Combating Sepsis
Understanding the Issues and Commitment

Niranjan “Tex” Kissoon, MD, MCCM,FRCP(C),FAAP,FACPE. UBC and BCCH Professor, Global Child Health University of British Columbia, Vice President Medical Affairs, BC Children’s Hospital and Sunny Hill Medical Center, Vancouver, Canada
Combatting Sepsis
Understanding the Issues and Commitment

• Medicine is the only world-wide profession, following everywhere the same methods, actuated by the same ambitions, and pursuing the same ends.

Sir William Osler, Aequanimitas, 1906
Combatting Sepsis

• What is sepsis?
  – A Neglected Global Killer

• Our scorecard
  – A tale of several worlds

• Leadership and commitment

• Improving processes and outcomes

• Advocacy

• Concluding Remarks
Failure of organ perfusion leading to death

- Myocardial depression
- Endothelial Dysfunction (Capillary leak, vasodilatation)
- Anaemia
- Thrombosis
- Bleeding

- Pneumonia
- Diarrheal Diseases
- Malaria
- Bacterial sepsis
- Dengue
- Mixed Infections
- Nosocomial Infections

Failure of organ perfusion leading to death
Infectious Diseases systematically steal human resources

Matthew Bond
The disease, at its early stage, is easy to cure but hard to diagnose. At a later stage, it is easy to diagnose, but impossible to cure. *Machiavelli The Prince*
Combatting Sepsis

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Sepsis guidelines have had modest success in changing behavior.

- India
- France
- Spain
- Germany
- UK
- USA
- Australia

**Compliance – 10 to 45%**
Sepsis Treatment Scorecard

• Delay in knowledge translation
  – No lack of awareness
  – Differing attitudes among staff
  – Failure of teamwork
  – Threat to physician autonomy
  – Costs of new therapy
  – Confusion regarding diagnosis

• Failure of a cohesive team and system

  Brunkhorst F et al  Crit Care Med 2008;36:2719
Low Adherence?

• Is the elephant in the room lack of resources?
• Is it how guidelines are crafted?
• Are we inherently averse to sepsis guidelines?
• Is it how they are deployed?
• It is the context?

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Current State – Sepsis Recognition and Treatment

Patient Condition Worsens → Recognition of deterioration by “someone” → Assistance sought → Medical Intervention → Management by most appropriate resources → Relocation to appropriate care area if required

Severe Sepsis cases showed 0% compliance with recommended treatment
A Year of Action!
BC Children’s and Sunny Hill strategic action plan

Core Action: IMPROVE QUALITY. BE SAFE.
Project: SCOTTIE’S SEPSIS

• What is pediatric sepsis?
• How do you recognize it?
• What is the recommended treatment?

Watch out for more information throughout the month of September as we launch
SCOTTIE’S SEPTIC SEPTEMBER

Sepsis education (“Scottie” case study) and creation of processes for integration of sepsis guidelines will be occurring from September 7th through to October 7th at BCCH and SHHC.

Date posted: August 30th, 2011
Background
Historical evidence of delays in recognition & treatment of sepsis has lead to patient harm. Evidence-based research shows that early recognition and intervention is positively related to patient outcomes. This evidence as outlined in the guideline is referred to as the Sepsis Bundle. Bundle implementation has been elevated through the Strategic Action Plan to PHSA for 11/12 targets.

Current State:

Problem statement:
Critical incidents have occurred in BCCH due to delays in recognition and/or treatment for pediatric sepsis or severe sepsis. A Sepsis Screening Bundle has recently been developed, but has not been operationalized.

Analysis:
• Independent practices for clinicians; lack of standardized process for recognition and treatment.
• Cultural norm is to develop policy to address all patient populations including outliers, therefore consensus building is difficult.
• Previous attempts to deploy a sepsis protocol lacked the required engagement from stakeholders.
• Nurses typically recognize sepsis, but diagnosis and treatment is a physician-dependant process. Inconsistent communication between professions leads to long leadtimes from recognition to treatment.

Primary objective:
To implement a internationally-recognized sepsis screening tool and treatment protocol.

Key measure:
Documented timely screening of appropriate patient population and where required, timeliness of medical intervention.

Countermeasures
(What are we going to do about the problem?)
• Held Kaizen events with inpatient units, ICU and ED.
• Confirmed assumptions regarding implementation barriers
• Performed PDSA cycles on units with Screening Tool.
• Aligned Sepsis Screening with Escalation of Patient Care (EoPC) process
• Aligned Fever and Neutropenia protocol with Sepsis Bundle.
• Proposed changes to SHARED Transfer of Care process to support EoPC and Sepsis Screening.
• Developed Standard Work for Sepsis Screening.

Action Plan

Who: | What: | By When:
---|---|---
T. Northway; QSL, Educators | Update to SHARED Transfer of Care process (Form & education) | January 31, 2012
Christine P, Sandy P | Implementation of Physician Order Sets | October 14th, 2011
QSL & J. Lepard | Communication of Audit plan and results to all units. | October 14th, 2011
T. Northway, D Scott | Kaizen event at Sunny Hill | October 6th, 2011
D. Scott | Distribution of final version of Sepsis Screening Tool to all units | October 14th, 2011
P. DeZorzi | Update and distribute Patient Flow Sheet to reflect Screening | January 31, 2012

Sustainment Plan:

Audit tracking

Who: QSL

What: By When:

imPROVE: improve@phsa.ca Revision Date: August 9, 2011
UPDATE

Responsive Improvement Process

• We made a commitment to a true improvement model, actively seeking data and feedback from end users. Our target end date for this process is May 31st 2012.

https://bcpsqc.ca/clinical-improvement/sepsis/pediatric-sepsis
## UPDATE

### Recognition: Where we are  Screening

<table>
<thead>
<tr>
<th>Area</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergency</strong></td>
<td>• Initial assessment in the department.</td>
</tr>
<tr>
<td></td>
<td>• Continually assessed until they are admitted or discharged</td>
</tr>
<tr>
<td><strong>PICU</strong></td>
<td>• Daily screening on team rounds.</td>
</tr>
<tr>
<td></td>
<td>• Trending of WBC count as part of screening</td>
</tr>
<tr>
<td><strong>In-patient Units</strong></td>
<td>• Initially upon intra hospital transfer or on admission from emergency</td>
</tr>
<tr>
<td></td>
<td>• An elevation in their Escalation of Patient Care score (EoPC) score</td>
</tr>
</tbody>
</table>
UPDATE

Auditing:

• The Quality Safety Leaders are actively auditing screening in conjunction with EoPC auditing.
  – They are looking to see if the EoPC score was recorded (yes/no)
  – If EoPC score was elevated from previous, was sepsis screening performed (yes/no)
  – Once orders are implemented will audit to see if they used appropriately (all, some, none, timing)
UPDATE

• **Respond**
  – Implementation of Order Set and Algorithms
    • The physician order set has been approved and is available for use.
    • The 0 - 1 hour and 1 - 6 hour algorithm is approved and is available. It can be laminated as a poster to be posted in your units.

• **Logistics**
  – Re-order of forms & posters from Print Shop
    • Screening forms: Form # BCCH 293.
    • Physician order set: Form # BCCH 200.
    • EoPC process and “Stop Sepsis” posters
  – The screening form is in the graphic section of the chart.
UPDATE

• Respond
  – Antibiotics
  • Issue:
    – Challenge to meeting sepsis guideline target of antibiotics in within 1 hour.
  • Contributing factor:
    – Inpatient areas do not stock antibiotics
    – Accessing and preparing in time is hampered
  • Potential solution:
    – Working with pharmacy to antibiotics for empiric coverage.
UPDATE

Refer

– No changes to this process, we are continuing to follow the escalation of care process to access supports for the deteriorating patient.
UPDATE

How to Share the Word:

• **Posters** (awareness poster and 0-1 hour algorithm).

• **Electronic Posting of the documents**
  – Child Health BC will host guideline and supporting decision making tools.

• **Education about sepsis and guideline:**
  – All nursing staff participate in the 3 part “edu-quik” education series
  – Validation of knowledge at education days
Start here to look for S&S of infection

If you have ticked any boxes in A move to B to look for SIRS

If 2 SIRS present refer to order set, treat infection but continue to assess for organ dysfunction

If acute organ dysfunction present begin resuscitation
Patient assessment tool: ties in very well with screening tool criteria

If change in score then there is a prompt to screen for sepsis

Nursing monitoring requirements for deteriorating patient

Description of supports available and how to access (e.g., nurse leader, RT and critical care supports)

Expectations of supports in responding to request for assistance
Description of supports available and how to access (e.g., physician and 1st responder) during daytime and after hours
**SBAR**

- System of direct communication (nurses taught to describe and not diagnose)

**Why do we use it?**
Address communication breakdowns in reference to patient safety

- **Situation**
- **Background**
- **Assessment**
- **Recommendation**

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**SBAR – Report about a Critical Situation**

Every SBAR report is different. Focus on the problem, be concise. Not everything in the outline below needs to be reported – just what is needed for the situation:

**NOTE:** Before calling the physician ASSESS the patient, REVIEW the chart for appropriate physician to call and READ the most recent physician and nursing notes.

**Situation – What is the situation you are calling about?**

This is the patient that __________ (current patient identifier e.g. new admission, recent procedure or event).
Are you familiar with this patient? (Confirm correct ID).
I am concerned about the patient because __________ (concrete description, use key phrases to emphasize concern).

**Background – Pertinent Information & Relevant History**

Relevant recent care/Treatment:
- Admit date
- The EOPC score is _______. The previous score was _______.
- Recent lab results have available date, time, previous results for comparison
- Oxygen _______% L/min or _______ % for _______ (length of time)
- Allergies _______
- Code Status _______

**Assessment – What do you think the problem is?**

This is what I think the problem is: _______. OR
The patient seems to be unstable and may deteriorate. OR
The patient is deteriorating and if we don’t do something they may arrest.

**Recommendation – What do you want to happen?**

I suggest (or request) that you _________. (be specific and request time frame)
- Come and see the patient now
- Ask a consultant to come and see the patient now
- Order diagnostic tests or labs ex: CXR, ABG, ECG, CBC

Before you end the call, confirm plan of care by asking:
1. When are you going to be here to see the patient?
2. What parameters do you want me to continue monitoring?
3. What change should I be expecting that would indicate an improvement?
4. If you are not coming in, when should I call you again? Or If patient does not improve, when would you like to be called?
Begin to use the orders when SIRS present

RN with skills and competencies can start IV, obtain blood work and begin infusing saline without an order
Resuscitation Algorithm

To assess how we are doing we will be auditing:
- Time to IV access
- Time to fluids,
- Time to cultures
- Time to antibiotics
- **Time begins when screening complete**

Algorithm lists actions to be completed by a certain time

Found on back of order set
Sepsis Guideline

• How can you be involved?
  – Edu-quicks for nursing
  – Mock codes for clinicians
  – Participate in a RPIW event
  – Review document and tools, provide feedback
  – Spread the word to your colleagues
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• Concluding Remarks
Sepsis

Sepsis is a condition where the body’s response to infection damages its tissues and organs. If sepsis isn’t recognized early and treated promptly it can become severe and lead to multi-organ system failure or – for more than 6 million people in the developed world each year – death.¹

We have a choice.

30,000 Canadians are hospitalized each year because of sepsis. More than 30% of these patients will die.² Does that number alarm you? It should. It’s one of our country’s highest in-hospital mortality rates.

Sepsis can be caught early, treated effectively and prevented from turning severe. The severity and poor outcomes that can result from not doing so are unacceptable.

You can make a difference by joining the BC Sepsis Network. We’re asking you to commit to treating your patients following the BC Sepsis Guidelines:

- Know the warning signs for sepsis. Identify patients exhibiting signs of sepsis early, and triage them appropriately.
- Measure the lactate of patients with sepsis within 30 minutes of presentation to triage, have the results back within 30 minutes, and test again within 2-4 hours if the initial result is elevated.

¹ Source: World Health Organization
² Source: Canadian Institute for Health Information
Support for clinicians in emergency departments to share resources, improve consistency of care, spread innovation and improvement ideas, and collaborate on change.

VISION
Stop unnecessary sepsis deaths. ‘Best Care, No Matter Where’

GOAL
We will reduce sepsis mortality rates throughout BC by identifying sepsis patients early, using best clinical practices, and achieving seamless transitions of care.
Measurements

Quality Assurance

• Emergency departments with a sepsis identification tool/pre-printed order set for sepsis identification and treatment in use.

• Percent of sepsis patients admitted to ICU from emergency departments with antibiotic received by time goal.
Measurements

Quality Improvement

• Twenty-eight day mortality rate for sepsis in the ED, stratified by level of risk.

• Percentage of patients with
  – antibiotics received by the time goal.
  – blood cultures taken before IV antibiotics are initiated.
  – 2nd litre of crystalloid initiated by time goal.
  – lactate measurements by time goal.
We can save lives with Emergency Department sepsis protocols.

**Early** identification. **Early** antibiotics. **Early** IV fluids.

Our usual therapies, delivered quickly. It's that simple.

**Learn more. Save lives.**

Join the BC Sepsis Network today.
www.BCSepsis.ca
For severe sepsis and septic shock
EVERY 5 SEPSIS PROTOCOLS SAVES 1 LIFE

IN 150 DAYS LET'S SAVE
150 LIVES

ENTER YOUR SEPSIS CASES & TRACK YOUR SUCCESS AT BCSEPSIS.CA/150LIVES

WSD - 2013
WE SAVED OVER 150 LIVES IN 150 DAYS

WE DID IT TOGETHER!

1000+ patients screened for severe sepsis & septic shock
750+ patients treated with sepsis protocol

32 BC Emergency Departments participated

BCSepsis.ca/150Lives

THE BEST CARE, NO MATTER WHERE.
Used the principles of gamification to engage with and motivate clinicians to improve sepsis care.
WSD – 2014

• Launch of Inpatient Pilot
• Lanyards and lanyard tags
  – Maintain momentum
  – Transfer knowledge
• Virtual learning session
  – Dr. Niranjan (Tex) Kissoon
  – Benefits, pitfalls and possible solutions of guideline implementation
Speed is Life – interactive photo campaign to be launched September 13, 2015. Highlighting the importance of antibiotic delivery within time goal.

Promotion video from WSD website:

Do you have 97 seconds for sepsis?

https://www.youtube.com/watch?v=GNz3S3tvYLA
Sepsis Awareness

Cases per 100,000 / USA¹

- 223 Stroke
- 377 Sepsis
- 208 Myocardial infarction
- 22,8 HIV
- 331,8 Cancer

Have you ever heard the term “Sepsis”? NO / YES

- 50% Germany
- 60% Canada
- 71% Brazil


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Join The Global Sepsis Alliance
www.world-sepsis-day.org

- The campaign .... is much like a political campaign: it needed icons, mascots, images, slogans- the strategies of advertising as much as the tools of science. For any illness to rise to political prominence, it needed marketing..... A disease needed to be transformed politically before it could be transformed scientifically.

Sidney Farber circa 1950
Will More Money Bring the Elusive Cure?; Cancer:

In 1949, a spellbinding cancer researcher sat before a committee of Congress and said: Give us the money and in 10 years we'll give you a penicillin for cancer. In the flush of success of the atom bomb, radar and the re-discovery and development of penicillin itself, all in war-time crash programs, the prediction and the promise ignited the committee's optimism.
Polio – The Power of Advocacy

I was also fascinated by the media savvy and marketing sophistication of the March of Dimes, which used famous Hollywood actors to get out its message and was the first philanthropic organization to introduce the idea that millions of Americans – not just the wealthy – could play an important role in helping solve big social problems.

Bill Gates on June 22, 2011
National Foundation for Infantile Paralysis (1938)

• Gold standard for private charities
• Turn polio into America’s #1 health threat
  – Uniquely dangerous but imminently beatable
• Top national priority and America’s greatest medical crusade

• Result – in 1954, 8 charities raised > $US140 million
  – about half for polio with 100,000 cases
  – AHA $11.3 and National Assoc of Mental Health $1.5 million for 10 million cases each)
The power of politics, religion and celebrity
At its heart, the anti-vaccination movement isn’t a product of ignorance, selfishness, or even fear, although....

“Neo-liberal mothering” – Jennifer Reich, sociologist, Univ of Colorado.
Global Sepsis Alliance

World Sepsis Day: 13 September 2014

A truly global effort to fight sepsis.
On every continent. In over 40 countries.
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Emerging Viral Diseases


- Newly emerging
  - Commercial air travel
  - Global trade
  - Urbanization
  - Unchecked population growth
  - Climate change

- Reemerging

- Advances facilitating control
  - Genome sequencing to identify emerging viruses
  - Global communication networks
  - Rapid diagnostics
  - New approaches to vaccine and therapeutic design
Concluding Remarks

• A Neglected Killer
• Solutions in Implementation
  – Leadership and Support
  – Standard Operating Procedures
  – Community of Practice
  – Stewardship Program
  – Advocacy

Don’t be afraid to take a big step if one is indicated. You can’t cross a chasm in two small jumps.  
*David Lloyd George*