SNF Sepsis Rapid Response Team
Community Para-medicine

Susan McAlister DNP, RN, CPHQ
Chad Owen BSN, RN, CMTE, EMT
8 Hospitals
887 Beds
Annual Revenues: $1.6 billion
Inpatient Encounters: 1.9 million
Outpatient Encounters: 2.2 million
Service Area Population: 820,000
Co-workers: 11,000
Medical Staff: > 600 PPG
Objectives

- Background of Sepsis Early Warning Sign pilot
- Need for Rapid Response grant
- Outcomes of SNF Rapid Response
Background to education pilot

- Hospital Sepsis team
  - Present on entry to hospital
  - SNF relationship
- Long term care collaborative, 31 facilities, Readmission analysis
Research Objectives

• Implement a hospital-developed acute standard of care in a LTC facility
• Focused on identification and treatment of sepsis in the LTC facility
• Understand impact of sepsis protocol in LTC facilities
Methods

- Conducted training and education in LTC facilities
- Instructed CNA’s and nurses to watch for and identify sepsis in their patients
- The ordering NP of the physician will determine if the resident has sepsis based on diagnostic results and order the components of the three hours bundle
- The nurses recorded various data about each episode of treatment
Sepsis Identification in Long-Term Care

Hannah Johnson – Hillsdale College, Susan McAlister DNP, RN – Parkview Hospital

**Background**

- Time frame: In November 2014, training was conducted at the eight LTC facilities. In December 2014, the eight LTC facilities began to identify potential sepsis patients and follow the 3-hour bundle protocol if appropriate.

**Objectives**

- Determine if residents who reside in long-term care (LTC) facilities can be treated for sepsis in the facility utilizing the 3-hour sepsis bundle.
- We hypothesized that residents who are identified in the early progression of sepsis and are treated in the LTC facility will not have to be transported to an acute care facility.
- Determine if treatment of sepsis in LTC facilities will:
  - Decrease overall healthcare costs
  - Decrease mortality
  - Decrease acute care hospitalization
  - Decrease Medicare spending

**Results/Discussion**

- Resident Data: Of the 91 residents, only one had a complete record with information for each variable. The remaining 90 residents had incomplete data, which ranged from three variables recorded to all but one variable recorded.
- The number of patients who had the NF/MD respond to the SFAR in less than 30 minutes totaled 72, of which 10 did not, and 10 were blank.
- There were 42 patients who had blood cultured before antibiotics were started, 12 who did not, and 32 were blank.
- Sepsis Identification: Sepsis data (Table 1) reflects all 29 LTC facilities in Fort Wayne, IN not just the 8 pilot facilities thus any statistical significance found may have a much larger impact than initially perceived.
- If we can obtain any statistical significant differences from implementing training and education at only 8 of the LTC facilities, the data would suggest that even larger differences would be seen if there were training and education conducted at all 29 LTC facilities.

**Conclusion**

- The time elements in the resident data demonstrate that the components of the 3-hour bundle were completed in the 3-hour time frame. With the significant results this leads to an additional question in the 3-hour bundle time frame which is if this is seen in Long-Term Care.
- The statistically significant data as revealed in the utilization of the Lactic Acid tests and the reduced RA % indicates that applying components of the 3-hour bundle had positive outcomes in sepsis.
- Early detection appears to contribute to decreased hospital readmissions. The RA % decreased significantly for all severs of sepsis. The reduction in RA % is a positive factor related to treating patients in their place of residence and decreasing healthcare costs.
- The other variables measured, mortality and CMR, decreased during the pilot. The downward trend of variables supports the critical importance of the Fort Wayne healthcare system, as the sepsis pilot has been disseminated to all 29 Fort Wayne LTC facilities.
- The large increase in Lactic Acid testing revealed that the sepsis pilot increased sepsis awareness and early detection. There was evidence that multiple Lactic Acid tests were run on the same patient indicating close monitoring for worsening symptoms, which could have resulted in a decrease in sepsis severity.

**Materials & Methods**

- Study design: This study design is a process/outcome study to determine how to implement an acute care standard in the LTC setting.
- This study is focused on understanding disease progression to identify sepsis in the early stages, applying the acute care 3-hour bundle in a timely manner, and the outcomes of early detection of sepsis.
- Study population / Data Collection: Data was collected by the clinical staff at 8 LTC facilities: Ashton Creek Health and Rehab Center, The Heritage of Fort Wayne, Lutheran Life Villages: Kendallville (LLV), Heritage Park, Miller's Merry Manor, Saint Anne Home, Townhouse Health Center, and Woodview Healthcare Inc.

**Table 1**

<table>
<thead>
<tr>
<th>Facility</th>
<th>RA %</th>
<th>CMR</th>
<th>RA % - Severe Sepsis</th>
</tr>
</thead>
<tbody>
<tr>
<td>FoW 1</td>
<td>0.94</td>
<td>0.23</td>
<td>0.46</td>
</tr>
<tr>
<td>FoW 2</td>
<td>0.95</td>
<td>0.23</td>
<td>0.47</td>
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</table>

**Table 2**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Lactic Acid</th>
<th>RA %</th>
<th>CMR</th>
<th>RA % - Severe Sepsis</th>
</tr>
</thead>
<tbody>
<tr>
<td>FoW 1</td>
<td>0.94</td>
<td>0.23</td>
<td>0.46</td>
<td></td>
</tr>
<tr>
<td>FoW 2</td>
<td>0.95</td>
<td>0.23</td>
<td>0.47</td>
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</tbody>
</table>

**Works Cited**


**Acknowledgements**

- Student Research Fellowship Program Parkview Health
Lessons learned and next steps

- Delay in assessment time
- Delay in lab draws
- Delay in lab results turn around time
- Delay in IV starts and fluids
Grant funding

- October 1, 2015 – September 30, 2017
- $327,706

<table>
<thead>
<tr>
<th>Federal Funds</th>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>Unit A- 24-7 Allen County, 4.2 FTEs @$20.00/hr=41,600</td>
<td>Training/services @ 120 hours</td>
<td>$174,720</td>
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<tr>
<td>Fringe</td>
<td>33% of unit A/ FTEs</td>
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<td>$57,658</td>
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<tr>
<td><strong>Federal Total</strong></td>
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<td></td>
<td><strong>$232,378</strong></td>
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<table>
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<th>State Funds</th>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>Unit B1 FTE -8-hour/5 days/wk</td>
<td>Training/services</td>
<td>$55,328</td>
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<tr>
<td>Equipment</td>
<td>1 vehicle</td>
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<td>$40,000</td>
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<tr>
<td><strong>State Total</strong></td>
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<td></td>
<td><strong>$95,328</strong></td>
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<tr>
<td><strong>Federal/State Total</strong></td>
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<td></td>
<td><strong>$327,706</strong></td>
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Intent

Parkview Community Paramedicine program: Sepsis Reduction

Community Paramedicine (CP) is a community-based care model where paramedics work outside their normal emergency response roles to provide preventive and follow-up care to people in their homes or skilled care facilities. CP paramedics proactively focus on assisting people with regaining optimal well-being outside the hospital setting.

To further enhance our community paramedicine program, Parkview Regional Medical Center has partnered with several local skilled nursing facilities. This partnership will focus on assisting skilled facility providers in the recognition, treatment and prevention of sepsis.
Team

Ashton Creek
HEALTH & REHABILITATION

Kingston Healthcare Company

American Senior Communities

Saint Anne Communities
Faith centered Family focused

Miller's Merry Manor

Lutheran Life Villages
A better way of living.

PARKVIEW
## Stop and Watch

<table>
<thead>
<tr>
<th>STOP</th>
<th>WATCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seems different than usual</td>
<td></td>
</tr>
<tr>
<td>Talks or communicates less</td>
<td></td>
</tr>
<tr>
<td>Overall needs more help</td>
<td></td>
</tr>
<tr>
<td>Pain - new or worsening; Participated less in activities</td>
<td></td>
</tr>
<tr>
<td>Ate less</td>
<td></td>
</tr>
<tr>
<td>No bowel movement in 3 days; or diarrhea</td>
<td></td>
</tr>
<tr>
<td>Drank less</td>
<td></td>
</tr>
<tr>
<td>Weight change</td>
<td></td>
</tr>
<tr>
<td>Agitated or nervous more than usual</td>
<td></td>
</tr>
<tr>
<td>Tired, weak, confused or drowsy</td>
<td></td>
</tr>
<tr>
<td>Change in skin color or condition</td>
<td></td>
</tr>
<tr>
<td>Help with walking, transferring, toileting more than usual</td>
<td></td>
</tr>
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</table>
PARKVIEW SEPSIS RESPONSE TEAM

- Stop and watch screen — positive
  - Any signs and symptoms — contact RN/for vitals
  - 8 oz. of water every hour
  - 8 oz. of water with pill administration
  - Urine dip stick
  - Re-assess in 4 hours
  - Notify MD and/or NP

Re-assess Stop and Watch Screen after 4 hours of above intervention

Stop and Watch Screen Negative
- No further interventions needed

Stop and Watch Remains + and/or SIRS Screen + Q.Sofe +
- Blood pressure < 90 systolic
- Temp > 100.4 or < 96.8
- HR > 90
- RR > 20
- ALOC
- If 2 criteria are met or MD/NI discretion

Activate the Parkview Sepsis Response Team
- Call 260-335-9530

- Look for source of infection
- Consider CXR by MobilioX
- Draw CBC and Blood Culture
- Istat: Chem 8 and Lactate
- Cath for culture and dip at facility
- Notify LP and/or MD
- Recommend N/ placement and NS
- Infusion at 250 ml/hr for 2 hours, then 100 ml/hr until hour follow up by Sepsis Response Team
- Evaluate need for ABX
- Response team to deliver labs for processing to PKV lab

If suspect severe sepsis (lactate > 2 with hypotension) consider 911 transport for eval and tx

4 Hour Follow Up
- Recheck Istat: Chem 8 and Lactate
- Have resulted CBC reassessment of patient
- Repeat SIRS Screen
- Call LP and/or MD with results for additional orders:
  - Continue Fluids?
  - Abx?

This is a clinical process and the clinical condition of a septic patient may trigger early activation of the process to ensure best outcome.
Crimson Data Selection

- May 2016 – March 2017
- 65 older
- Inpatient and Hospice
- Top Decile comparison
- Parkview Regional Medical Center
- Sepsis DRGS 870, 871, 872
Mortality Rate (Observed/Expected)

N = 572
Palliative Care = 141  25%
Prior to rapid response 12 months = 711 cases (85% shift)
PRMC All DRG Mortality

Mortality Observed/Expected Ratio - System-All Physicians

Mortality Rate (with Exclusions)
Details >
2.44%
2.65%
224 / 9195 cases

Data: Top Decile | R-DRG, Mortality, Hospital-type

Result  Results Trend

Jan '14 - Mar '17
Low level of Minor admissions – Care at SNF

Decreased level of Moderate Admissions – Care of SNF

Increase level of Major Admissions – Transport Sickest

Decreased level of Severe Admissions – Care of SNF with hospice
Case Study #1

- 72-F
- 3 Weeks post op, increased Abd. Pain.
- SIRS –
- Presentation, Sats 67% on 3 l/m, increased to 6 l/m with saturations increasing to 88%.
- Assessment found CP, skin was cool, grey.
- 911 called and sent to ED for Eval and Tx
Case Study #2

- 94-F
- Called for ALOC, dyspnea, recent recurrent Pneumonia
- Assessment and protocol initiated.
- Lactate 1.49
- Fluids and Abx started. Family present and talked about process for Sepsis program
4 hour follow up

- Lactate 1.58
- Decreasing LOC and respiratory distress increasing
- Discussing Bi-Pap
- Family remains at bedside
- Hospice consult
8 hour follow up

- No interventions
- Hospice with family
- Conversation with family and Community Paramedic
SNF Return on Investment patient data

- Runs = 366
- Hospital Admits = 52
- 30 day Readmission 14%

Assumption 25% of non admitted patients would have had an admission
  - 78 patients
  - 30 day readmit for Sepsis = $13,692 (CMS 2012) X 78 = $1,067,976
  - Ambulance transport $1,800 X 78 = $140,400

25% would have had an ED visit
  - 78 patients
  - ED @ $1,050 (average between Level 1 and level 4) X 78 = $81,900
  - Ambulance transport $1,800 X 78 = $140,400

Total = $1,430,676
Return on Investment

- Patient Costs: $1,430,676
- Staffing (4.3 FTE’s): 232,373
- Vehicle: 40,000

Total: $1,158,303
Outcomes

• Early detection and treatment
• Resident Quality of Life
  • Decrease transitions in care
    • Safe handoffs
  • Advanced care planning decisions
Secondary Gains

- CMS Value Based Purchasing mortality
- CMS readmission reduction program
- Value based outcomes
  - Admits/1,000
  - ED utilization/1,000
- Total Medicare spend
What happens when the grant is concluded?

- Parkview Health has funding for the remainder of 2017 and 2018
- Developing a business plan for continued funding beyond 2018
Questions