for zero infections

DO

CLABSI Oversight - Wants you!

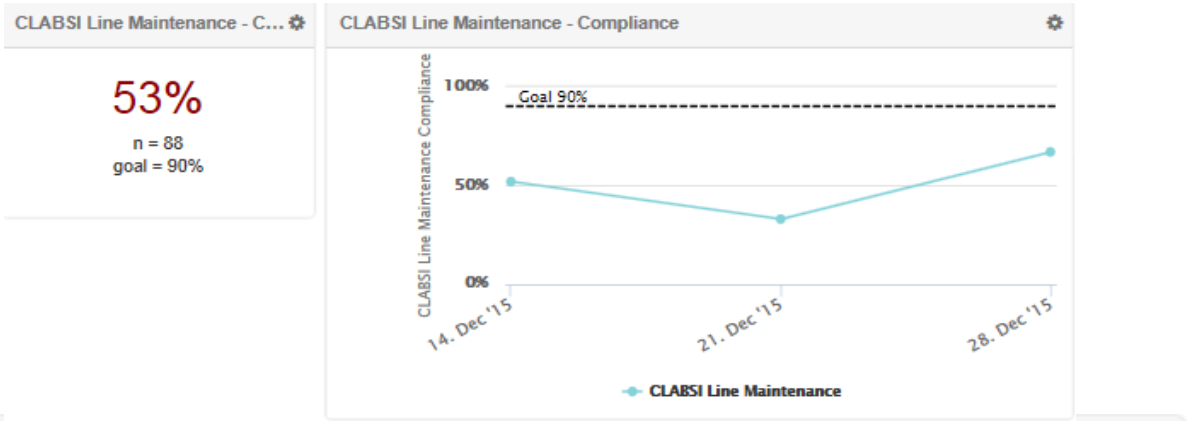
Accountability

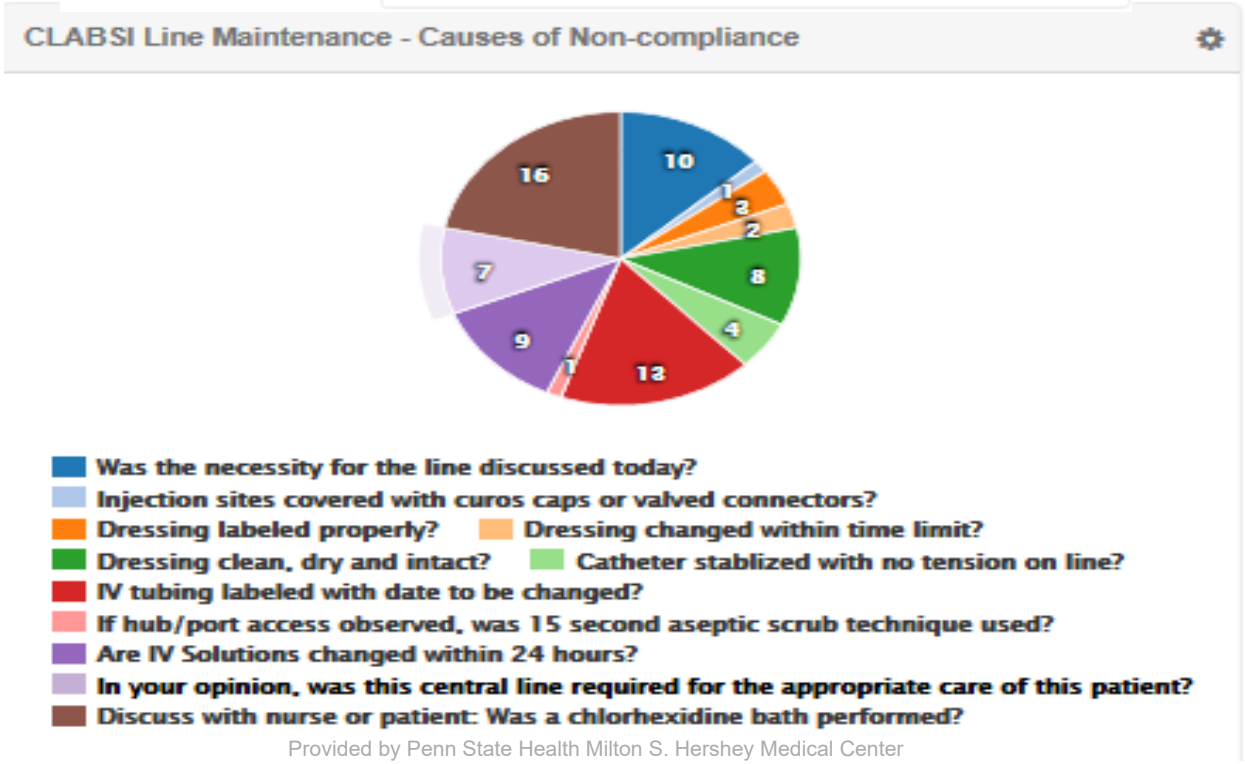
ASKS:

- Audits
- Share data with staff weekly
- Action plan with data findings
- Share lessons learned with CLABSI Oversight Team
- Partnership with units that are successful with the elimination of CLABSI's
- Audits owned by Nurse Manager until unit achieves 90% Bundle Compliance for 3 months and zero CLABSI Events for 3 months

CHECK

Easy to use auditing solution with real-time results





Provided by Penn State Health Milton S. Hershey Medical Center

CHECK

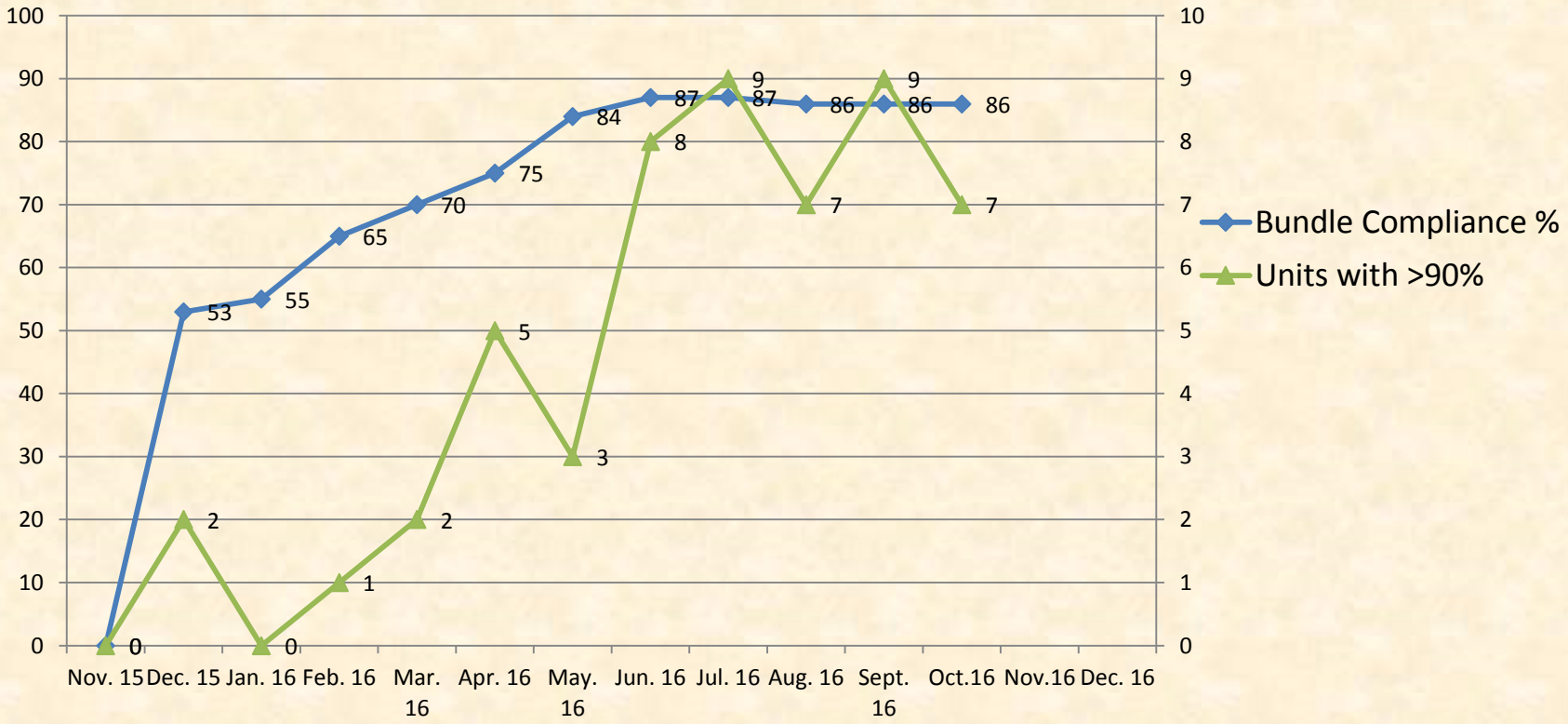
Outcomes

Metric	Target	Initial Jan. 2016	Feb. 2016	Mar. 2016	Apr. 2016	May 2016	June 2016
Number of units auditing bundle compliance (mobile app)	19 (units)	7	12	13	17	17	19
Overall bundle compliance for all participating units	90%	52%	65%	70%	75%	84%	87%

67% increase in bundle compliance

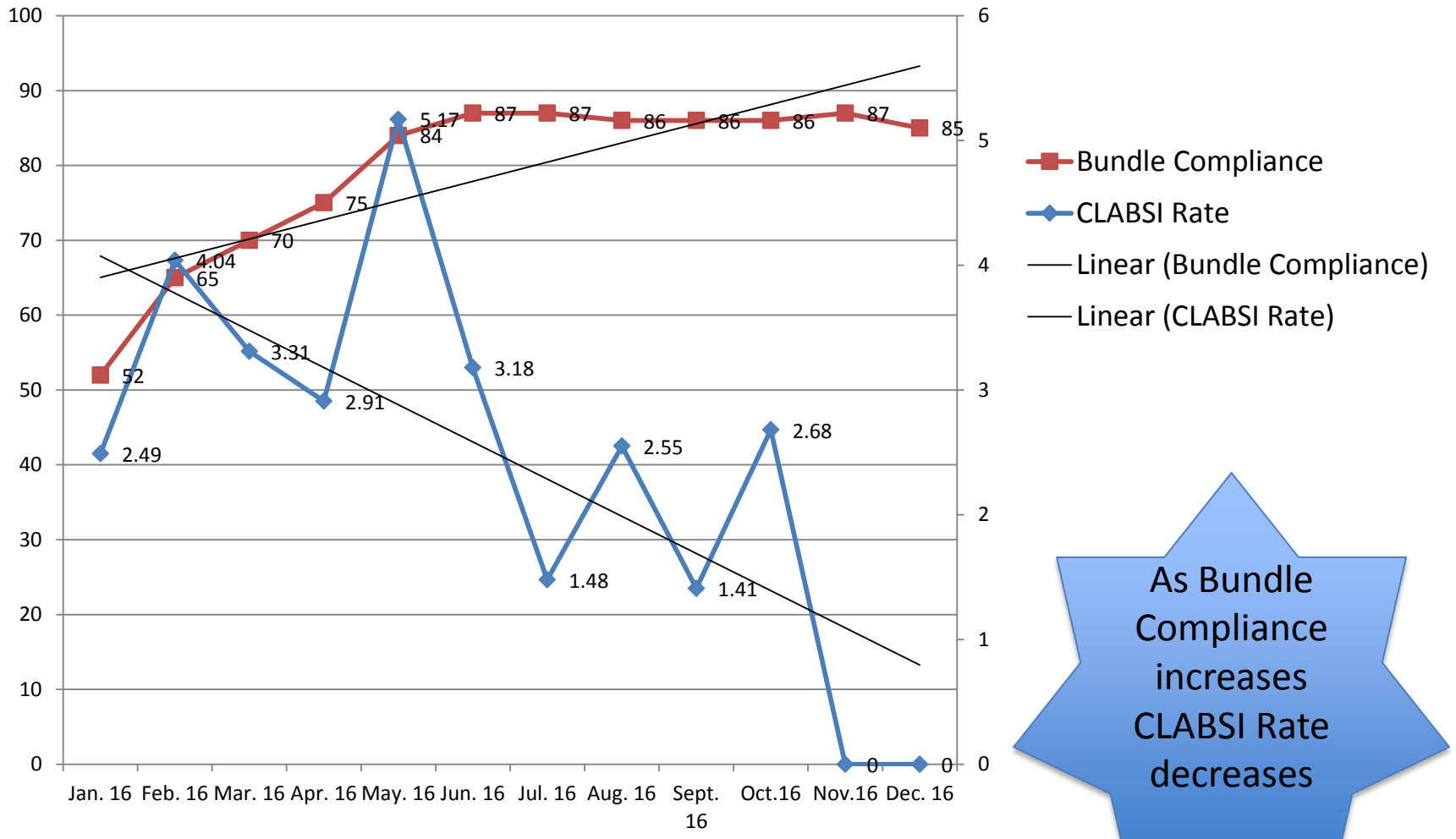
CHECK

Overall CLABSI Maintenance Bundle Compliance Percentage vs. the number of units with >90% Bundle compliance



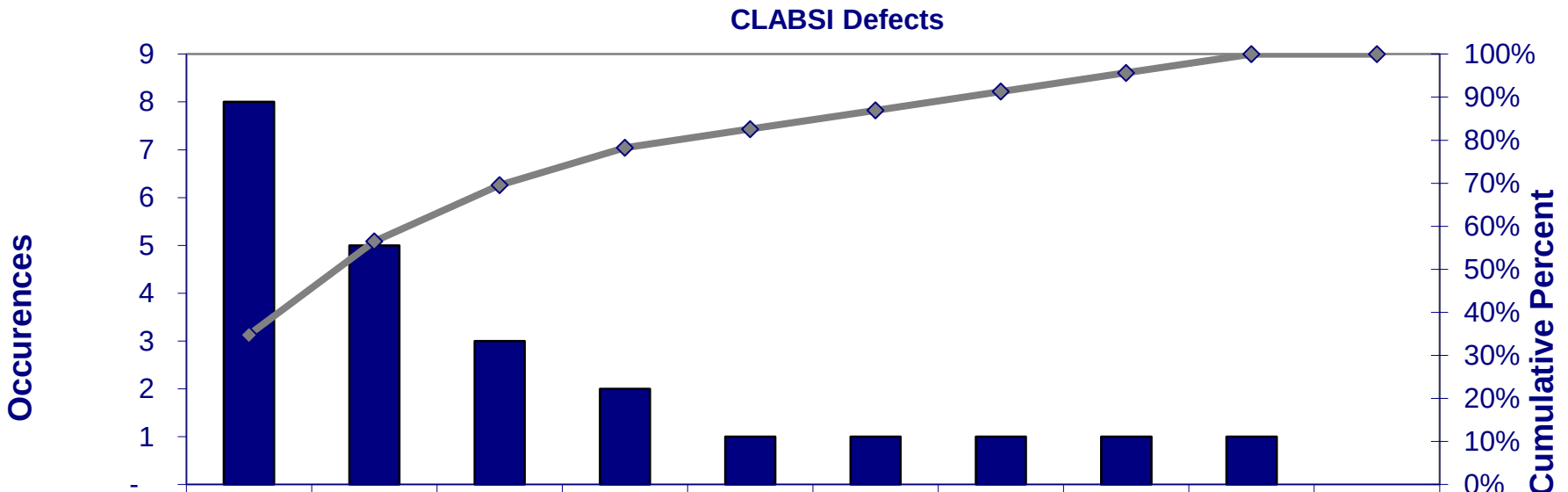
CHECK

CLABSI Rate vs. Bundle Compliance for Cancer Institute- CY 2016



As Bundle Compliance increases CLABSI Rate decreases

CHECK



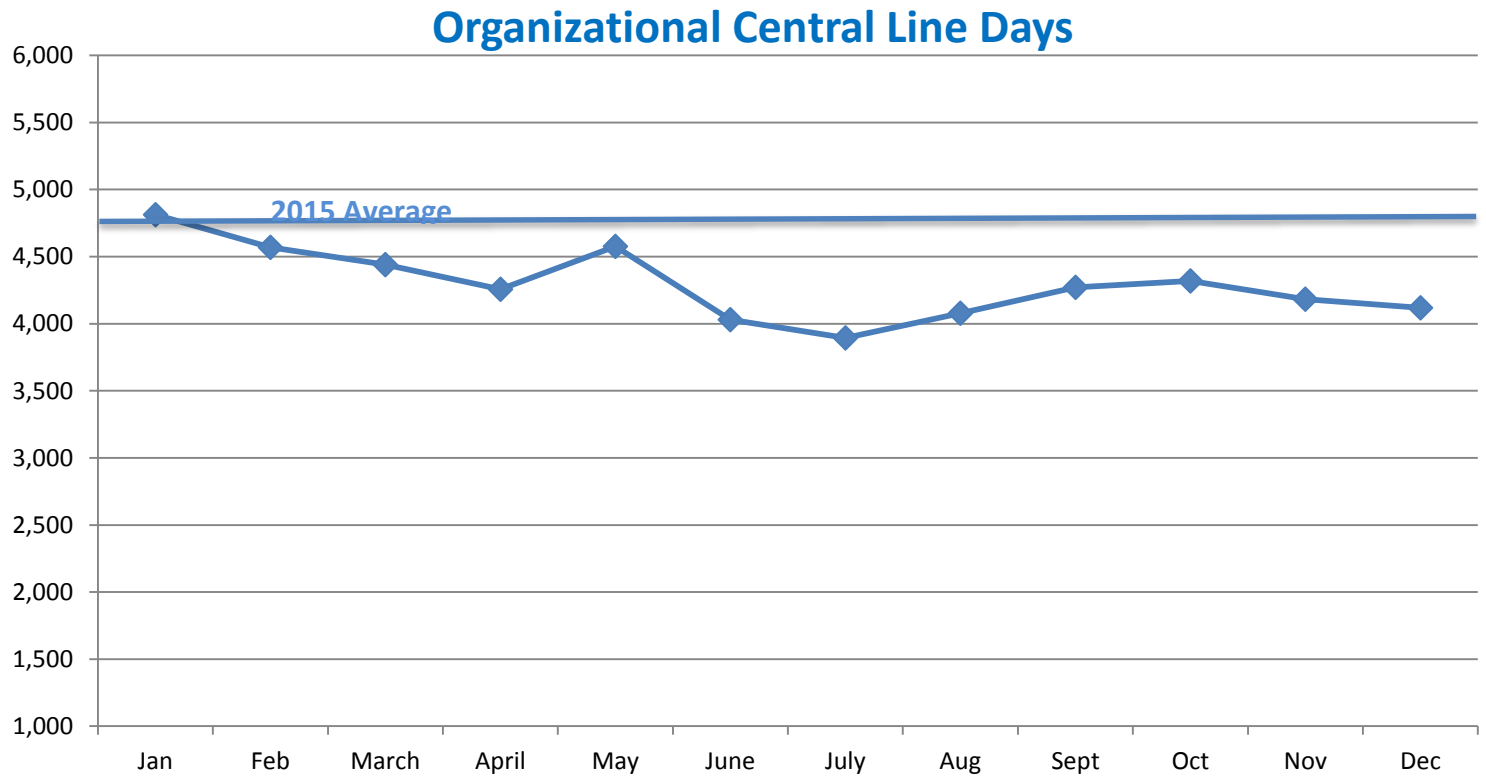
	Lab draws from line	Blood culture draws from line	Patient uncompliant - CHG	Culture day of death	Opinion - Central line not required	Opinion - Central line duration	Mouth care routine	Line placed for labs only	Femoral line	All other
Quantity	8	5	3	2	1	1	1	1	1	0
Cum %	35%	57%	70%	78%	83%	87%	91%	96%	100%	100%
% of Total	35%	22%	13%	9%	4%	4%	4%	4%	4%	0%

Time Period: **November-16**

Defects Identified from CLABSI After Action Reviews

CHECK

9% Reduction in Central Line Days



Average Line days were reduced from 4,723 in 2015 to 4,296 in 2016

Penn State Cancer Institute

- Hematology / Oncology
  - Blood Cancers/Solid Tumor Cancers
- Bone Marrow Transplant
  - Allogenic and Autologous Stem Cell Transplants
- 39 Bed Unit
  - 15 designated for Bone Marrow Transplant
  - 2 Palliative Care rooms

Asks and Outcomes

- Asks
  - Leadership Audits
    - 40-50 a month
    - 90% or greater compliance to bundle
- Outcomes
  - Increase in RN/MD rounds
  - Decrease in line days
  - Better understanding of CVAD Bundle
  - Increase Patient Satisfaction
  - 2 Months CLABSI Free

ACT

Control Plan

What	Who	When	Status
Weekly unit bundle compliance data sent to nurse manager	Audit Vendor/Quality Dept.	Weekly	
Bi-monthly report card sent to all members of HAI infection program	Nurse -Quality and Patient Safety	Bi-Monthly	
Report out of After Action Review for CLABSI infection	Unit Nurse Manager / designee	Monthly	
HAI Advisory Group Meeting	Quality Coach	Monthly	
CLABSI Performance Improvement Team Meeting	Nurse/Physician Leads	Monthly	
Leadership Rounds	CNO, CMO	Weekly	
CLABSI Maintenance Bundle Audits	Nurse Manager	Daily	

ACT

Organizational Alignment

Safety Domain FY17 Tactics

Domain	Baseline	Baseline Time frame	Metric	Measurement Period	Target
Safety	CAUTI 24 CLABSI 74 C-DIFF 149	Baselines are from FY15	Infection Composite: Number of Infection Types that meet their individual targets for CAUTI, CLABSI, and C-DIFF Infections Individual targets CAUTI: < 25 CLABSI: < 61 C-DIFF: < 127	7/1/16 – 6/30/17	2 Meets

CLABSI Performance Improvement Team

- Maintenance bundle compliance >90% for all units (CDC Category 1A)
- Implement Nurse/Physician/Patient education and document review on all inpatient units (CDC Category 2)
- Prompt Removal of Catheter when no longer required (CDC Category 1A)
- Daily CHG bath performed (CDC Category 1A)

ACT

Standard Work

	Action Needed					
	Notification	**Family notification***	**After Action Review (AAR)/ Huddle**	**MIDAS event report**	**Report out during DSB**	**Other**
Hospital Acquired Infections: We will be focusing on CAUTI, CLABSI, C.Diff, and VAP (not VAC or iVAC) this year to align with organizational goals.						
CAUTI (organizational goal)	If CAUTI suspected, RN to notify nursing leadership with pt. room number when cultures are sent	Verify update provided by medical team. Patient will also receive a letter that is sent from the Clinical Quality department.	1. Forms sent by Infection Prevention to nursing leadership at the time of HAI identification. 2. Nursing leadership distributes AAR forms to staff. 3. Staff return completed AAR forms to nursing leadership within 10 days. 4. Discuss results at UACT and complete AAR Summary 5. Nursing leadership scans and emails completed AAR summary form as indicated in "other" column.	Nursing leadership on unit to file Midas event report after AAR summary form is completed at UACT ** See screen shot on page 2 for how to classify in Midas	Done by Infection Prevention	Completed AAR forms will be discussed at the next UACT meeting and an AAR Summary form will be completed. Nursing leadership will scan and email the AAR Sumary form to PatientSafety@hmc.psu.edu and iconline@hmc.psu.edu (CH and WH units also email to SERT@hmc.psu.edu)
CLABSI (organizational goal)	If CLABSI suspected, RN to notify nursing leadership with pt. room number when cultures are sent					
C. Diff (organizational goal)	RN to make physician team aware of any patient with loose stools and notify nursing leadership with pt. room number when cultures are sent					
VAP	No RN action required					

Standard action taken for notification, reporting and review of Hospital Acquired Infections

ACT

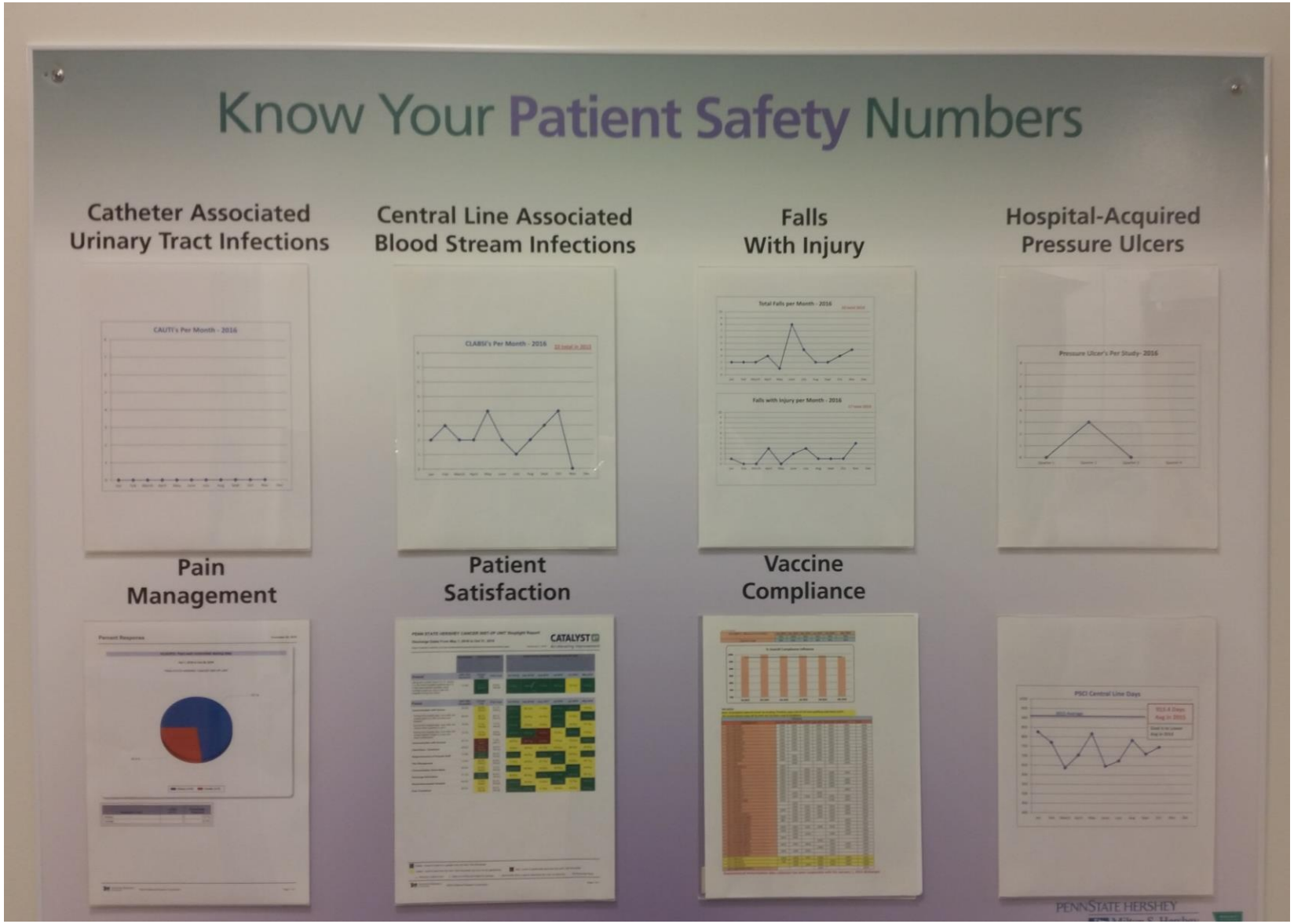
Visual Control: Bi-Monthly Report Card

Month of Report: April (mid-month)	Date of last CAUTI	CAUTI events	CAUTI bundle compliance (%) [1]	Number of Audits Received	Number of Audits Required	Date of last CLABSI	CLABSI events	CLABSI bundle compliance (%) [1]	Number of Audits Received	Number of Audits Required
NICU	11/14/2010	0	no data	0	4	11/2/2015	0	88%	17	30
PICU	12/4/2015	0	77%	26	27	3/13/2016	0	91%	22	30
PIMCU	12/15/2013	0	25%	4	6	10/26/2015	0	90%	10	25
Pediatric Oncology	8/30/2012	0	100%	1	2	3/31/2016	0	100%	8	30
Pediatric Acute Care	1/13/2013	0	100%	1	3	6/24/2014	0	87%	15	25
Women's Health	5/23/2012	0	no data	0	5	5/11/2014	0	no data	0	0*
Total for all CH	12/4/2015	0	72%	32	47	3/17/2016	0	90%	72	140
3MBS/7SA1	2/1/2014	0	no data	0	4	11/1/2008	0	no data	0	2
3SA	1/11/2016	0	83%	6	10	12/6/2011	0	100%	1	4
4AC	2/1/2015	0	20%	5	25	11/1/2015	0	100%	1	9
5AC	1/8/2016	0	78%	9	29	8/1/2015	0	60%	10	14
6AC	9/1/2015	0	64%	14	7	8/1/2015	0	75%	12	18
PSCI	12/1/2015	0	no data	0	5	3/31/2016	0	40%	5	51
Total for all Acute Care	1/11/2016	0	65%	34	80	3/31/2016	0	66%	29	98
HVCCU	11/15/2015	0	100%	15	45	3/1/2016	0	81%	32	35
HVPCU	4/1/2012	0	100%	6	7	4/1/2012	0	83%	18	5
MICU	11/1/2015	0	84%	19	35	1/1/2016	0	48%	29	17
MIMCU	11/1/2015	0	53%	15	13	12/1/2015	0	44%	9	8
NCCU	7/1/2015	0	no data	0	34	7/1/2015	0	40%	5	16
SAICU	9/1/2015	0	86%	43	67	9/1/2015	0	96%	48	20
SIMCU	2/6/2016	0	100%	6	14	6/1/2014	0	100%	11	5
Total for all Critical Care	2/6/2016	0	85%	104	215	3/1/2016	0	78%	152	106
Total for all inpatient	2/6/2016	0	78%	170	342	3/31/2016	0	80%	253	344

* WHU should do a CLABSI audit if they have a patient with a central line

ACT

Visual Control



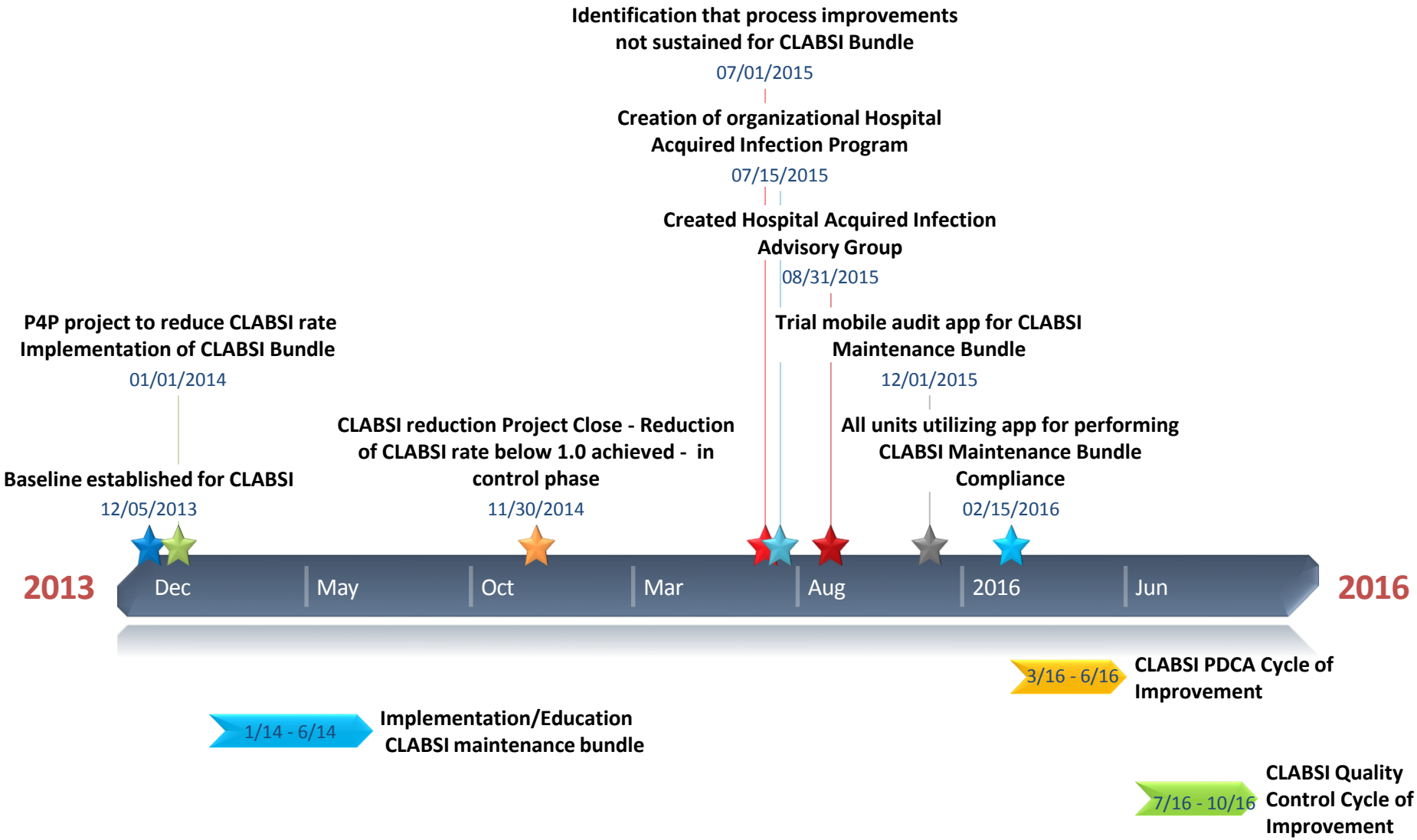
Conclusion

- PDCA is typically utilized for rapid-cycle quality improvement to process or a system.

- Rapid-cycle improvement implies that changes are made and tested over periods of three months or less, rather than the standard eight to twelve months.

- Utilize Quality Improvement and Quality Control and Change Management Strategies for sustainability of continuous improvement work

Timeline of Initiatives for CLABSI Prevention 2014-2016



Sustainability takes forever. And that's the point.

William Mcdonough

Lessons Learned - Create the message

Questions