Innovative Ways Nursing Can Impact Sepsis Recognition and Care in Adults and Children

Kristina Brown, MSN, RN, CNS
kristina.brown@deaconess.com

Lois Welden, DNP, RN, CNS
lois.welden@deaconess.com

dh Deaconess HOSPITAL
Evansville, Indiana

MAGNET RECOGNIZED
AMERICAN NURSES CREDENTIALING CENTER

BACKGROUND

- Sepsis is the leading cause of death in the non-ICU setting, with more than 200,000 deaths a year in the United States.

- Nurse-driven early recognition and treatment plans have:
  – increased awareness of updated, evidence-based sepsis guidelines
  – revised existing practices
  – decreased mortality in our organization

PROBLEM

- Screening patients for sepsis during shift assessments was not being performed correctly, and nurses did not always report a positive screening.
  – required in ED and every shift on the units
  – nurses unsure what to do with a positive screen

- Treatment plans were not standardized at the system level.

- Baseline percentage for simple sepsis was 71%.

- Although under national benchmark, mortality for severe sepsis was 17.6%.

METHOD

- Following the 2012 Surviving Sepsis Guidelines, an interprofessional team revised sepsis admission, transfer and standard-of-care order sets.
  – included a defined list of antibiotics specific to different disease processes
  – standard orders for all patients
  – time-frame on lactic acid

- Nurse-developed screening tools were revised to include all patient populations, including pediatrics.
  – prior screening tool began at age 45; new tool is for all ages

- Nurse-developed vital sign tool for pediatric patients to have standardization within the organization.

Pediatric Vital Signs				
AGE	Birth-3 months	3 months-1 years	2 years-10 years	10 years-17 years
HEART RATE Normal Range	80-180	80-150	70-140	60-100
RESPIRATIONS Normal Range	30-60	20-40	20-30	12-20
HYPOTENSION based on 5th percentile (PALS)	<60 (SPB)	<70 (SBP)	<70 + age in years x2 (SBP)	<90 (SBP)

Rectal Temperature Range 96.8-100.4 considered normal
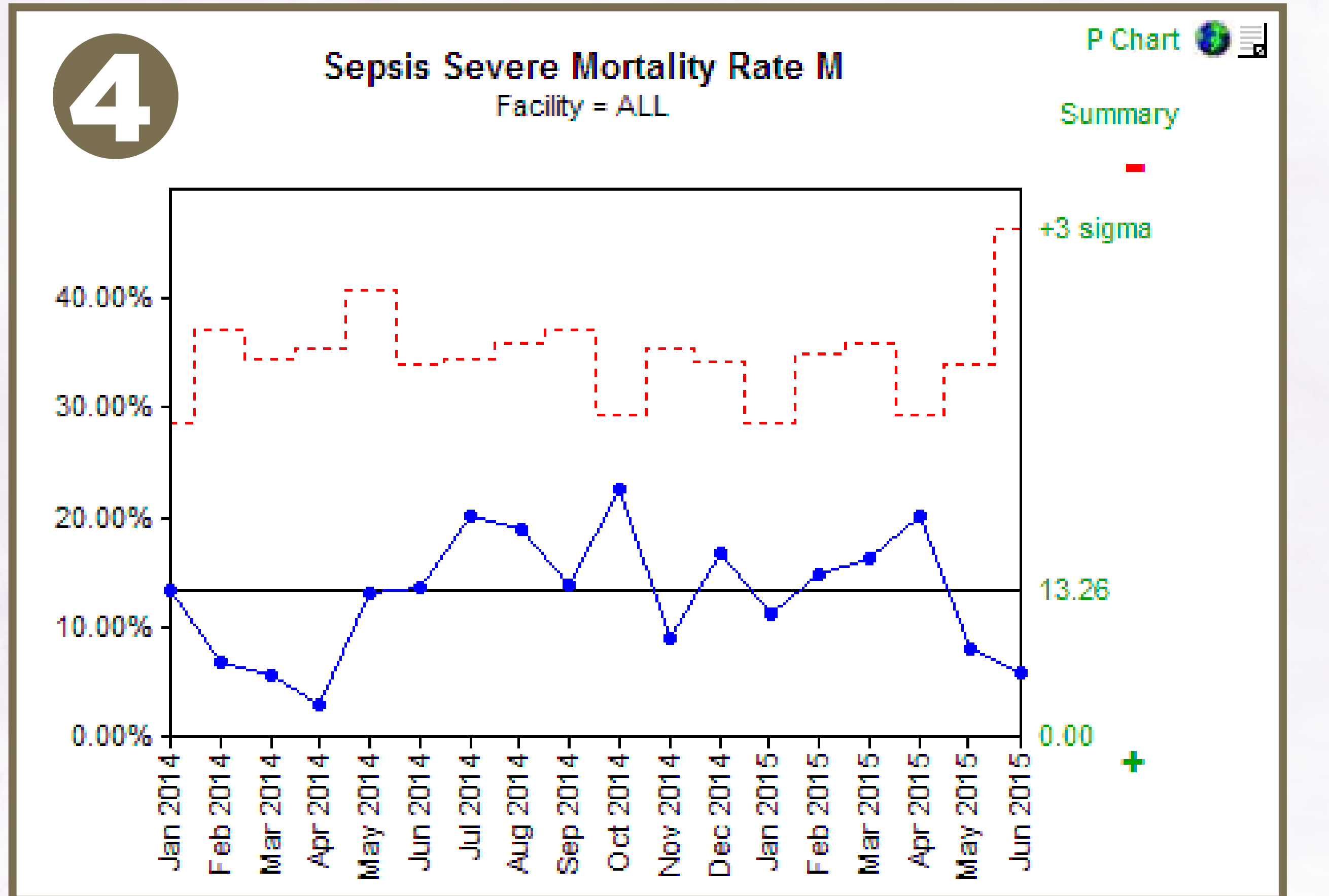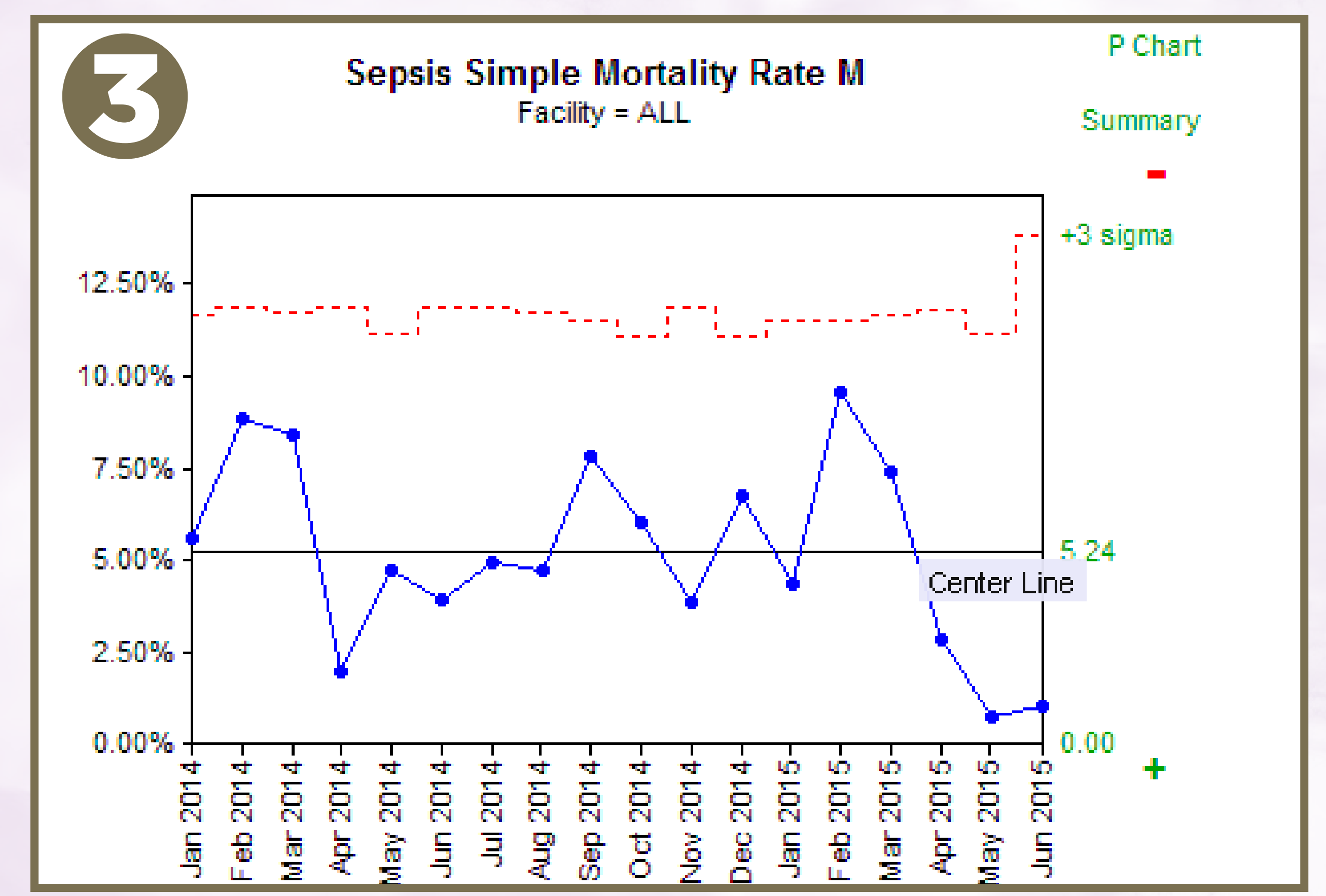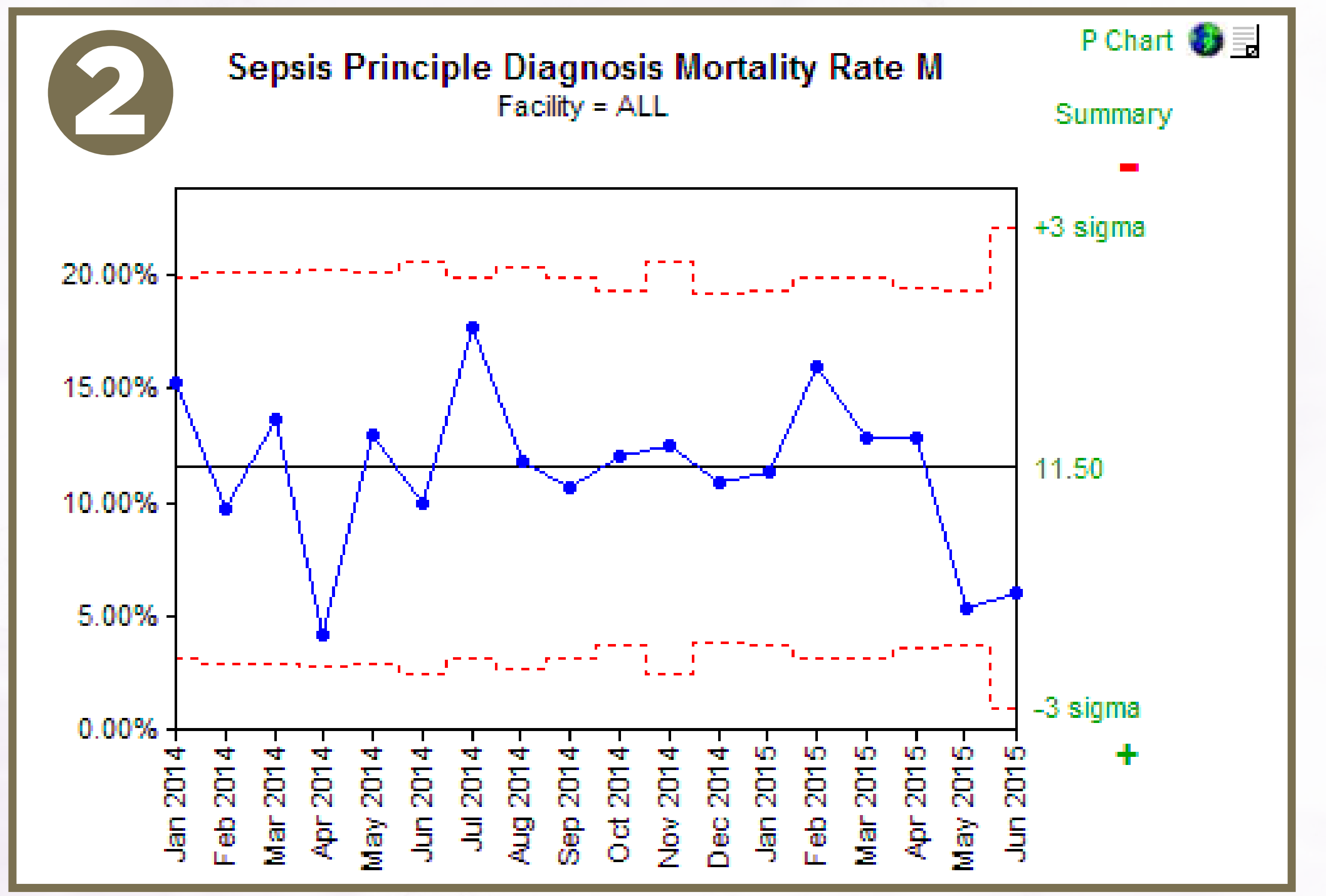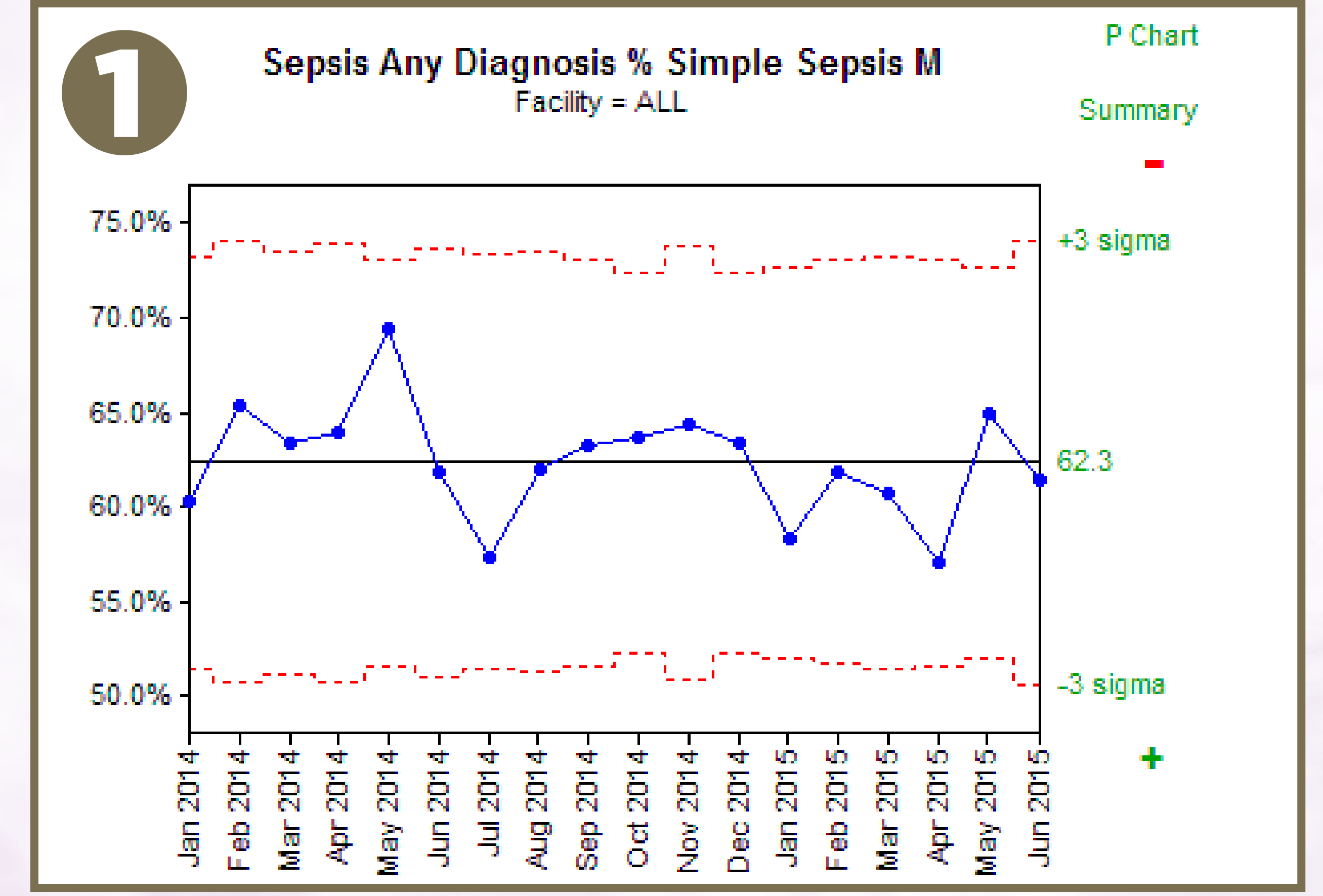Pulse Ox is dependent on child and condition

- Educational plans included:
  – case studies
  – online learning
  – brochures designed for staff, patients and families to be used as a framework for continuity of information.

Adult Sepsis Brochure

Bacteremia, Sepsis and Septic Shock
A guide for patients and families

Pediatric Sepsis Brochure

Bacteremia, Sepsis and Septic Shock
A guide for parents and caregivers of children

- Staff education focused on:
  – early recognition
  – timely physician notification
  – timely lactic acids and blood cultures
  – appropriate antibiotic usage

RESULTS

- ICD-simple sepsis, monitored as inference for early recognition, increased from 71% to 61.4%.

  (See Graph 1)

- Sepsis, principle diagnosis mortality rate decreased from 12.03% to 6.02%.

  (See Graph 2)

- Simple sepsis mortality rate decreased from 5.5% to 1.06%.

  (See Graph 3)

- Severe sepsis mortality rate decreased from 17.6% to 5.88%.

  (See Graph 4)

- Sepsis admission order set usage for the ED and direct admissions have increased.

- Time from recognition to first antibiotic is close to one hour in the ED and two hours for a direct admit.

- Still working on performing screening every shift.

Graph 1: Sepsis Any Diagnosis % Simple Sepsis M

Graph 2: Sepsis Principle Diagnosis Mortality Rate M

Graph 3: Sepsis Simple Mortality Rate M

Graph 4: Sepsis Severe Mortality Rate M

REFERENCES

Dellinger, R.P., Levy, M.M., Rohdes, A., Annane, D., Gerlach, H., Opal, S.M., et al. (2012). Surviving sepsis campaign: International Guidelines for management of severe sepsis and septic shock: 2012. Critical Care Medicine 41(2), 580-637. doi: 10.1097/CCM.0b013e31827e83af http://www.survingingsepsis.org

LaBombardi, V. J. (2014). Sepsis and antibiotic stewardship: the importance of rapid ID, rapid AST and right drug-bug match. MLO: Medical Laboratory Observer, 46(4), 12-13.

Lopez-Bushneil, K., Demaray, W. S., & Jaco, C. (2014). Reducing Sepsis Mortality. MEDSURG Nursing, 23(1), 9-14.

Schell-Chaple, H. & Lee, M. (2014). Reducing sepsis deaths: A systems approach to early detection and management. American Nurse Today 9(7). Online Journal

2008
- Started the sepsis journey
- ED and hospital sepsis teams combined
- Adult sepsis orders developed
- Screening tools developed
- Education to staff

2009
- Go-live for sepsis
- 10% reduction in mortality for organization
- Integrated SIRS into EMR
- Education to staff
- Local radio talk show on work being done
- State conference presentations

2010
- Introduce case studies into nursing competency/skills days
- Continue education at the unit level
- Local conference presentation

2012
- Began preparations for new guidelines
- Reviewed tools and order sets
- Identified unit champions
- National conference presentation

2013
- New sepsis guidelines
- Organized Interprofessional Adult Sepsis Team
  – Defined antibiotic list
  – Developed disease-specific antibiotic group
  – Revised order sets and screening tools
- House wide nursing and physician education
- Local and state conference presentations

2014
- Reiterated education based on chart reviews
  – Developed chart audit tool
  – High sepsis mortality from outlying and skilled nursing facilities
  – Utilization of sepsis orders not fully integrated
- Organized Interprofessional Pediatric Sepsis Team
  – Developed pediatric vital sign grid
  – Pediatric screening tool and order sets
  – Education
- Local conference presentation

2015
- Continued education and tracking performance
- Reported data to Interprofessional quality core teams
- Integration of CMS guidelines
- Community education
  – Collaboration with local skilled nursing facilities
  – Development of screening tool for skilled nursing patients
  – Education pilot of tool in skilled nursing facilities
- Established sepsis coordinator roles
- Magnet conference presentation

2016 and BEYOND
- Integration and education of CMS guidelines
- Continuation of community education
- Prepare for new sepsis guidelines
- Anticipate national publication and presentation