



# How to measure success!

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# Alternative Titles

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- How do you know you are making a change?
- Is this change an improvement?

# At the end of this session, participants will

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- Describe 2 ways to improve the rigor of measurement
- Describe key differences between process and outcome metrics
- Determine how to assess match between question being asked and data being collected (logical consistency)

# Teaching Methods

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- Case studies – to see gap
- Traditional lecture – to fill in gaps
- Audience participation – to fill in your own gaps

# Case studies

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- #1. PICO: Does the outcome (data) reflect the problem?
- **P** Med-surg patients with infiltrated PIVs at change of shift
  - **I** Implement PIV rounds 1 hour prior to end of shift
  - **C** Pre versus post implementation
  - **O** All RNs will be educated on and participate in PIV rounds; decrease in number of calls to IV team at end of shift, nurse satisfaction

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# Case studies

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#2. PICO: Will the outcome (data) demonstrate a change?

- **P** Patients with cardiac surgeries experiencing stage 2+ PI on coccyx
- **I** Application of foam dressing prior to surgery
- **C** Pre versus post implementation
- **O** Increase in number of cardiac patients with foam dressings on coccyx; number of nursing staff educated on new protocol; decrease in prevalence of PI on cardiology

# Case studies

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## #3. PICO:

- **P** Disproportionate number of orthopedic surgery patients requiring naloxone for respiratory distress
- **I** Decrease in range of narcotics on order sets, nurse education
- **C** Pre versus post implementation
- **O** Patient satisfaction, total amount of naloxone given on each unit
- **T** One month pre and post

# Know the structure of your data

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- Design
- How many groups?
  - Same group over time
  - Different groups
- How many measures?
  - Cross sectional versus longitudinal
- When did intervention happen?
  - Progressive interventions



# Why measurement matters?

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- Data are objective, free from bias
- Well collected data are irrefutable
- Measurement provides progress report (feedback)

# Types of Quality Measures

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- Structure
  - Capacity and systems to provide high quality care
- Process
  - What providers DO to maintain or improve health
  - Bundles, standards for clinical practice
- Outcome
  - Reflect impact of health care service or intervention for patients or system

# Structure Measures

- Resources in place to conduct work
- Role & relationships
- Committees
- Policies
- Resources
- Enrichment time
- Use of EHR
- Staffing; ratio of providers to patients; ratio of leaders to direct reports

# Process Measures

- How the work is being done
- Is the DOING happening as expected?
- YOU DETERMINE (can be quite customized)
- Teaching
- Collaborating / negotiating
- Advocating
- Communicating
- Assessing
- Implementing bundle (adherence)
- Confirming

# Outcome Measures

- Changes in individuals and populations that can be attributed to health care
- The result of the work being done
- **OFTEN DETERMINED**  
(standardized measures)
- Patient Outcomes
  - Avoidance of HAC
  - LOS; cost
- Nurse Outcomes
  - RN satisfaction
  - Worker injuries
- Organizational Outcomes
  - Cost for onboarding
  - Turnover

# Levels of measurement

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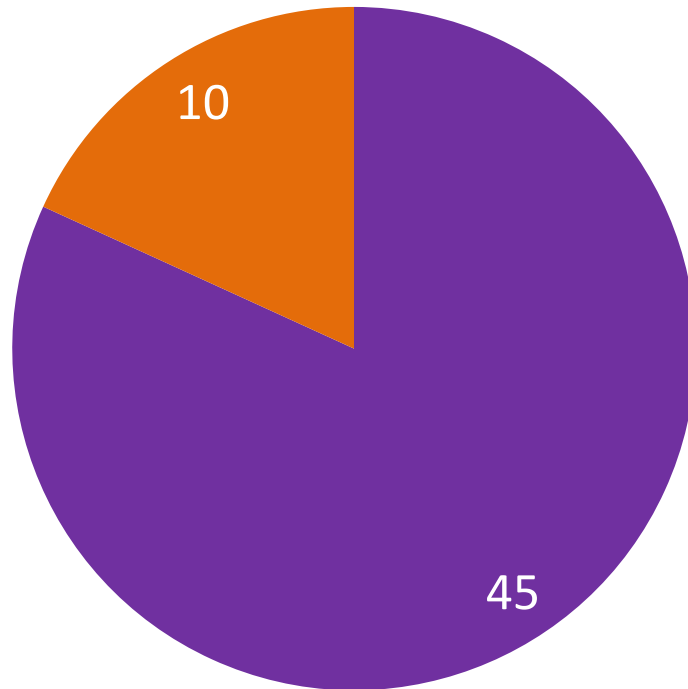
- Nominal / categorical
- Ordinal
- Interval
- Ratio

# Nominal / Categorical

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- Groups or names only
- When you want to describe 100% of group
- WHOLE PIE
  
- Sex
- Nursing unit

# Describe sample



■ Female ■ Male

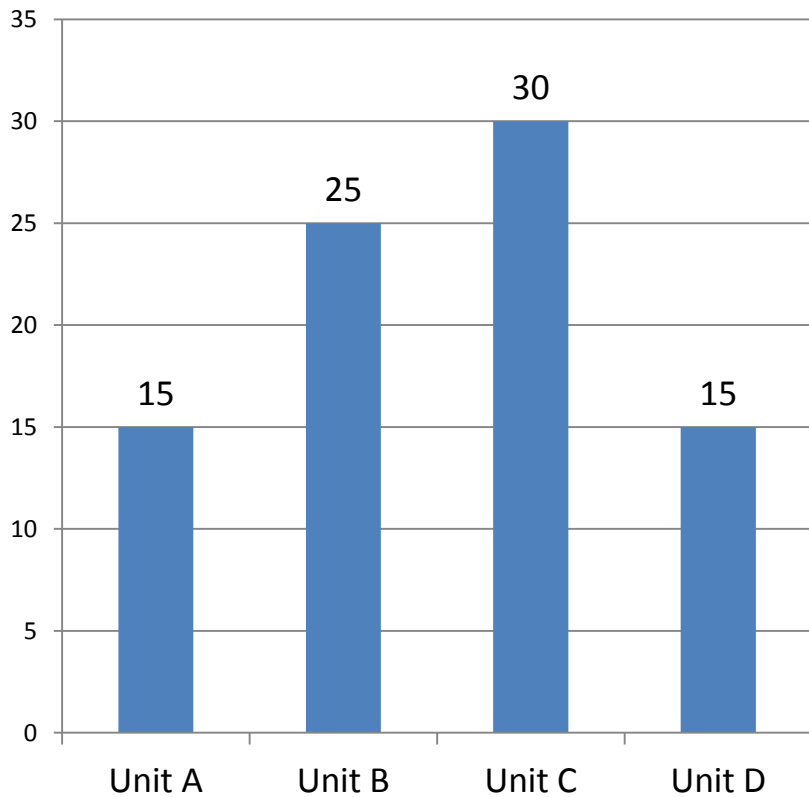
- Do you need a graph to represent 2 data points?



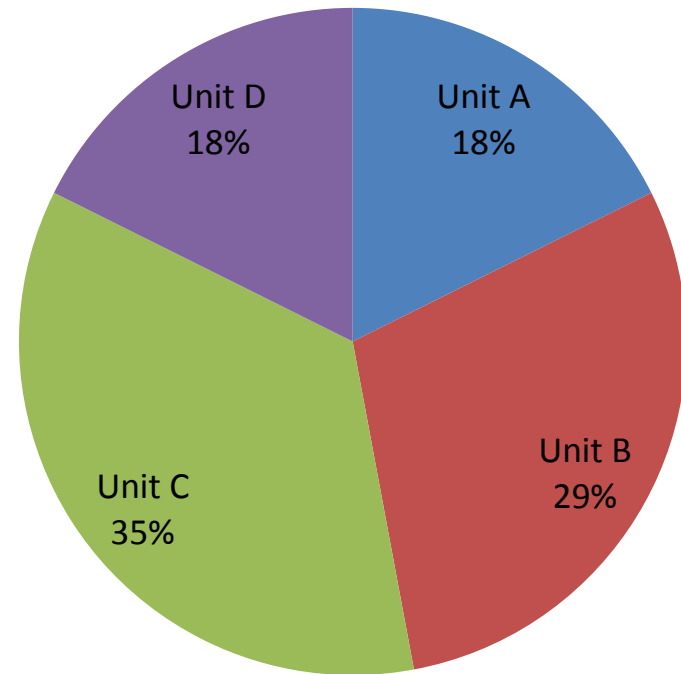
# Who took the survey?

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**COUNT: HOW MANY**



**WHAT PROPORTION**



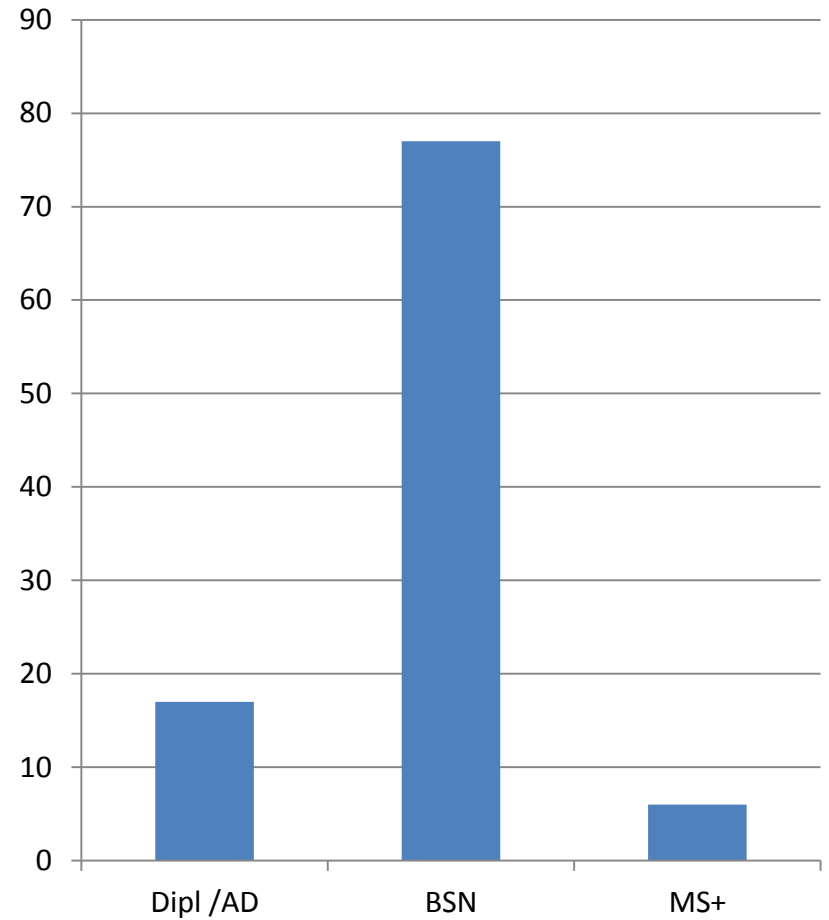
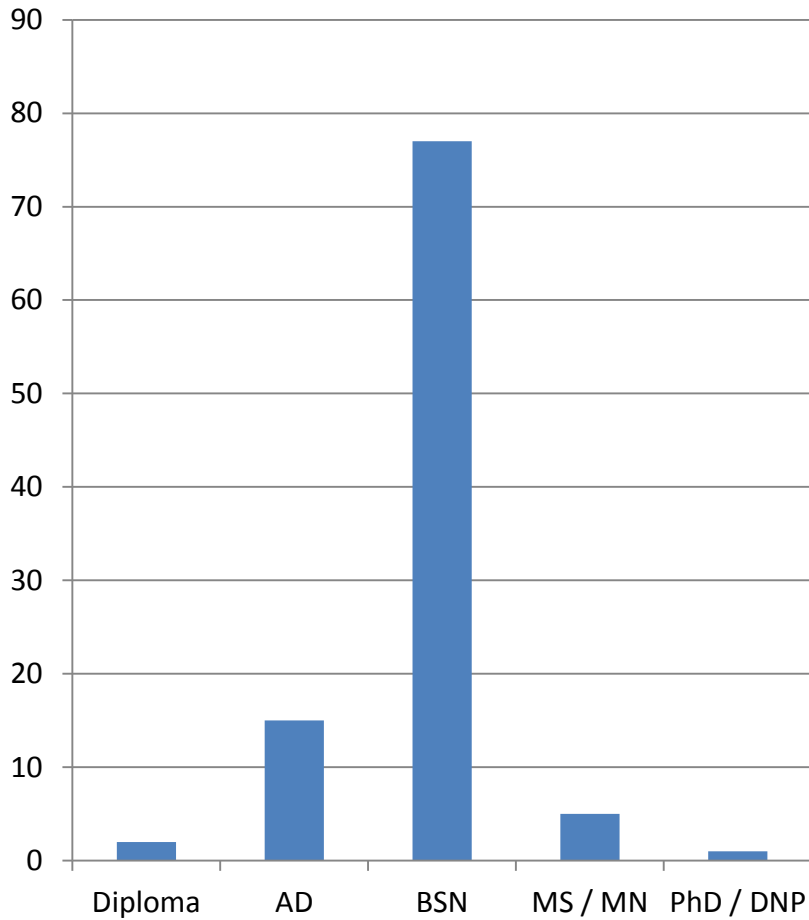
# Ordinal

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- Distinguished
- Ranked
  
- Educational achievement
- Military rank
- Years of experience (in groups)
- Level of care (intensity)

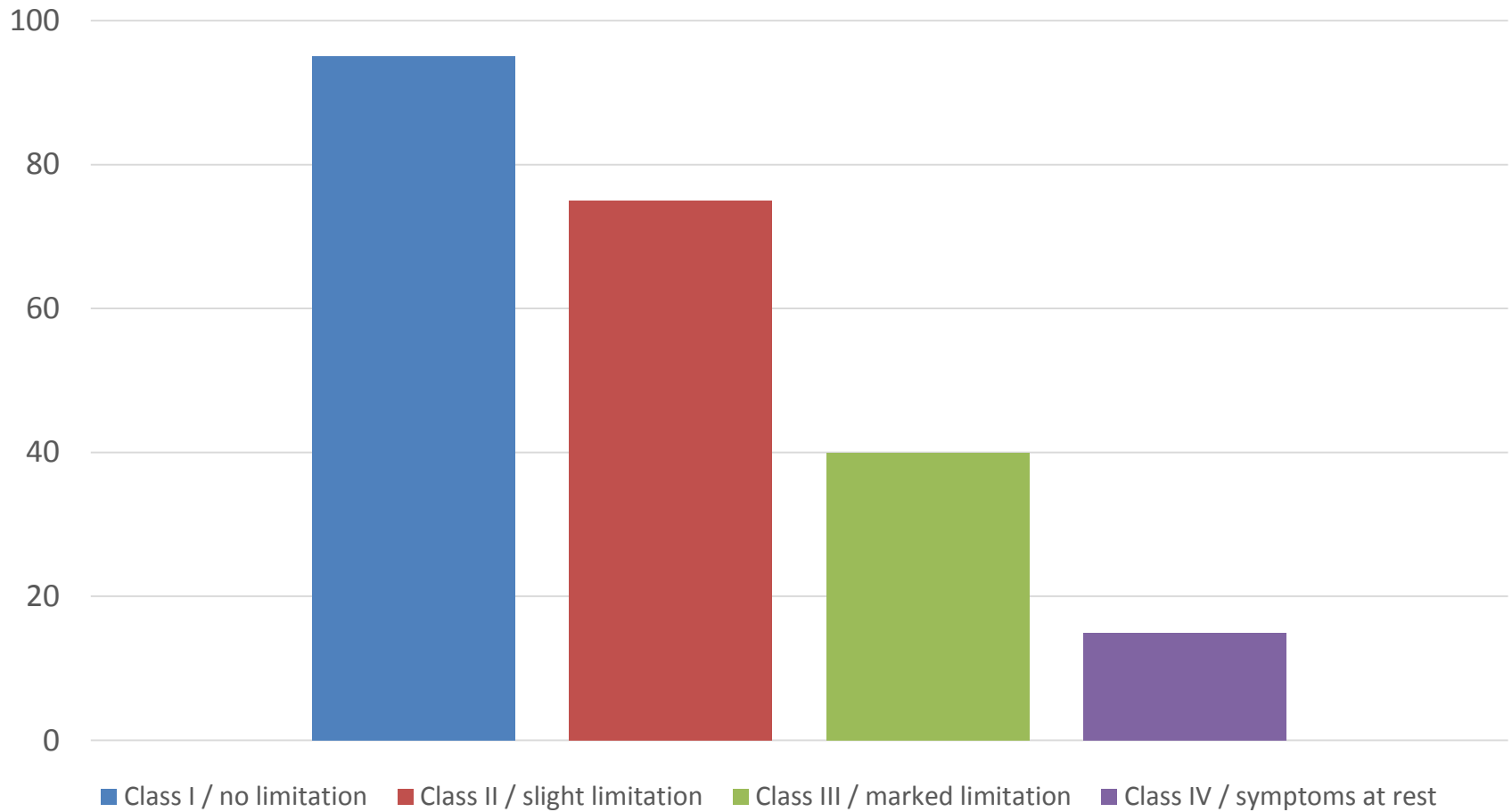
# Educational Achievement

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# 2 Year Survival for NYHA Classification

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# Interval

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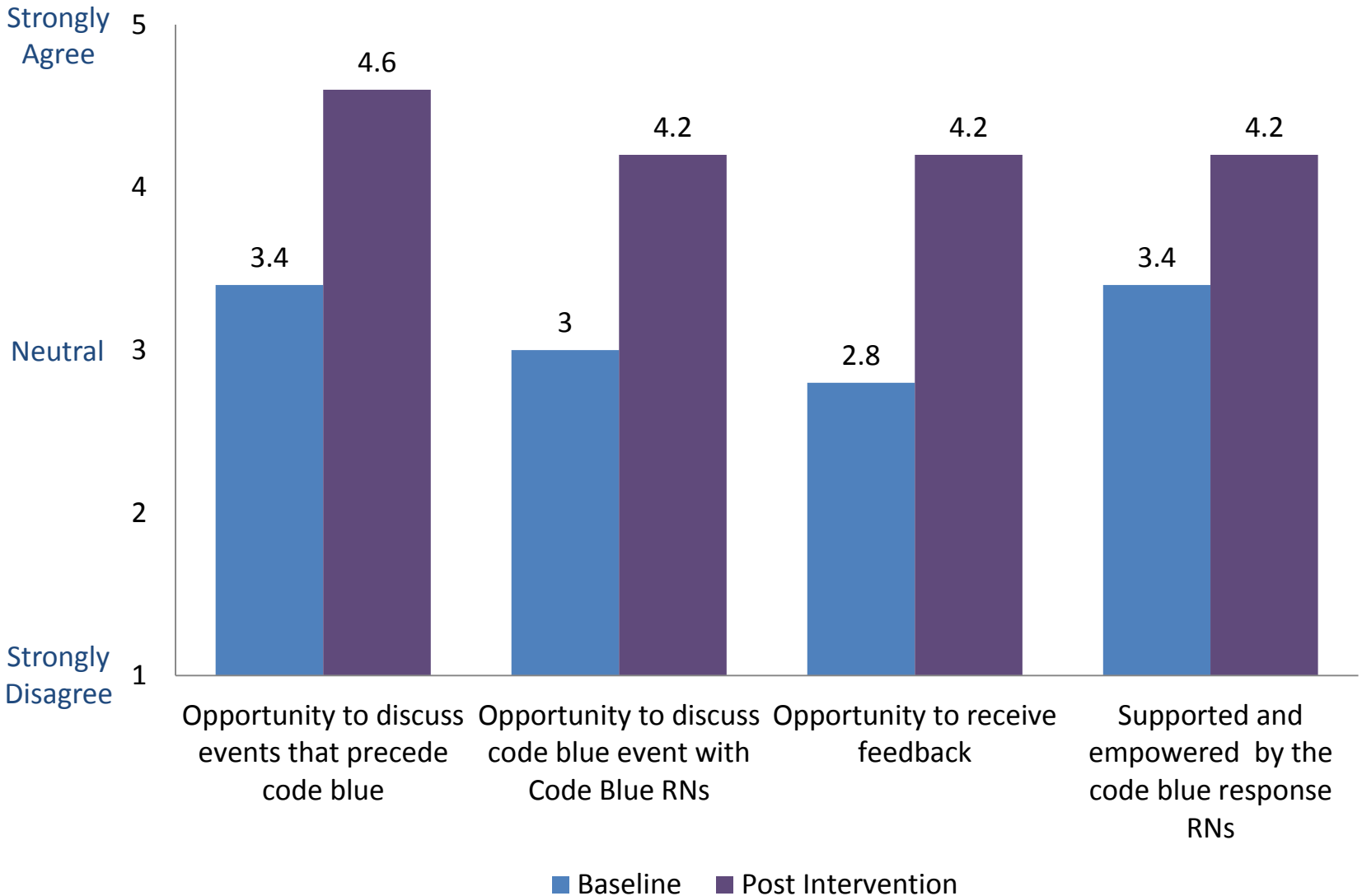
- Distinguished
- Ranked
- Consistent unit of measurement

# Special cases: Likert Scale

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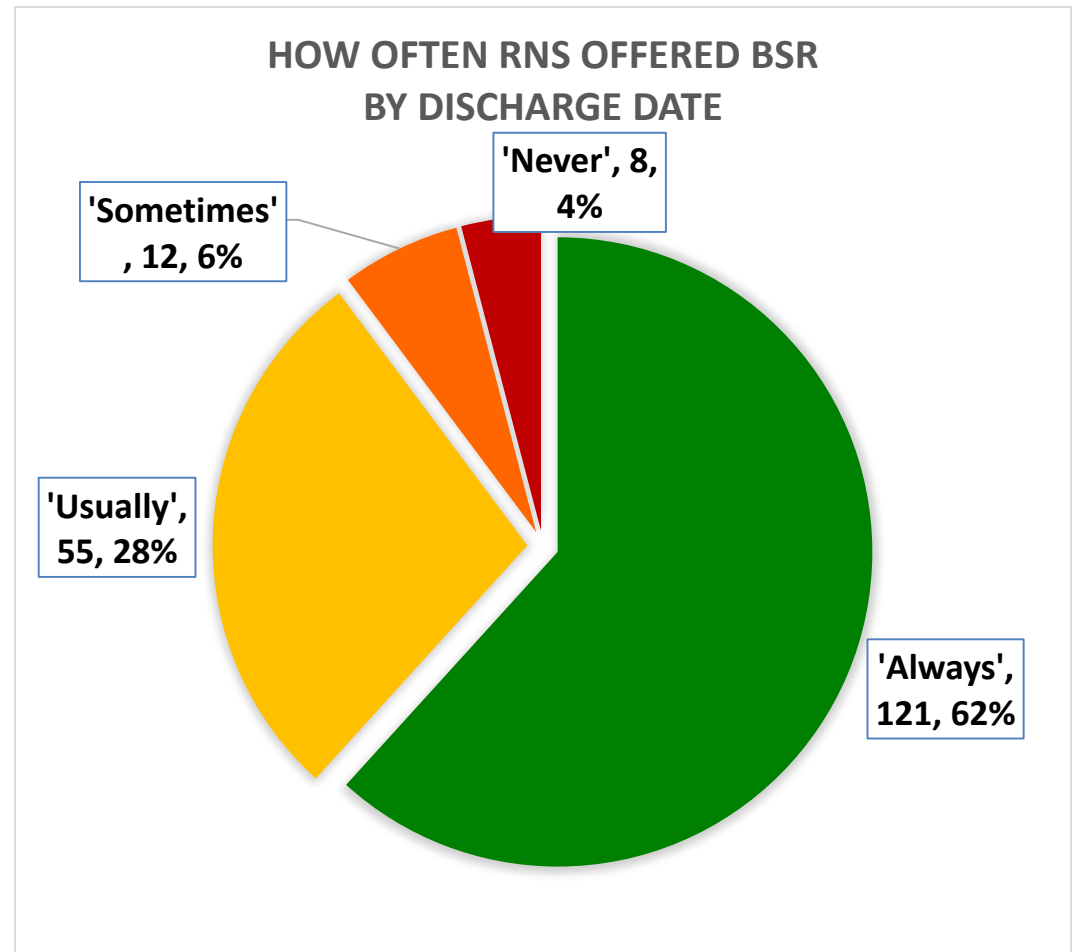
- Strongly agree to strongly disagree
- Do you include a mid-point (neutral) option?
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

# Satisfaction with Code Blue Debrief: Acute Care Responders (Olson & Bowden, 2013)



# What level of data are HCAHPS responses?

- Always
- Usually
- Sometimes
- Never





# Ratio

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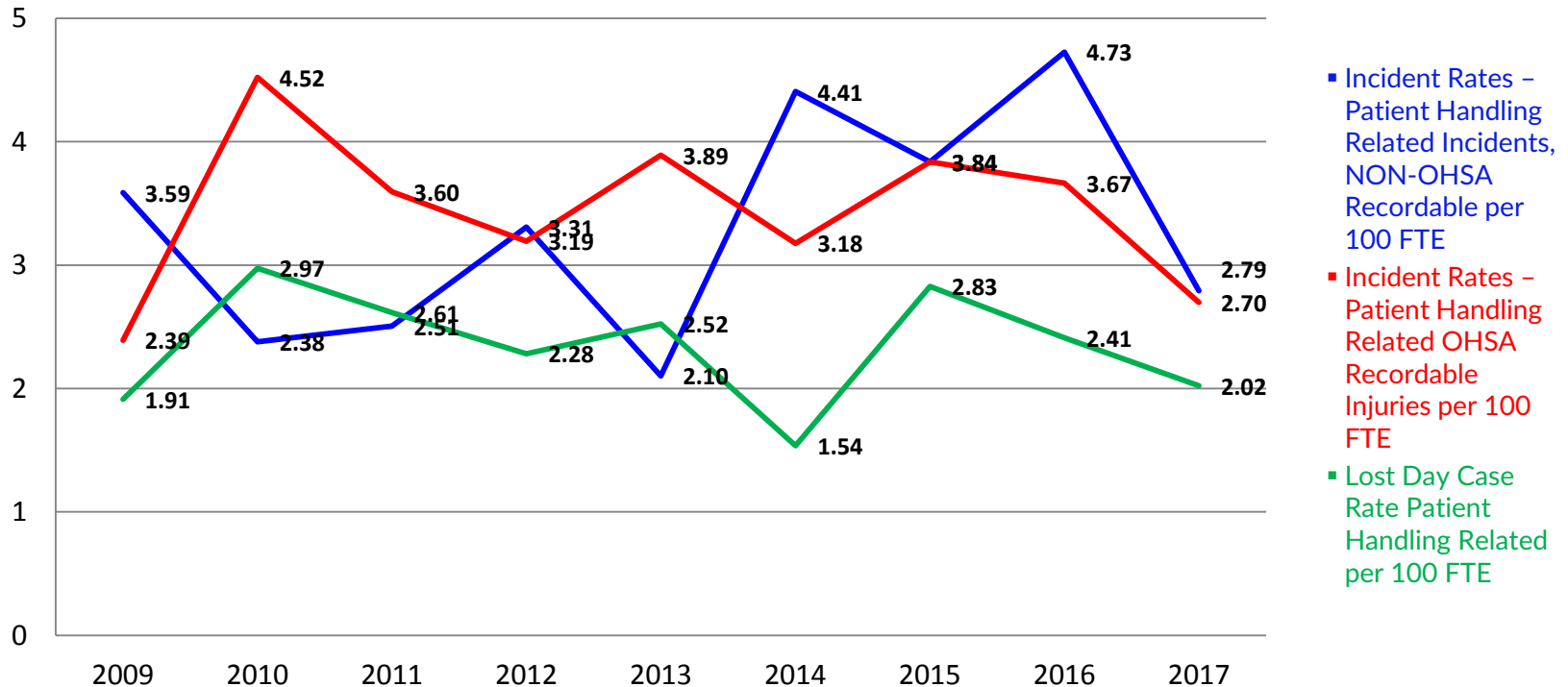
- Distinguished
- Ranked
- Consistent unit of measure
- True zero point

# Severity of Patient Handling Related Events

## SPM Units only: 2009 – 2017 Patient Handling Related Incidents

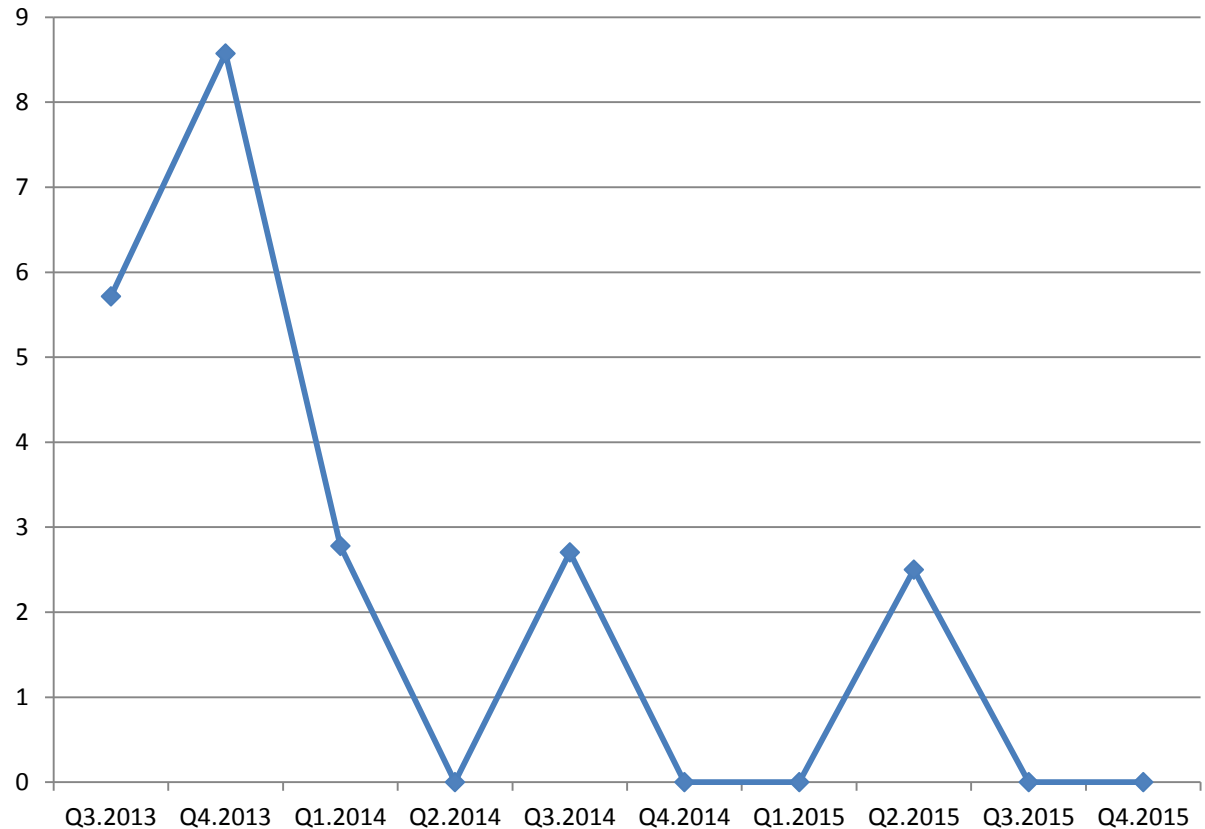
Rate per 100 FTEs of Non OSHA Recordable vs. OSHA Recordable vs. Lost Time Cases

4A, 5A/5C Medicine, 7A MICU, 7C/11K Cardiovascular Intermediate Care, 7N NSICU, 8C TSICU, 9K, 10A, 10D, 10K, 12K CVICU, 13A, 13K, 14A, 14C, 14K, DCH 10N, DCH PICU and Float Pool



# Rate per 1000 Surgical Births

- Count of events does not account for volume
- Need to compute a RATE per specified volume



# Magnet standards for measurement

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- Pre-intervention
  - at least 1 datum point
- Post-intervention data
  - 3 data points to indicate stability
- X axis in the same units-of-time
- Present as ratio, percentile, proportion consistently
- Calendar year equivalent

# Process measures

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- Well defined intervention period
- Progressive nature of nursing interventions
- Need process data to interpret outcome
  
- If improvement, can attribute to process
- If no improvement, need to determine if process was in place as expected

# VTE prevention

## Process

- Assess risk
- Administer anti-thrombotics as scheduled
- Provide SCDs
- Provide teaching about need to keep SCDs in place
- Provide teaching about sensations related to SCD cycling

## Outcome

- VTE rate

# Falls

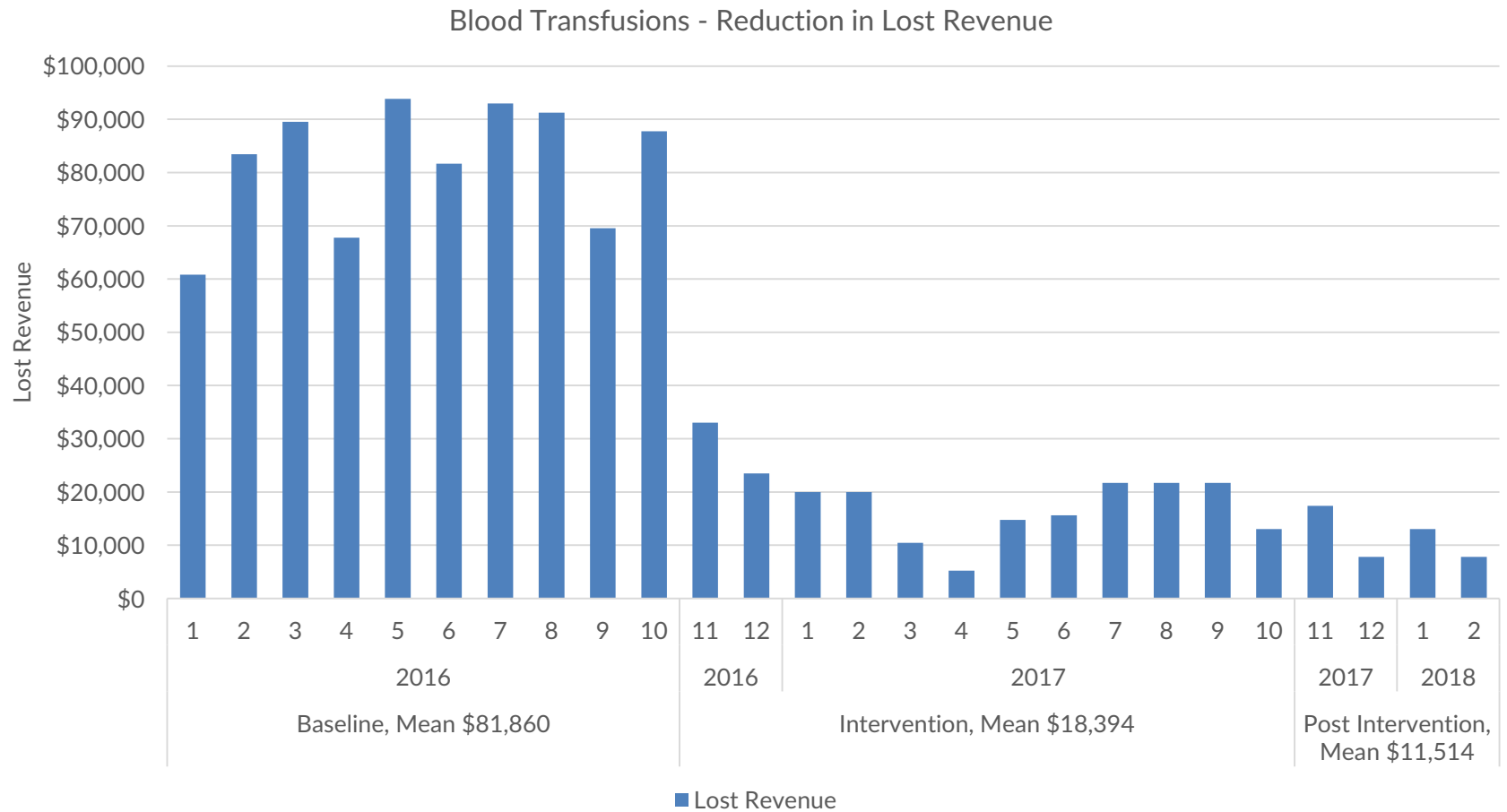
## Process

- Appropriate assessment
- Close monitoring
- Teach clinical staff re:  
cognitive assessment

## Outcome

- Total falls
- Falls with injury

# Lost Charges for Blood Administration





# Case Studies

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- An example:
  - **P**: Number of patients with CLABSI in a critical care unit
  - **I**: CLABSI bundle including insertion and maintenance,
  - **C**: Pre and post intervention, comparison with CCU in one facility with similar unit in another (did not implement bundle); also pre and post intervention for unit implementing bundle.
  - **O**:
    - Process: number and percentage of nurses completing and demonstrating competency in CLABSI bundle; number of CL sites found to be in compliance with bundle;
    - Outcome: Comparison of number of device days and rates of CLABI pre and post intervention; in each site of central line placement
  - **T**: 2 quarters before and after implementation

# Case Studies

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- *Audience participation*

It's not just the data...

