Sepsis Train the Trainer Manual

Module E: Nursing Supervisors and On-Call Physicians

Access the video here: https://www.youtube.com/watch?v=k1mCpc3xwRM

SCRIPT

There has been growing acknowledgement that the recognition of sepsis needs to occur earlier.

- The SIRS criteria worked for many years but were developed for use in an acute clinical setting.
- Specialized tools were developed that could be used in the community and NH.

SCRIPT

Here are some examples of these tools. Many have not yet been studied and evaluated to measure the impact on sepsis mortality.

SLIDE 5—CHART COMPARING CRITERIA USED FOR SEPSIS RECOGNITION

SCRIPT

This chart compares the sensitivity and specificity of SIRS and qSOFA and the Minnesota 100 with temperature measurements.

SLIDE 6—REVIEW OF NURSING HOME SCREENING TOOL FOR USE WITH SEPSIS DIAGNOSIS

SCRIPT

Sloane compared the use of SIRS, qSOFA and the Minnesota Surviving Sepsis 100/100/100 tools.

- They all performed pretty well in the nursing home setting.
- The Minnesota tool was more predictive of sepsis in the 12 hours immediately prior to residents being transferred to an acute care facility.
- Almost no one was using the Glasgow coma scale that was part of qSOFA.
- Almost every was making some kind of a notation of mental status so it was clear that mental status changes were being observed.
- Temperature changes were also similarly predictive of sepsis.
- It's noteworthy that fewer than 1 in 5 residents who were ultimately transferred to acute care had a visit from a NP or physician prior to transfer.

SLIDE 7—SIRS CRITERIA STARFORM BUG

SCRIPT

Nevada took the SIRS criteria and created a graphic using a bug.

- It's a quick checklist that includes vital sign abnormalities.
- Once signs are present. Then there is an easy checklist of symptoms of infections.
- It's something that could be posted or could be revised to be a paper checklist to carry around.
- This could be targeted at specific patients who might be at higher risk for sepsis.

SLIDE 8—SYSTEMIC INFLAMMATORY RESPONSE SYNDROME (SIRS)

SCRIPT

- So as with other tools, the SIRS criteria revolve around changes in vital signs.
- Temperature, Respiratory rate, heart rate along with a laboratory focused on white blood cell count.
- The numbers for this tool are slightly different and not as easy to remember as for the Minnesota tool.

SLIDE 9—SIRS CRITERIA

SCRIPT

The SIRS criteria are moderate in correctly identifying those who have sepsis with a positive screen**.** The SIRS criteria are low in correctly predicting which people do not have disease.

SLIDE 10—SIRS GAVE WAY TO SOFA AND QSOFA IN 2014

SCRIPT

Q sofa stands for quick sequential organ failure assessment.

SLIDE 11—QSOFA

SCRIPT

SOFA and QSofa were developed in 2014 by the Third International Sepsis Consensus Definitions Panel.

- They were developed as tools to be used outside of emergency rooms or ICU settings.
- The 3 criteria generate a score that predicts greater risk for poorer outcomes.

SLIDE 12—Q SOFA continued

SCRIPT

These criteria are

1) score on Glasgow Coma Scale < 15

2) a blood pressure less than 100 and

3) a respirator rate greater than 22 per minute.

If the qSOFA is 2 or more accompanied by a new infection it predicts a greater risk of death.

SLIDE 13—Q SOFA continued

This website (https://qsofa.org/calc.php) can be used to enter data values to make the calculation of a qSOFA score.

SLIDE 14—qSOFA LIMITATIONS

SCRIPT

Read Bullets

SLIDE 15—MINNESOTA HOSPITAL ASSOCIATION

SCRIPT

The Minnesota Hospital Association developed a tool for use in skilled nursing facilities.

SLIDE 16—MINNESOTA HOSPITAL ASSOCIATION SEPSIS SCREENING TOOL

SCRIPT

The first part of the tool governs screening prior to notifying the attending physician or nurse practitioner on call.

- When there is an infection present, and the SIRS criteria are met then the screen is considered positive
- This should trigger a discussion with nursing supervisors, a review of advanced directives and orders and some communication to the resident's designated family member or caregiver.
- Then the provider should be notified using accepted protocols e.g., for notification.

SLIDE 17—MINNESOTA HOSPITAL ASSOCIATION SEPSIS SCREENING TOOL

SCRIPT

Once the provider is notified, you will need to make decisions based on established protocols for whether the resident can be treated on site or should be transferred.

- This decision will depend upon the availability of trained personnel, supplies, equipment and medication.
- It will also depend upon directive that may be in place for a particular resident.

SLIDE 18—MINNESOTA HOSPITAL ASSOCIATION SEPSIS SCREENING TOOL USES

SCRIPT

This tool was created to foster a dialogue between front line medical staff (CNAs, LPNS, RNs) and clinicians.

- It was specifically designed for the skilled nursing home settings and other long term care settings
- It was created in response to rising death rates from sepsis in older adults

SLIDE 19—MINNESOTA HOSPITAL ASSOCIATION SEPSIS SCREENING TOOL USES CONTINUED

SCRIPT

The 100's make the tool really easy to remember and to apply.

- The screen is triggered if the temperature is above 100, if the heart rate is above 100 and if systolic blood pressure is below 100
- An additional criterion is mental status. Has the resident's mental status changed from their baseline?

SLIDE 20—ATLANTIC QUALITY IMPROVEMENT TOOL

SCRIPT

Here is another tool which was developed as part of a quality improvement project. This was funded by the Centers for Medicare and Medicaid Services.

- It uses similar criteria to the other tools.
- Changes in vital signs or mental status coupled with signs of infection suggest a notification to the health care provider.
- Two of the criteria on the left side of the chart must be triggered along with signs of infection.
- The algorithm suggests additional actions that can be taken to confirm sepsis if the vital signs are not triggered.
- These labs include white blood cell count, 2 blood cultures, lactate levels, coagulation, serum creatinine, , platelet count, bilirubin, urinalysis and urine culture, and blood glucose.

- Reference values for these labs are included in the tool.

SLIDE 22—ATLANTIC SCREENING TOOL LIMITATIONS

SCRIPT

The tool is helpful in that it provides clear criteria for early identification of sepsis in nursing home facilities.

- The tool relies on laboratory tests ultimately, to determine if a resident is sepsis.
- This may be difficult to accomplish promptly in some skilled nursing facilities.
- The tool does not explicitly provide recommendations or criteria for transfer to an acute care facility.

SLIDE 21—ATLANTIC SCREENING TOOL USES

SCRIPT

Includes vital sign and laboratory criteria for early identification of sepsis. Includes consideration of patient's wishes.

SLIDE 23—INTERACT TOOL

SCRIPT

This algorithm is part of a pathway diagram created by INTERACT. The INTERACT tools include a variety of guides and algorithms for use in skilled nursing facilities.

SLIDE 24—INTERACT CONTINUED

SCRIPT

All of these tools will assist with early sepsis identification, management in skilled nursing and long-term care settings and decision making about when to transfer.

SLIDE 25—STOP AND WATCH

SCRIPT

The stop and watch tool is intended for personnel with a lower level of training.

- This could be used to assist CNAs or LPNS who are delivering bedside care.
- This is an easy tool for someone to use.
- It could even be used to train family members and people working in ancillary services e.g., physical therapy or food service.

- It does not require labs or even vital sign data to make a determination whether to alert a higher trained person of a change in condition in a resident.

SLIDE 26—SEVERE SEPSIS SCREENING TOOL

The Nevada Severe Sepsis Coalition created a screening tool.

- This was also intended for skilled nursing facilities and long-term care settings.
- It combines signs of infection and the SIRS criteria.
- Vital signs are used to pinpoint organs that might be failing.

SLIDE 27—INFECTION

SCRIPT

If a resident is showing signs of infection or is on antibiotic therapy that is an early warning sign. If vital signs are such that the SIRS criteria are met, then another warning sign exists.

SLIDE 29—ORGAN DYSFUNCTION

SCRIPT

If there are signs of organ dysfunction in a particular system another warning sign exists and it can also guide the search for a specific site for infection if that is not known.

SLIDE 30—LABS

SCRIPT

Recent labs provide an additional indicator of sepsis. Reference values are provided.

SLIDE 31—LABS CONTINUED

If one laboratory value exceeds the reference thresholds that is a sign warning of possible sepsis.

SLIDE 32—MEASURING VITAL SIGNS

Almost all of the screens require measuring vital signs.

It is important that you create systems for staff who measure vital signs to know when to report abnormal values to a superior.

SLIDE 33—TOOL COMPARISON CHART

SCRIPT: This chart can be used to compare some of the common elements of the various tools presented.

SLIDE 34—DETERMINING IF THERE IS AN INFECTION

SCRIPT

A first step with almost all of the tools is to determine if there is an infection. It is also important to determine where the infection is e.g., urinary tract, or pneumonia.

SLIDE 35—DOCUMENTING CHANGES IN SYMPTOMS ASSOCIATED WITH A SYSTEM

SCRIPT: There are tools that most SNFs use to report significant changes in symptoms.

- The SBAR tool is the standard approach.
- SBAR tools have been created in many different forms.
- INTERACT and AHRQ are two places where tools can be obtained.

SLIDE 36—INFORMING CARE MANAGERS ABOUT THE RESULTS OF ASSESSMENT

It is important to create clear guidance for personnel who are caring for residents at the bedside so that they can recognize a symptom or change in mental condition that warrants reporting.

- You don't want abnormal results to merely be recorded and not reported.

- CNAs and LPNs should be encouraged to do so and receive feedback on the disposition of the report so that they know that their actions had consequences

SLIDE 37—TRANSITION SLIDE BEST PRACTICES FOR INITIATION OF QUALITY IMPROVEMENT/PERFORMANCE IMPROVEMENT INITIATIVE IN SEPSIS

SLIDE 38—ROLE OF THE ELECTRONIC HEALTH RECORD

- Leverage your electronic health record to serve as a data collection tool and repository for predicting risk of sepsis for patients.
- Create a system that makes data collection easy and allows for continuous analysis and surveillance.
- Consider implementing an automated electronic screening process which documents processes of care based on existing data (SIRS criteria, or any other warning system being used).
- Design workflows specific to the level of alert and to the type of personnel using them.

SLIDE 39—USE OF THE ELECTRONIC HEALTH RECORD CAN SUPPORT SEPSIS DECISIONMAKING

- A study of the use of electronic health record alerts showed a reduction in the time to treatment.

- These alerts required affirmative action on the part of the recipient to turn off alerts.
- In addition to nursing personnel, the advanced practice nurse and physicians were sent alerts so that they were aware that a sepsis screen had been triggered.

SLIDE 40—NOTIFICATION ALGORITHM FOR ELECTRONIC HEALTH ALERTS

SCRIPT

- Data such as but not limited to vital signs (BP, Temp, HR, RR, and SpO2) lab values, nurses notes, and event reports can be entered into electronic health record and can trigger alerts.

- This data can predict the risk of adverse outcomes.

- This data can also serve to be part of an ongoing surveillance system.

- At a minimum, the electronic health alert must provide decision support using SIRS criteria or other common sepsis screening criteria.

SLIDE 41—DEFINITION OF SEPSIS INTERVENTION

SCRIPT

- These four items are part of the initial intervention for suspected sepsis.
- Fluid Bolus, Administration of Broad-Spectrum Antibiotics, White Blood Cell Count and Collection of a Lactic Acid Level.

SLIDE 42—ELECTRONIC HEALTH ALERT ALGORITHM FROM KERCEWSKI

SCRIPT

- This chart can help to describe the process by which alerts reach skilled nursing and on-site medical personnel.
- Once data is entered into the electronic record that triggers sepsis screening activity alerts are sent.
- The Certified nursing assistant, physician on call and the RN receive alerts.
- The certified nursing assistant has to enter that the information has been communicated before the alert can be deactivated.
- The RN or physician on call must indicate they have assessed the patient for sepsis and/or opened a sepsis kit to deactivate the alert.

SLIDE 43—SIMULATION AS A TOOL FOR CERTIFIED NURSING ASSISTANT TRAINING

SCRIPT

- Training courses for certified nursing assistants for use of sepsis screening tools like STOP AND WATCH have been shown to be effective.
- These trainings focused on early recognition and also on use of SBAR for reporting.

SLIDE 44—HOUSTON MEDICAL CENTER NURSE BASED EARLY RECOGNITION AND RESPONSE PROGRAM

SCRIPT

- Houston Medical Center developed a tool based on SIRS and commonly acquired data like heart rate, respiration, temperature and white blood cell count.
- It used a scale of 0 to 4.
- This was combined with a yes/no indication for mental status.

SLIDE 45—NURSE BASED RECOGNITION AND RESPONSE PROGRAM

SCRIPT

- A score of 2 triggers a review by another, more highly trained responder.
- This program was successful in improving the identification of sepsis.

SLIDE 46—NURSE BASED EARLY RECOGNITION AND RESPONSE

SCRIPT

- This program began with a paper form for collecting data.
- Later it was adapted for use with an electronic health record.
- The system would auto populate when fresh lab values and vitals became available.

SLIDE 47—NURSE BASED EARLY RECOGNITION AND RESPONSE

SCRIPT

- After data was reviewed by a second responder the likelihood of sepsis was predicted.
- The algorithm would predict a likely source of infection.
- Treatment could be initiated without physician review.

SLIDE 48—NURSE BASED EARLY RECOGNITION AND RESPONSE TRAINING

SCRIPT

- This program included mandatory training for nurses (a minimum of 4 hours of training).
- Bedside nurses received simulation training prior to using the tool and annually.

SLIDE 49—NURSE BASED EARLY RECOGNITION AND RESPONSE EFFECTIVENESS

SCRIPT

- An evaluation of this program after implementation showed a reduced mortality rate from sepsis.
- This was statistically significant at $p < .0001$.

SLIDE 50—NURSE BASED EARLY RECOGNITION AND RESPONSE

SCRIPT

- A cost benefit analysis showed significant cost savings to the Medicare program.
- Savings occurred in reduction in sepsis stays and in the length of those stays.

SLIDE 51—NURSE BASED EARLY RECOGNITION AND RESPONSE COSTS

SCRIPT

- While this program was initiated by an acute care hospital, they partnered with local skilled nursing facilities and with long term acute care hospitals.
- The goal of the collaboration was to reduce sepsis related readmissions.
- An additional goal was to decrease costs to CMS for sepsis readmissions.

SLIDE 52—NURSE BASED EARLY RECOGNITION AND RESPONSE PROGRAM PRIMARY DRIVERS

SCRIPT

- This program demonstrated that early recognition in SNFs of sepsis can shorten stays for sepsis at acute care facilities and sometimes even prevent them from happening.

- This can be achieved when there is an institutional commitment to improving the quality of sepsis recognition and care.

SLIDE 53—NURSE BASED EARLY RECOGNITION AND RESPONSE PROGRAM: SECONDARY DRIVERS

- Implementation of a program like this requires a planning and implementation team that includes the Medical Director.
- Monthly reviews of the data in the facility and the response to the data are recommended.
- Process to improve care and outcomes must be developed and institutionalized at the facility.
- Continuous training of staff must take place.

SLIDE 54—NURSING HOME INFECTION PREVENTIONIST TRAINING COURSE

- The nursing home preventionist can be a valuable member of the team that plans for quality improvement in sepsis recognition in the nursing home setting.
- CDC offers training for nursing home infection preventionist that can equip those personnel with tools they can use to design a quality improvement initiative.
- These tools include methods to collect and evaluate data on current performance as well as designing ways to evaluate and improve performance.

Access the course here: https://www.cdc.gov/longtermcare/training.html

SLIDE 55—AHRQ FEW NEW ANTIBIOTICS:

- The Agency for Healthcare Research and Quality has identified a shortage of new antibiotics as an obstacle to prevention of infection.
- There were eight times as many new antibiotics approved for use in the US from 1983-1987 when compared with the four-year period from 2008 to 2012.

SLIDE 56—SURVIVAL FRACTION OF SEPSIS BASED ON TIME OF INITIATION OF ANTIBIOTIC THERAPY

SCRIPT

- The Kumar study demonstrates the importance of initiating antibiotic early in the course of sepsis if we are to reduce mortality rates.
- This must be weighed against concerns about overprescribing antibiotics.
- Some Medical Directors and on call physicians may be reluctant to issue standing orders for broad spectrum antibiotic therapy when a sepsis screen is triggered.
- The data are clear that fewer than 20% of those who receive antibiotic therapy within the first hour die.
- If antibiotic therapy is started 2 hours or later mortality rates rise above 30%, with higher rates for each additional 30-minute delay.