

# Practical Application of High Reliability Principles in Healthcare to Promote Quality and Safety Outcomes

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# Conflict of Interest

- The presenter for this presentation has disclosed no conflict of interest related to this topic.



# Objectives

- Define high reliability organization (HRO) principles.
- Describe how to apply HRO principles into daily healthcare work processes.
- Discuss how HRO principles promote clinical quality outcomes, safety, and culture.

# Relevance/Significance

- Healthcare **application** of high reliability principles is **complicated** by the complex adaptive **nature of care delivery systems**. (Lipsitz, 2012)
- Healthcare is **moving** from a reactive to a **proactive paradigm**. (Latney, 2016)
- **Near misses** are **influential** in evaluating healthcare structures and processes prior to experiencing negative outcomes. (Speroni, Fisher, Dennis and Daniel, 2014)
- HRO principle **application and integration** supports **proactive identification** of potential adverse events. (Clark, 2012)

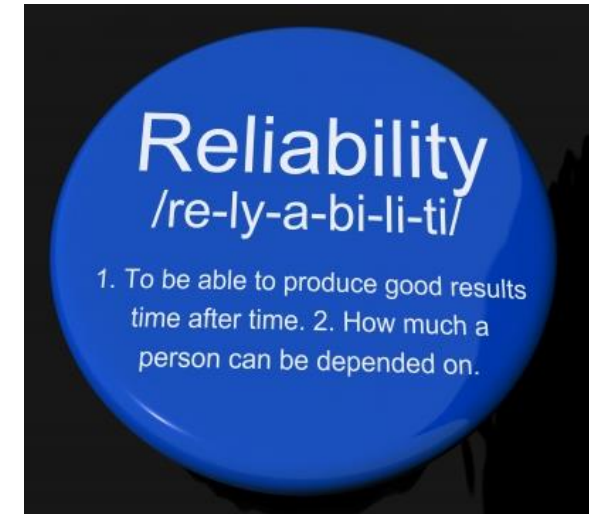
# Purpose

- Apply high reliability principles to healthcare work processes to drive quality outcomes, safety and culture change.



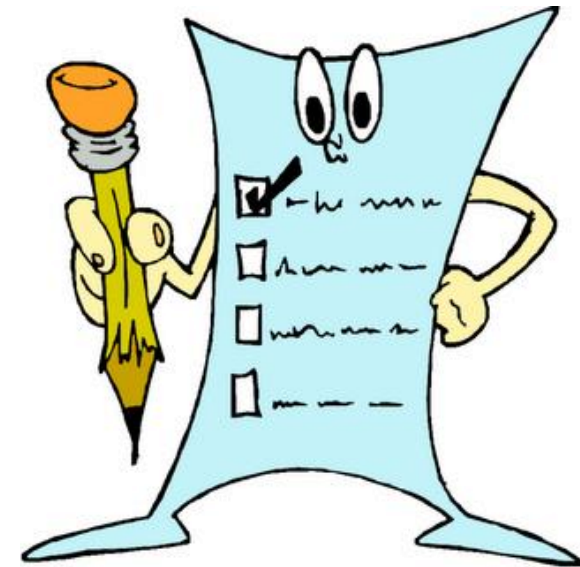
# Strategy and Implementation

- **High Reliability Organization**
  - High reliability organizations (HROs) are those organizations that are high-risk, dynamic, turbulent, and potentially hazardous, yet operate nearly error-free.



# High Reliability Principles

- **Sensitivity to Operations**
- **Preoccupation with Failure**
- **Deference to Expertise**
- **Reluctance to Simplify**
- **Commitment to Resilience**



Sensitive to Operations:  
(Downstream impact)

Preoccupation with  
Failure:  
(What could go wrong?)

Deference to  
Expertise:  
(Value team  
collaboration)

Reluctance to  
Simplify: (Digging  
deeper for root  
issue)

Resilience:  
(Learning quickly  
from errors)



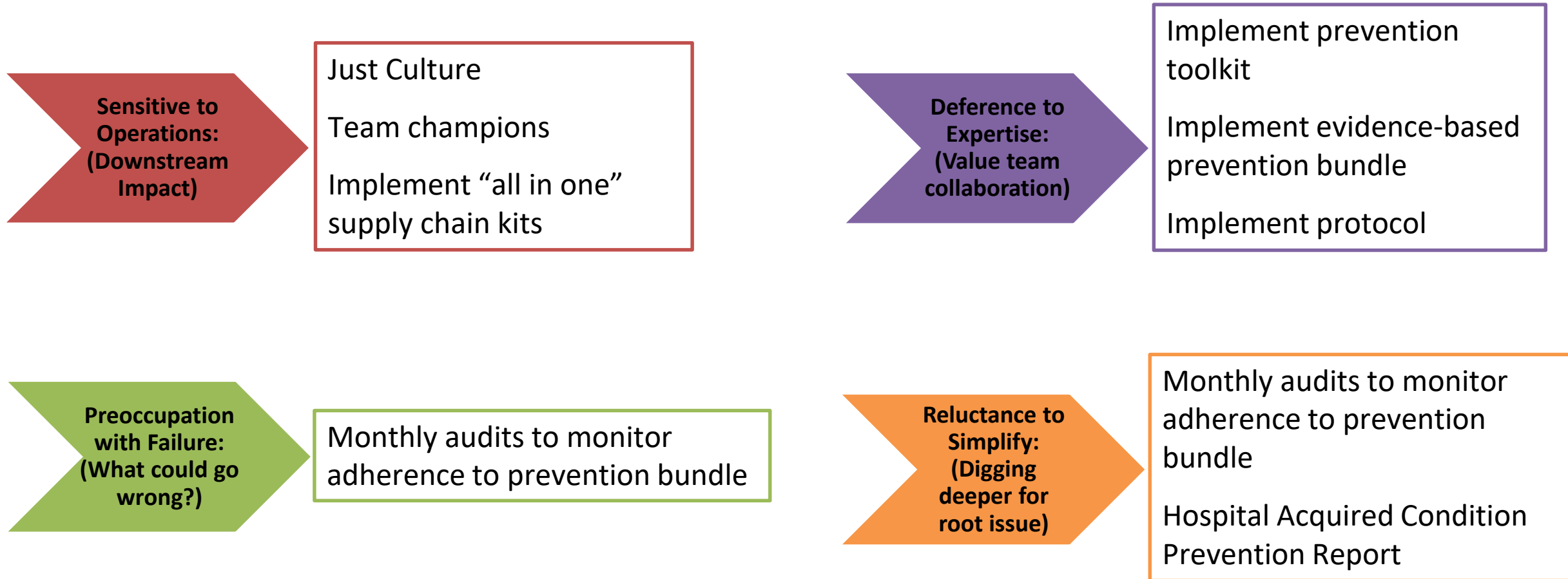
High  
Reliability



Exceptionally Safe  
Consistently High Quality Care



# Hospital Acquired Condition Prevention



# Hospital Acquired Condition Prevention

**Resilience:**  
(Learning  
quickly from  
errors)

Education on use of equipment:  
insertion, maintenance, removal

Competency validation

Standardize documentation

Conduct just-in-time prevention  
bundle education

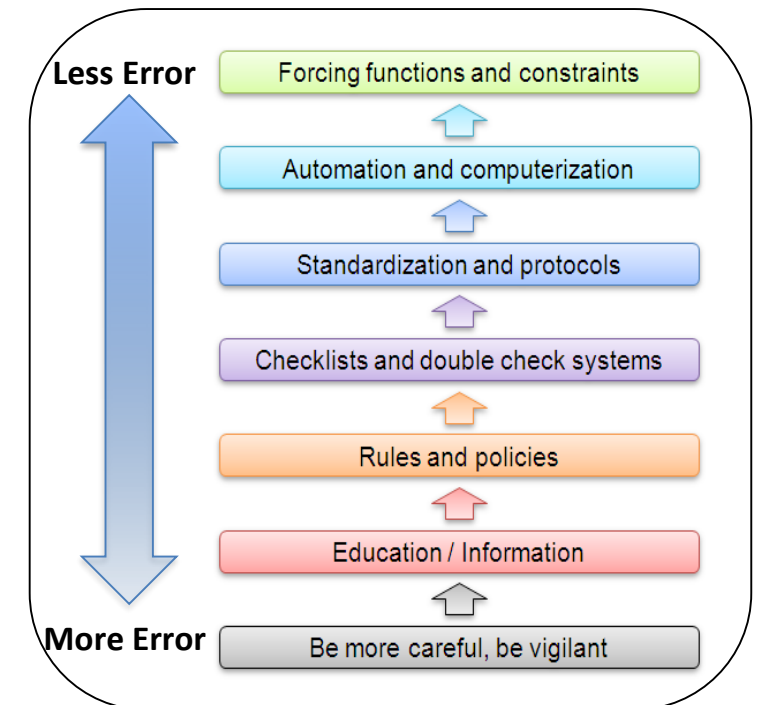
Conduct just-in-time peer review

Report unit specific outcome  
metrics monthly

Ongoing audits

Learning from defects

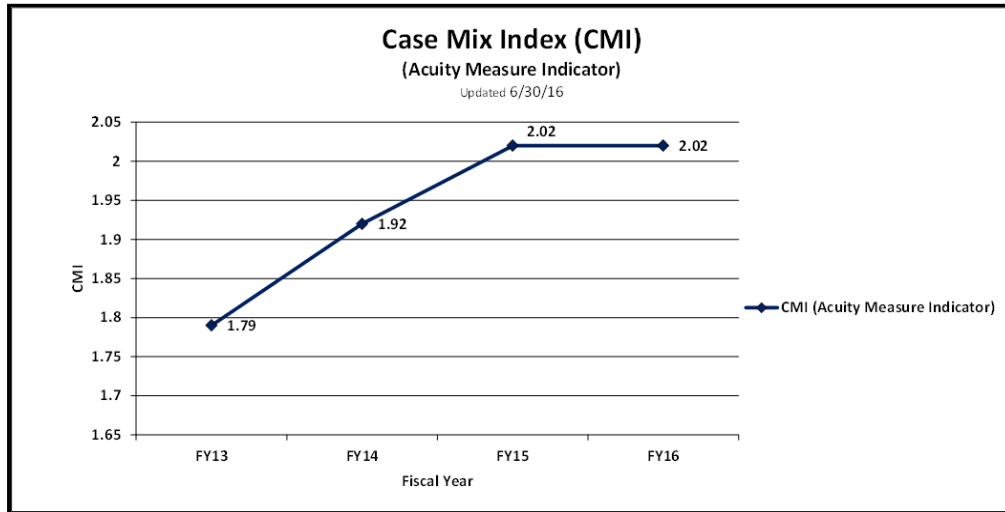
## RANK ORDER OF ERROR REDUCTION STRATEGIES



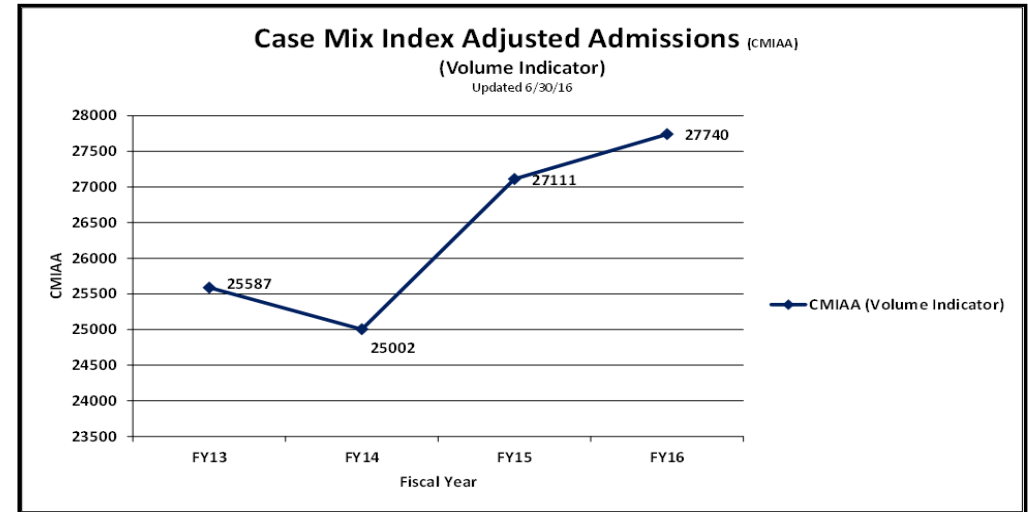
# Outcomes

- **Preventable Harm**
  - Case Mix Index (CMI)
  - Case Mix Index Adjusted Admissions (CMIAA)
  - Preventable Harm Incidents
- **Nurse Sensitive Indicators**
  - Injury Falls Rate
  - Hospital Acquired Pressure Ulcer Percent Stage II+(HAPU)
  - Catheter Associated Urinary Tract Infection Rate (CAUTI)
  - Central Line Associated Blood Stream Infection Rate (CLABSI)

# Preventable Harm – CMI/CMIAA

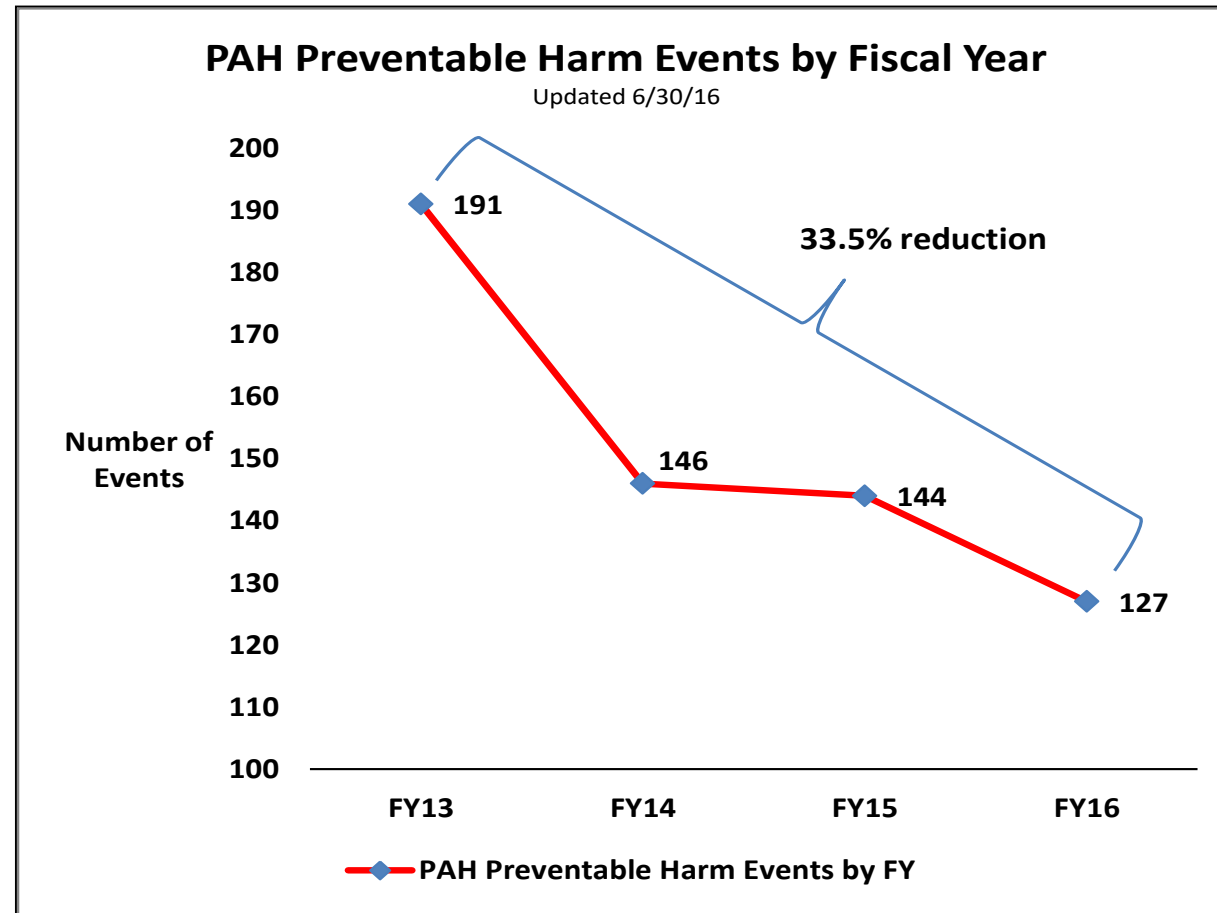


**CMI increase FY13 to FY16**



**CMIAA increase FY14 to FY16**

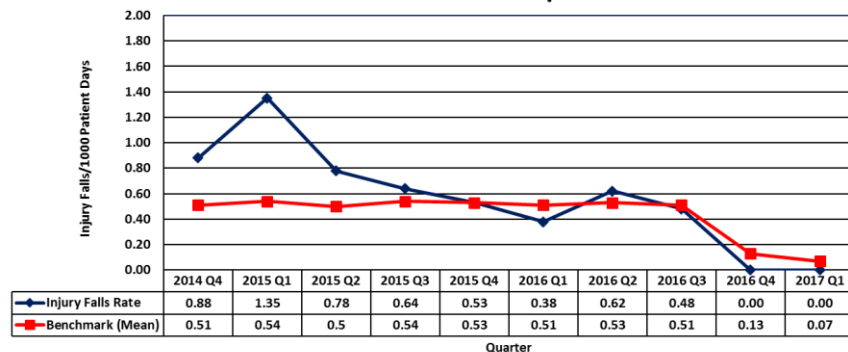
# Preventable Harm - Incidents



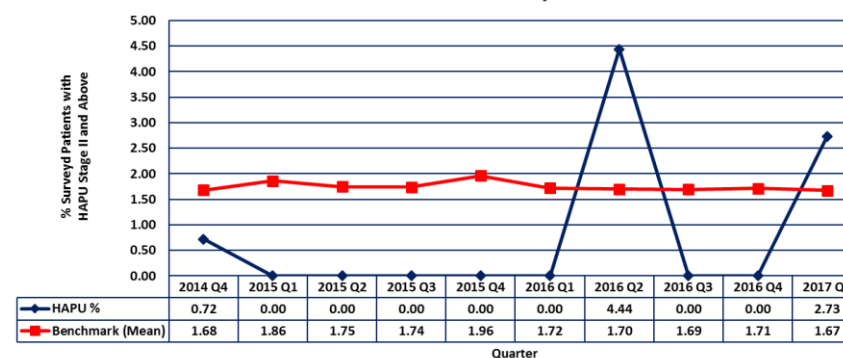
**33.5% reduction preventable harm events**

# Nurse Sensitive Indicators

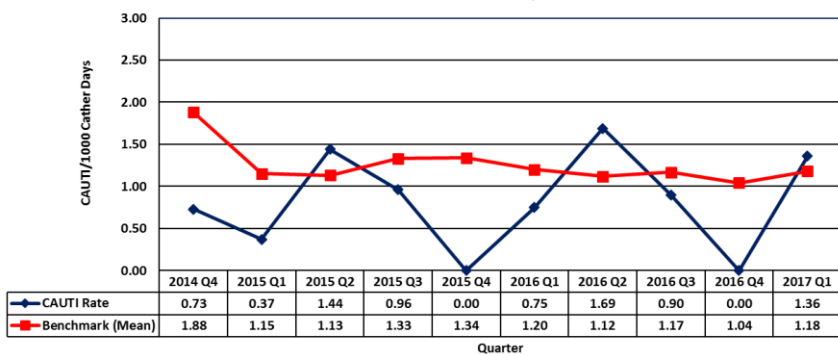
**Injury Falls Rate**  
Porter Adventist Hospital



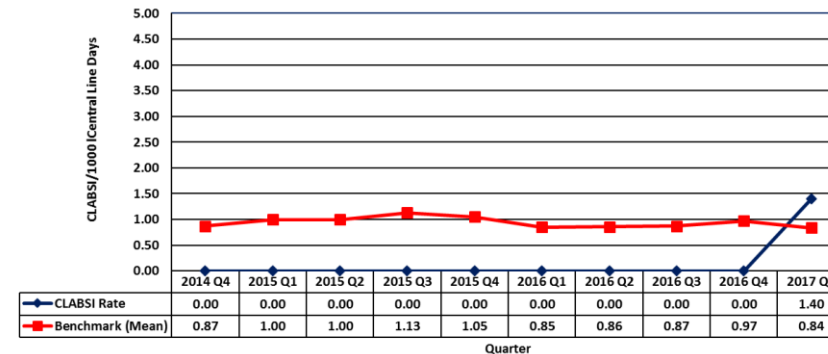
**Percent HAPU Stage II+**  
Porter Adventist Hospital



**CAUTI Rate**  
Porter Adventist Hospital



**CLABSI Rate**  
Porter Adventist Hospital



# Nursing Value

## \$1,606,502 ESTIMATED DIRECT COST AVOIDANCE

### Injury Falls Prevention

FY Year	Actual	Avoided	Avg Cost per	Cost Avoidance	Actual Cost
FY13	37	0	\$5000	\$ --	\$185,000
FY14	25	12	\$5000	\$60,000	\$125,000
FY15	29	8	\$5000	\$40,000	\$245,000
FY16	20	17	\$5000	\$85,000	\$100,000
			<b>Total</b>	<b>\$185,000</b>	<b>\$555,000</b>

### Pressure Injury Prevention

FY Year	Actual	Avoided	Cost per	Cost Avoidance	Actual Cost
FY14	32	0	\$11,246	\$ --	\$359,872
FY15	37	0	\$11,246	\$ --	\$416,102
FY16	20	12	\$11,246	\$134,952	\$224,920
			<b>Total</b>	<b>\$134,952</b>	<b>\$1,000,894</b>

### CAUTI Prevention

FY Year	Actual	Avoided	Cost per	Cost Avoidance	Actual Cost
FY12	27	0	\$11,270	\$ --	\$304,290
FY13	10	17	\$11,270	\$191,590	\$112,700
FY14	14	13	\$11,270	\$146,510	\$157,780
FY15	11	16	\$11,270	\$180,320	\$123,970
FY16	8	19	\$11,270	\$214,130	\$ 90,160
			<b>Total</b>	<b>\$732,550</b>	<b>\$788,900</b>

### CLABSI Prevention

FY Year	Actual	Avoided	Cost per	Cost Avoidance	Actual Cost
FY12	10	0	\$20,000	\$ --	\$200,00
FY13	6	4	\$16,000	\$ 64,000	\$ 96,000
FY14	0	10	\$17,000	\$170,000	\$ --
FY15	0	10	\$16,000	\$160,000	\$ --
FY16	0	10	\$16,000	\$160,000	\$ --
			<b>Total</b>	<b>\$554,000</b>	<b>\$296,000</b>

# Implications for Practice

- **High Reliability Organization**
  - Culture of safety
  - Patient-centered outcomes
  - Professional autonomy
  - Frontline staff accountability and engagement
  - Leadership accountability and engagement



**Value-based care**



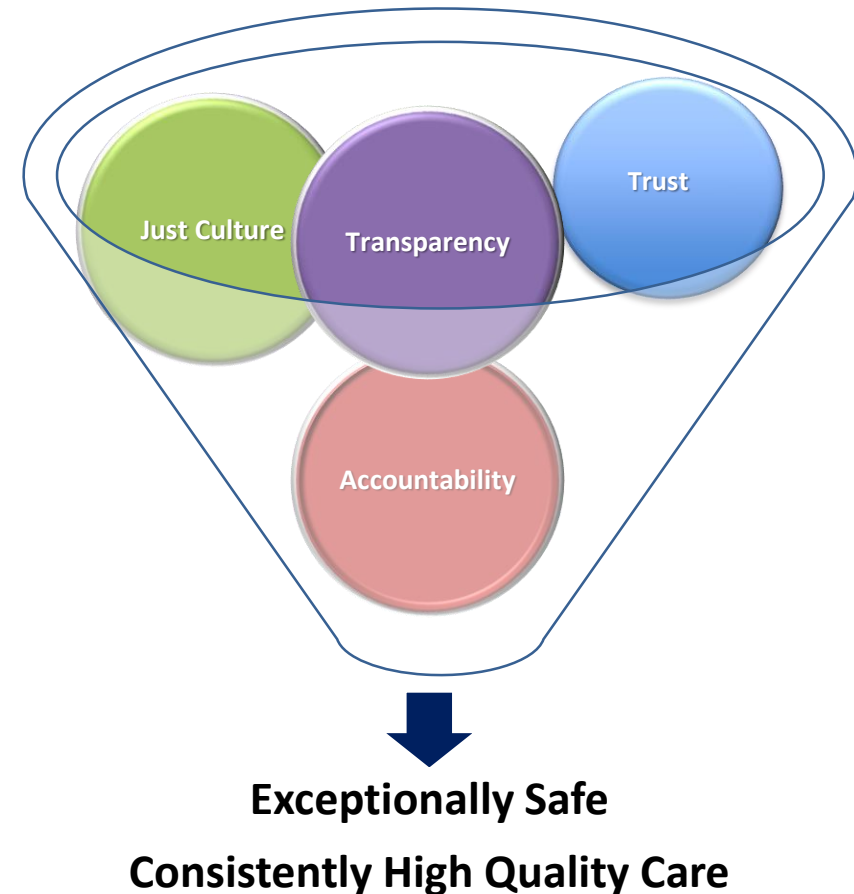
# Implications for Practice

- **Clinical Personnel**
  - Be **proactive**
  - Anticipate **change** in risk
  - Plan to **adapt**
  - **DO NOT wait** for an adverse event to occur to make corrections!
  - **OWN IT!**



# Sustaining a High Reliability Culture

- **Theory, Practice and EBP/Research**
  - **Everyone** accountable for outcomes
  - **Partnership** among patient safety, quality, nurse scientist, clinical staff and leadership



# Culture of Nursing Excellence



# Awards and Honors

100 Greatest Hospitals in America by Becker's Hospital Review

Porter Adventist Hospital was awarded the Leapfrog Award with Hospital Safety Grade of "A"

Society of Cardiovascular Patient Care – Atrial Fibrillation Certification

Society of Cardiovascular Patient Care – Chest Pain Accreditation

Society of Cardiovascular Patient Care – Heart Failure Accreditation

Recipient of the Get With The Guidelines Gold Plus Honor Role Elite for two years in a row (2015-2016)

Recipient of the Healthgrades Distinguished Hospital Award - Clinical Excellence™ for 2 Years in a Row (2015-2016)

One of Healthgrades America's 100 Best Hospitals for Joint Replacement™ in 2016

One of Healthgrades America's 100 Best Hospitals for Prostate Surgeries™ for 3 Years in a Row (2014-2016)

Recipient of the Healthgrades Joint Replacement Excellence Award™ for 2 Years in a Row (2015-2016)





# Awards and Honors

Named Among the Top 5% in the Nation for Joint Replacement in 2016

Five-Star Recipient for Total Knee Replacement and Total Hip Replacement for 2 Years in a Row (2015-2016)

Recipient of the Healthgrades Pulmonary Care Excellence Award™ for 2 Years in a Row (2015-2016)

Recipient of the Healthgrades Prostate Surgery Excellence Award™ for 3 Years in a Row (2014-2016)

NICHE (Nurses Improving Care for Health System Elders) Designation, 2 Years in a Row (2015-2016)

Five-Star Recipient for Colorectal Surgeries in 2016

Five-Star Recipient for Prostate Removal Surgery for 3 Years in a Row (2014-2016)

Named Among the Top 5% in the Nation for Prostate Surgery for 3 Years in a Row (2014-2016)

Recipient of the Healthgrades Critical Care Excellence Award™ for 2 Years in a Row (2015-2016)

Named Among the Top 10% in the Nation for Critical Care for 2 Years in a Row (2015-2016)

Joint Commission Re-certification for Primary Stroke in 2016



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# Questions???

