Combatting Sepsis
Understanding the Issues and Commitment

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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
Pneumonia
Diarrheal Diseases
Malaria
Bacterial sepsis
Dengue
Mixed Infections
Nosocomial Infections

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

Failure of organ perfusion leading to death
Global Years Life Lost By Cause

Infectious Diseases systematically steal human resources

Matthew Bond

Lozano R et al Global and Regional Mortality... Lancet 2012
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

• What is sepsis?
  – A Neglected Global Killer
• Our scorecard
  – A tale of several worlds
• Leadership and commitment
• Improving processes and outcomes
• Concluding Remarks
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?

Combatting Sepsis

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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
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 guideline will be occurring from September 7th through to October 7th at BCCH and SHHC.

Date posted: August 30th, 2011
**Title:** Sepsis September – Sepsis Bundle  
**Team Leaders:** Kathy Rasmussen, Tracie Northway, Christy Hay, Suzanne Steenburgh, Grace Chan, Lynn Coolen, Jane Riedel.  
**Process Owner:** Deb Scott  
**Project Lead:** Tracie Northway  
**Sponsors:** Patti Byron, Tex Kissoon, Vicky Crompton  
**Sponsor Sign-off:** Sign-off Date: __________

### 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:
![Diagram showing current state process]

### 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 an 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:** T. Northway; QSL, Educators  
**What:** Update to SHARED Transfer of Care process (Form & education)  
**By When:** January 31, 2012

**Who:** Christine P, Sandy P  
**What:** Implementation of Physician Order Sets  
**By When:** October 14th, 2011

**Who:** QSL & J. Lepard  
**What:** Communication of Audit plan and results to all units.  
**By When:** October 14th, 2011

**Who:** T. Northway, D Scott  
**What:** Kaizen event at Sunny Hill  
**By When:** October 6th, 2011

**Who:** D. Scott  
**What:** Distribution of final version of Sepsis Screening Tool to all units  
**By When:** October 14th, 2011

**Who:** P. DeZorzi  
**What:** Update and distribute Patient Flow Sheet to reflect Screening  
**By When:** January 31, 2012

### Sustainment Plan:
**Audit tracking**
**Who:** QSL  
**What:**  
**By When:**
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
## Recognition: Where we are  Screening

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

**Start here to look for S&S of infection**

1. **Can be completed by RN or MD**

2. **If no boxes ticked then screening is done for now, date & sign form**

3. **If acute organ dysfunction present begin resuscitation**

## A) Infection

- History of Fever
- Anti-Infective Therapy
- Myelosuppressed or Immunosuppressed
- Indwelling Medical Device(s): e.g., Central Line, VP Shunt, etc.
- Recent surgery/Invasive Procedure/Hospitalization
- Suspected Perforated Organ e.g., appendix

**AND**

- History of Fever
- Chest: cough, increased work of breathing
- Neuro: decreased mental alertness, stiff neck, headache
- Urine: dysuria, frequency, odor
- Skin: cellulitis, wound, rash
- Abdomen: pain, peritonism
- Musculoskeletal: joint

**YES**

Access physician supports to guide care

**NO**

Treat and re-assess simultaneously: Sepsis may still be a concern

## B) SIRS (Systemic Inflammatory Response Syndrome)

- Temperature — greater than 38.5°C or less than 36°C?
- WBC count — abnormal for age (see reverse) or greater than 10% bands?
- Heart Rate — abnormal for age? (see reverse)
- Respiratory Rate — abnormal for age? (see reverse)

**YES**

Access physician supports to guide care

**NO**

Treat and re-assess simultaneously: Sepsis may still be a concern

## C) Acute Organ Dysfunction

- Cardiovascular: Is perfusion altered (capillary refill greater than 2 seconds; core to temperature difference; decreased peripheral pulses compared to central pulses) or abnormal for age?

**YES**

This patient has severe sepsis.

Refer to Resuscitation Algorithm

**Screen completed by:**

Date: ___________ Time: ___________ Screen completed by: ___________
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

<table>
<thead>
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<th>Escalation of Patient Care Scores</th>
<th>0</th>
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<th>2</th>
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<td></td>
<td>Play acts appropriately</td>
<td>Drowsy</td>
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<td></td>
<td>Within normal age parameters</td>
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<td>No increased work of breathing</td>
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<td>Using accessory muscles</td>
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<td>Requires O2 support</td>
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<td>Pink skin colour, lips and tongue</td>
<td>Pale</td>
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<td></td>
<td>Capillary refill 1-2 seconds</td>
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<td>Ashen/mottled</td>
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<td>Capillary refill 4 seconds</td>
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<td>Reduced urinary output</td>
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<td></td>
<td>Decreasing respiratory rate</td>
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<tr>
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<td>Decreasing blood pressure</td>
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<td>Stay with patient</td>
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<td>Access charge nurse for immediate support</td>
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<td>Provide immediate support at bedside</td>
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<td></td>
<td>Page respiratory therapist</td>
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Turn over for Access Physician Support Algorithm
Description of supports available and how to access (e.g., physician and 1st responder) during daytime and after hours.
**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 ________ (concise description, use key phrases to emphasize concern).

**Background - Pertinent Information & Relevant History**

Relevant history ________ (admitting diagnosis/pertinent history from past hours). Relevant current care/Treatment:

- Admit date
- Recent procedures/diagnostics/OR's
- 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.
Algorithm lists actions to be completed by a certain time

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**

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
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
The BCPSQC website Sepsis Page

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.
BC Sepsis Network (2012)

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

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

WE DID IT TOGETHER!

32 BC Emergency Departments participated

THE BEST CARE, NO MATTER WHERE.

BCSepsis.ca/150Lives

Health Quality Network
May 28, 2014
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 / USA\textsuperscript{1}

- 377 Sepsis
- 208 Myocardial infarction
- 22.8 HIV
- 331.8 Cancer

Have you ever heard the term “Sepsis”?

\textbf{NO / YES}

- 50% Germany
- 49% Brazil
- 40% Canada
- 71% USA
- 93% World

\textsuperscript{1} Sepsis; Hall MJ, Williams SN, DeFrances CJ, Golesinsky A. Inpatient care for septicemia or sepsis: A challenge for patients and hospitals. NCHS data brief, no 42. Hyattsville, MD: National Center for Health Statistics. 2011


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 flash 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.
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
World Sepsis Day: 13 September 2014

A truly global effort to fight sepsis.
On every continent. In over 40 countries.
Combatting Sepsis

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• Leadership and commitment
• Improving processes and outcomes
• Advocacy
• Concluding Remarks
Emerging Viral Diseases

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*