

E. Grosek MD¹, N. Geissinger MD², M. Gilani MD³, M. Wilsmann MSN RN⁴, A. Al-Hilli MD⁵

1. PGY-4 Resident, 2. PGY-1 Resident, 3. PGY-1 Resident, 4. Quality Improvement/Co-chair Sepsis Committee, 5. Hospitalist/Co-chair Sepsis Committee. Marshfield Medical Center, 611 St. Joseph Avenue, Marshfield, WI 54449

PROGRAM OBJECTIVES

1. Identify factors that impede early recognition and treatment of sepsis
2. Improve compliance with the recommended sepsis care bundle
3. Measure outcomes as percentage of sepsis care bundle compliance and associated mortality

PROGRAM DESCRIPTION

- Early recognition and treatment of sepsis is a major local, state, national, and global challenge
- In October 2015, Centers for Medicare & Medicaid Services (CMS) introduced the SEP-1 core measure for adult patients with severe sepsis and septic shock through a sepsis care bundle
- At that time, Marshfield Medical Center (MMC) formed the Sepsis Committee to help streamline what is arguably the most challenging core measure introduced by CMS to date (Table 1)
- MMC is a 500-bed tertiary hospital within the greater Marshfield Clinic Health System (MCHS) located throughout northern central Wisconsin
- As the main campus of MCHS, we have continuously identified new barriers to sepsis care bundle compliance and strive to improve
- Formation of the Sepsis Committee was the foundation of this project

DESCRIPTION OF INNOVATION

- Sepsis Committee is a multidisciplinary team who, through a collaborative effort, functions to optimize care and improve outcomes for patients with severe sepsis and septic shock (Figure 1)
- Involvement of key stakeholders facilitated downstream implementations

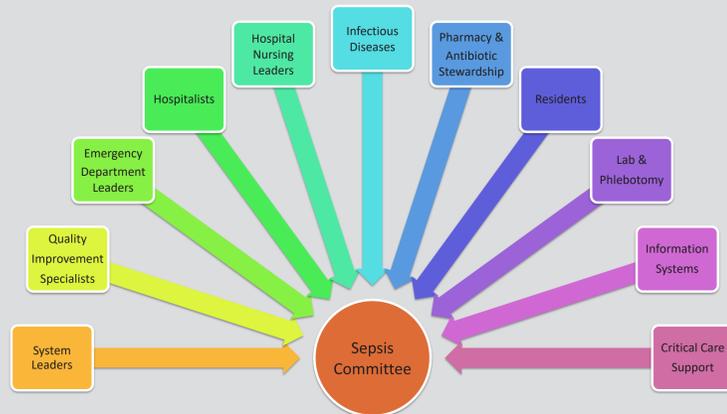


Figure 1. Sepsis Committee key members

BARRIERS

Problem	System Improvement	Individual Improvement
Inappropriate antibiotics given	Ensure appropriate antibiotics in order set	Physician Feedback
3H Lactate not drawn	Ensure order sets have correct order	Follow up with Lab Staff
Inappropriate volume of fluids	Cards available to all providers with correct	Physician Feedback
Sepsis protocol not started	Design sepsis alert system	Educate nurses

Table 1. Sepsis Committee Role in Combating Challenges

QUALITY IMPROVEMENT INITIATIVES

- We obtained all SEP-1 patient records through our Quality Department
- We analyzed each patient case for the following metrics:

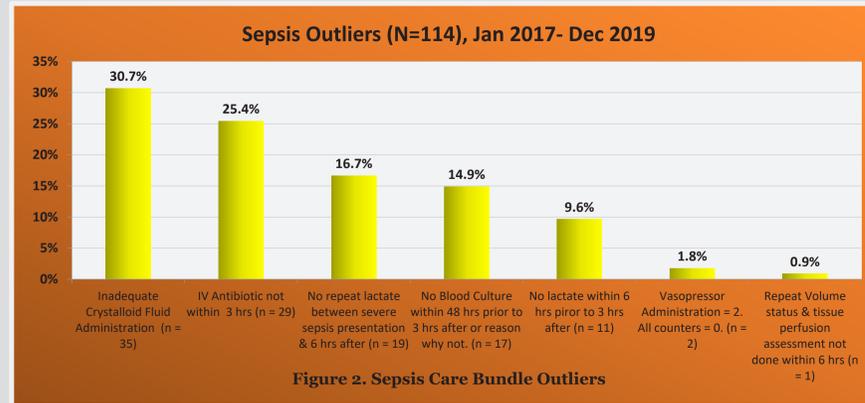


Figure 2. Sepsis Care Bundle Outliers

- We listed and prioritized the most common outliers (Figure 2)

RESULTS

- SEP-1 compliance rates proved to have inversely proportional relationship to overall sepsis-related mortality (Figure 4, Figure 5)

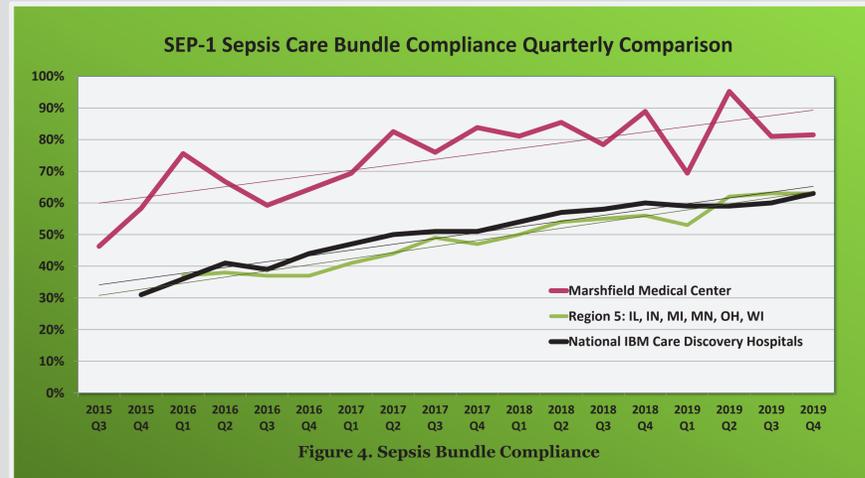


Figure 4. Sepsis Bundle Compliance

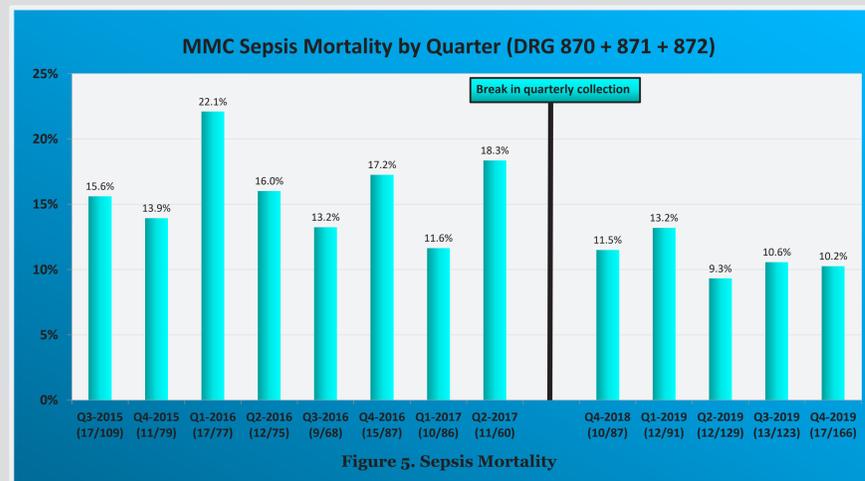


Figure 5. Sepsis Mortality

We then implemented the following:

1. Staff education including:
 - computer based training
 - wall posters (e.g. Figure 3)
 - pocket cards
 - emails
2. Implemented automated Sepsis early warning system
3. Partnering with IT to hardwire EMR order sets to facilitate sepsis identification, ordering the correct labs, imaging and therapies
4. Ensuring accurate records were kept for fluid administration
5. Monthly Sepsis Committee meetings for PDSA cycle reviews
6. Individual department/provider feedback for missed opportunities

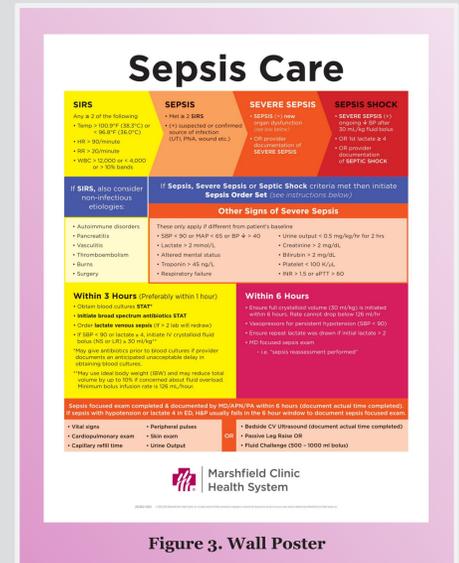


Figure 3. Wall Poster

KEY LESSONS

- Recognizing and treating sepsis early remains a formidable challenge
- Improving our systematic workflow was effective in
 - Improving sepsis care bundle compliance
 - Creating a better practice environment for the healthcare team
- Excellent sepsis care requires a multidisciplinary and system-based approach
- Our findings further validate prior studies, in that higher bundle compliance translates to better patient outcomes
- 100% bundle compliance is achievable but not sustainable and should not be the target
- A target compliance rate of 80% is reasonable and allows for physician autonomy in cases where applying the bundle might expose the patient to harm

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DISCLOSURES & REFERENCES

All authors have no conflicts of interest to declare

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Correspondence: al-hilli.ali@marshfieldclinic.org