



Combating Sepsis

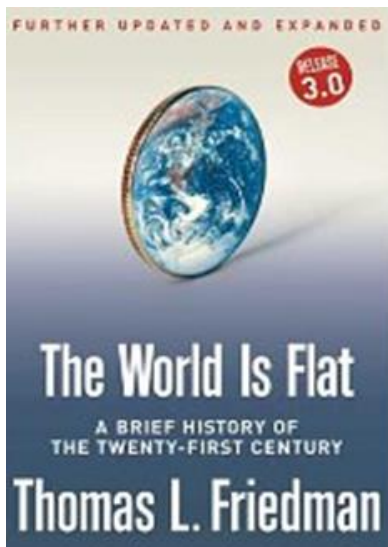
Understanding the Issues and Commitment

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University of British Columbia,
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Vancouver, Canada**

Combatting Sepsis

Understanding the Issues and Commitment

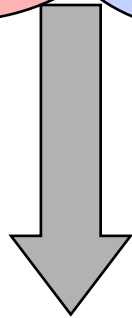
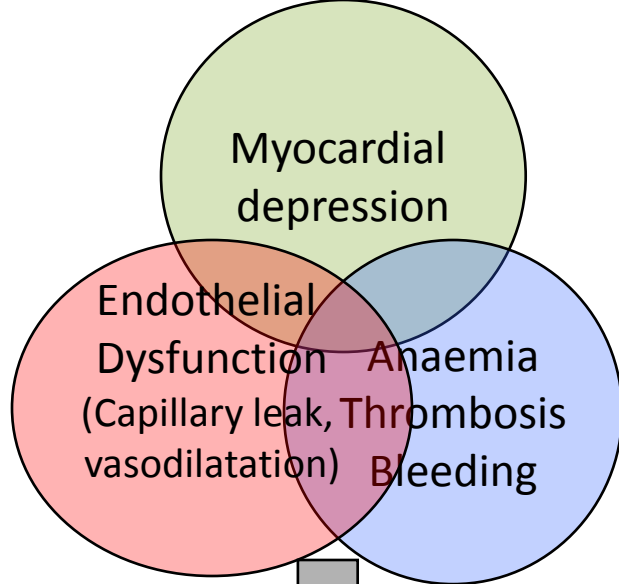
- Medicine is the only world-wide profession, following everywhere the same methods, actuated by the *same ambitions, and pursuing the same ends.*



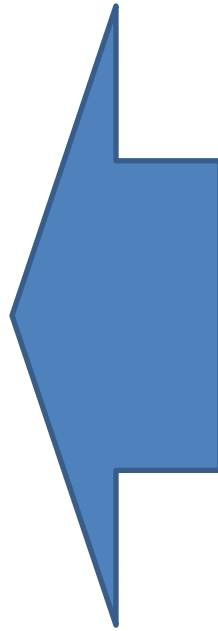
Sir William Osler, *Aequanimitas*, 1906

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

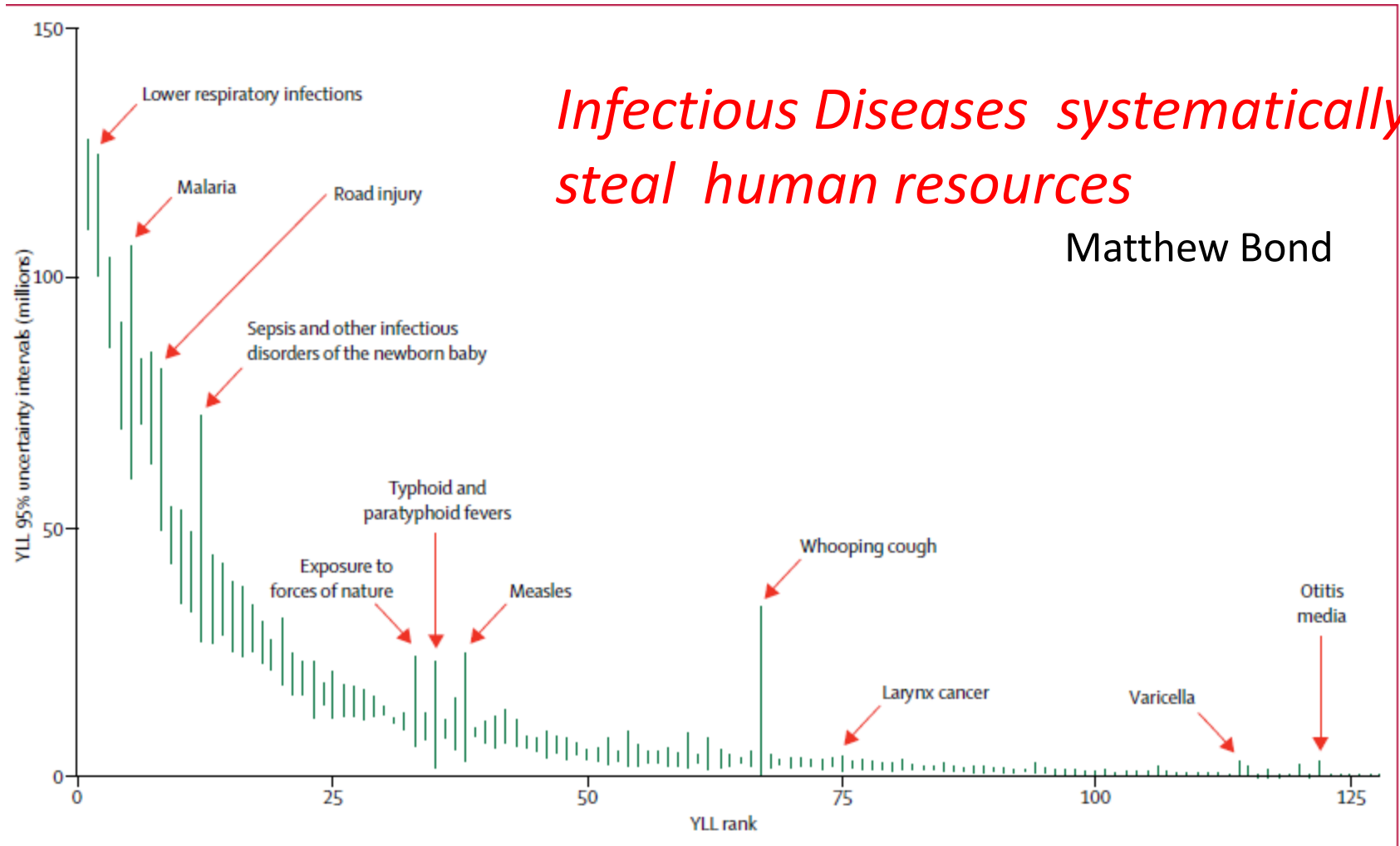


**Failure of organ perfusion
leading to death**



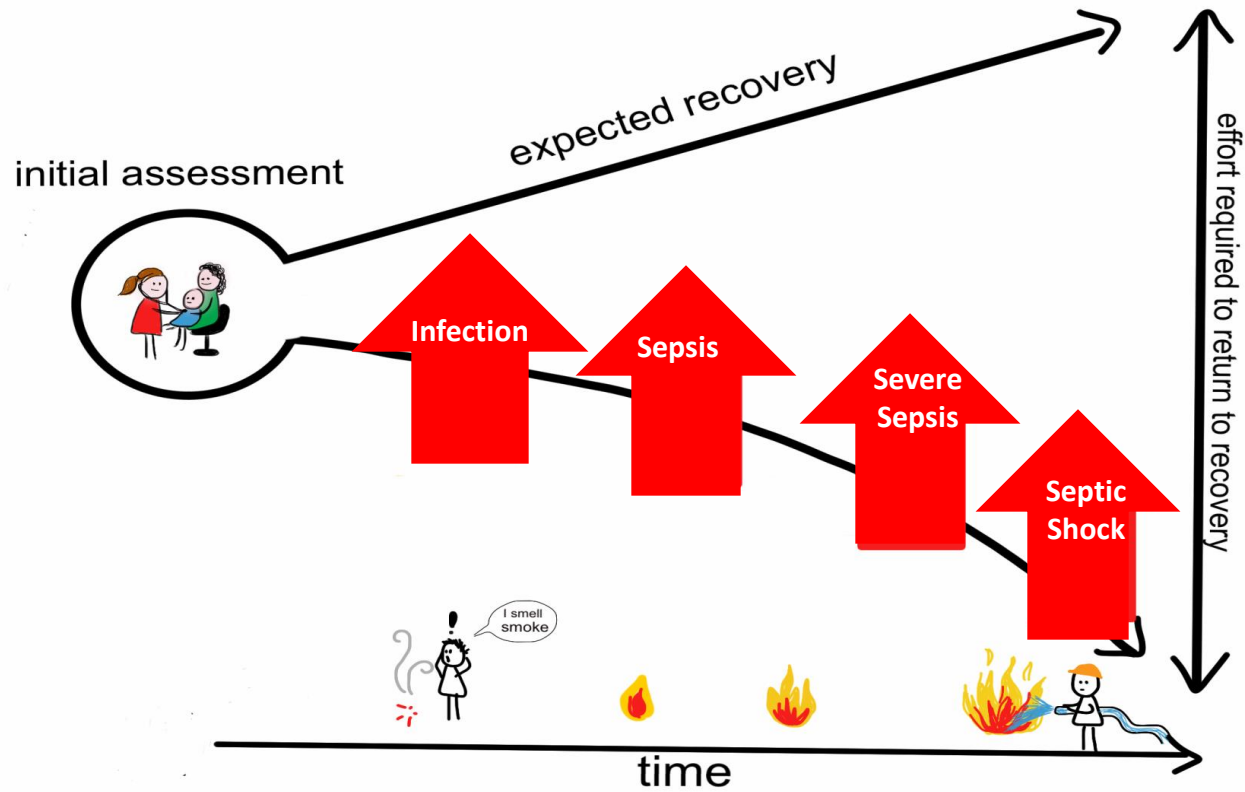
- Pneumonia
- Diarrheal Diseases
- Malaria
- Bacterial sepsis
- Dengue
- Mixed Infections
- Nosocomial Infections

Global Years Life Lost By Cause



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

Trajectory of Sepsis and Interventions



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*

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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?

- *Kissoon N Sepsis guidelines: Suggestions to improve adherence. J Infect 2015 Jun;71 Suppl 1:S36-41.*
- *Kissoon N. Sepsis guideline implementation: benefits, pitfalls and possible solutions Crit Care. 2014 Mar 18;18(2):207*

NEW TECHNOLOGY
NEW IDEAS

Clinical Practice
Guidelines

PLANNING:
DEFINING EVIDENCE BASED
GOOD PRACTICE
& PRACTICAL ASPECTS

Protocols

SOPs
Work Instructions

A
C
T
I
N
G

A
C
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Strategy Support
Education Training
Checklists
Briefing

IMPLEMENTING:
TOOLS, CHECKLISTS
SUPPORT
EDUCATION

INDICATORS

EVALUATION

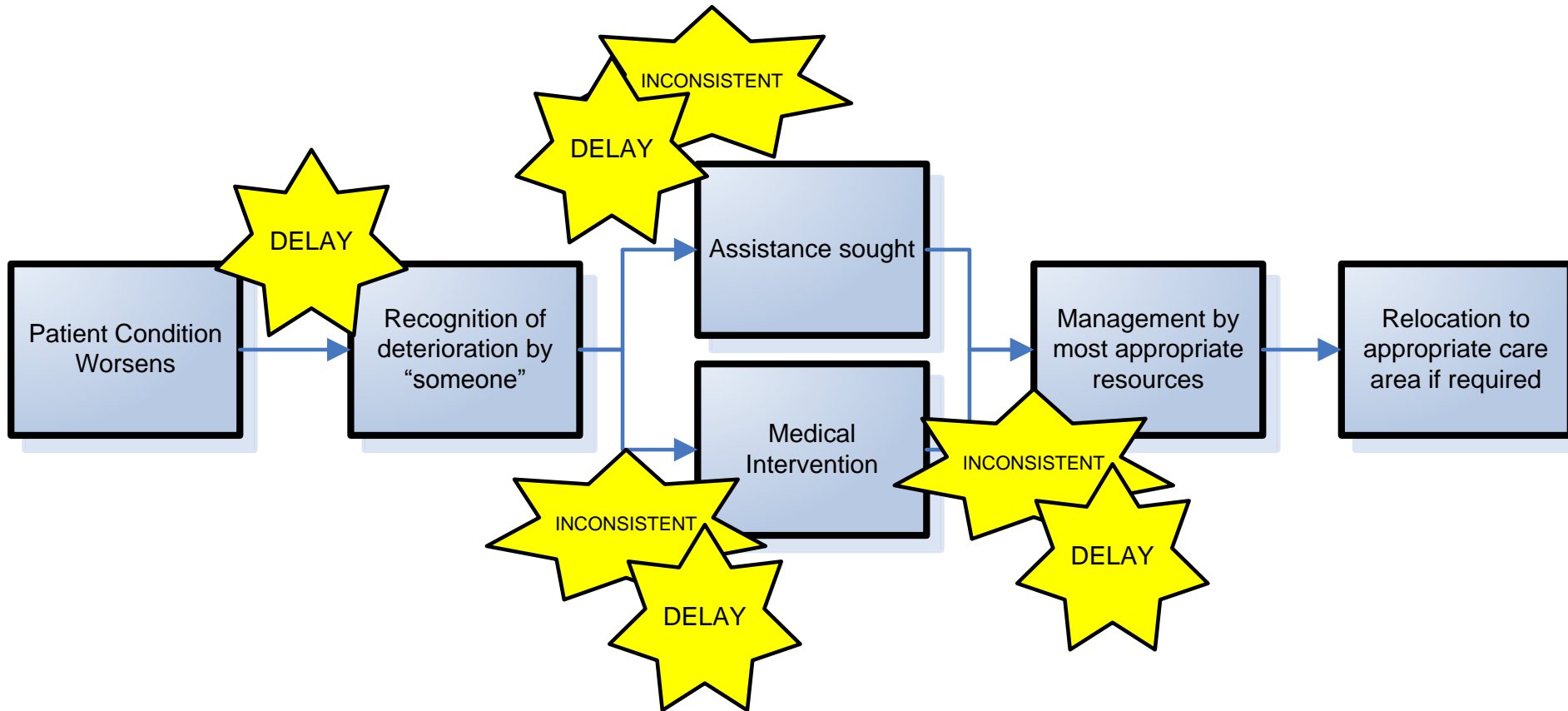
MONITORING

STUDYING:
INDICATORS
QUALITY CONTROL
REPORTING

Combatting Sepsis

- What is sepsis?
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Current State – Sepsis Recognition and Treatment



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 into clinical practice. Launching on September 7th at

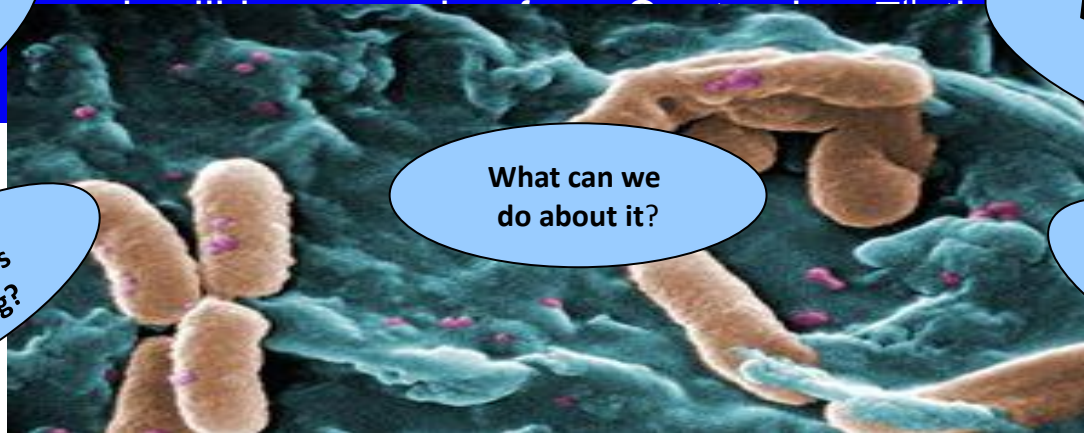
What is Sepsis?

How can we tell when it is happening?

What can we do about it?

What is Septic Shock?

What is Severe Sepsis?



Sepsis September - A3



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

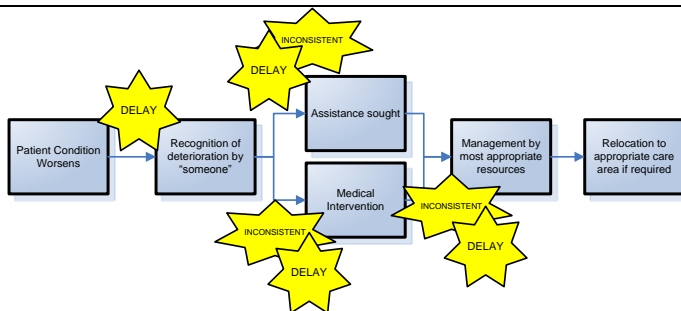
Sponsor Sign-off: _____

Sign-off Date: _____

Background

Historical evidence of delays in recognition & treatment of sepsis has led 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 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:	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 14 th , 2011
QSL & J. Lepard	Communication of Audit plan and results to all units.	October 14 th , 2011
T. Northway, D Scott	Kaizen event at Sunny Hill	October 6 th , 2011
D. Scott	Distribution of final version of Sepsis Screening Tool to all units	October 14 th , 2011
P. DeZorzi	Update and distribute Patient Flow Sheet to reflect Screening	January 31, 2012

Sustainment Plan:

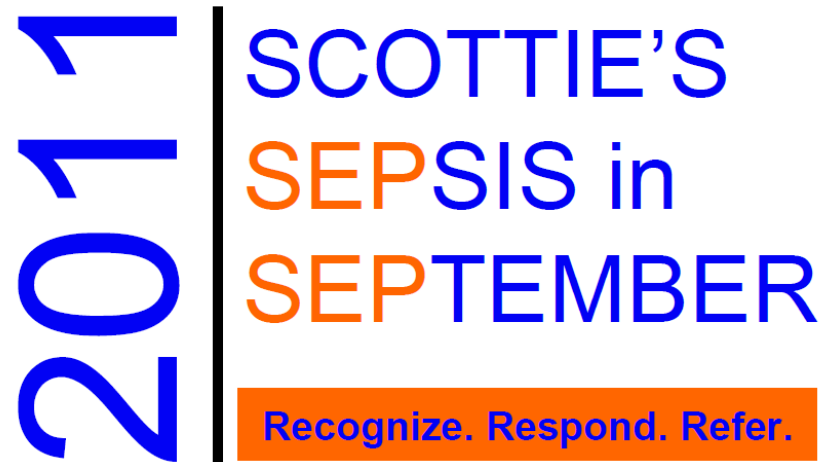
Audit tracking

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>

UPDATE

Recognition: Where we are Screening

Area	Procedure
Emergency	<ul style="list-style-type: none">• Initial assessment in the department.• Continually assessed until they are admitted or discharged
PICU	<ul style="list-style-type: none">• Daily screening on team rounds.• Trending of WBC count as part of screening
In-patient Units	<ul style="list-style-type: none">• Initially upon intra hospital transfer or on admission from emergency• An <i>elevation</i> 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-quick” education series
 - Validation of knowledge at education days



Are you concerned about your patient?
Are they getting worse?
Could they be Septic?

Use the Sepsis Screening Tool!
Remember the 3 Rs:

RECOGNIZE

RESPOND

REFER




BC CHILDREN'S HOSPITAL



Sepsis Alert!

	Green – low risk	Amber – intermediate risk	Red – high risk
Colour	• Normal colour of skin, lips and tongue.	• Pallor reported by parent/caregiver	• Pale/mottled/ashen/blue
Activity	• Responds normally to social cues • Content/alert • Stays awake or awakens quickly • Strong normal cry/not crying	• Not responding normally to social cues • Wakes only with prolonged stimulation • Decreased activity • No smile	• No response to social cues • Appears ill to a healthcare professional • Does not wake or if roused does not stay awake • Weak, high pitched or continuous cry
Respiratory		• Nasal flaring • Tachypnoea: RR > 50 breaths/minute, age 6-12 months RR > 40 breaths/minute, age > 12 months • Chest retractions > 95% of age • Crackles	• Grunting • Tachypnoea: RR > 60 breaths/minute • Moderate or severe chest indrawing
Hydration	• Normal skin and eyes • Moist mucous membranes	• Dry mucous membranes • Over swelling in infants • CRT > 3 seconds • Reduced urine output	• Reduced skin turgor
Other	• None of the amber or red symptoms or signs	• Fever for > 3 days • Swelling of a limb or joint • Non-weight bearing/not using an extremity • A new lump > 2 cm	• Age 0-3 months, temperature > 38 °C • Age 3-6 months, temperature > 39 °C • Non-blanching rash • Bulging fontanelle • Neck stiffness • Status epilepticus • Focal neurological signs • Focal seizures • Bilateral vomiting

CRT = capillary refill time; RR = respiratory rate.

 If you suspect infection may be the cause of worrying clinical signs (Amber to Red) assess patient using Sepsis Diagnosis tool.

Adapted from "Feverish illness in children" NICE, UK, 2007

Patient Screening for Sepsis

Can be completed by RN or MD



Start here to look for S&S of infection

Complete screen progressing from A to B to C as positive for each

A INFECTION – Does the patient have any of the following infection criteria or risks?

<input type="checkbox"/> History of Fever	<input type="checkbox"/> Chest: cough, increased work of breathing
<input type="checkbox"/> Anti-Infective Therapy	<input type="checkbox"/> Neuro: decreased mental alertness, stiff neck, headache
<input type="checkbox"/> Myelosuppressed or Immunosuppressed	<input type="checkbox"/> Urine: dysuria, frequency, odour
<input type="checkbox"/> Indwelling Medical Device(s): e.g. Central Line, VP shunt, etc.	<input type="checkbox"/> Skin: cellulitis, wound, rash
<input type="checkbox"/> Recent surgery/Invasive Procedure/Hospitalization	<input type="checkbox"/> Abdomen: pain, peritonism
<input type="checkbox"/> Suspected Perforated Organ e.g. appendix	<input type="checkbox"/> Musculoskeletal: joint

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



B SIRS (systemic inflammatory response syndrome) — Does the patient have 2 of these criteria? (One of which must be either *temperature* or *WBC*).

<input type="checkbox"/> Temperature – greater than 38.5°C or less than 36°C?	AND	<input type="checkbox"/> NO <input type="checkbox"/> Treat and re-assess simultaneously: Sepsis may still be a concern
<input type="checkbox"/> WBC count - abnormal for age (see reverse) or greater than 10% bands?		
<input type="checkbox"/> Heart Rate - abnormal for age? (see reverse)		
<input type="checkbox"/> Respiratory Rate - abnormal for age? (see reverse)		

*For immunosuppressed patients, may accept any 2 criteria.

YES Access physician supports to guide care

AND

Continue to Assess ↓

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

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



C ACUTE ORGAN DYSFUNCTION - Does the patient have cardiac or respiratory involvement?

<input type="checkbox"/> Cardiovascular- Is perfusion altered (capillary refill greater than 2 seconds; core to peripheral temperature difference; decreased peripheral pulses compared to central pulses) or abnormal for age?(see reverse)
<input type="checkbox"/> Respiratory – Increasing O ₂ requirements to maintain SpO ₂ greater than 90% or new oxygen requirement
<input type="checkbox"/> Cardiovascular or respiratory organ dysfunction then there must be 2 or more of the following: - Glasgow coma scale score less than or equal to 11 - Urine output e.g. less than 1 mL/kg/hr despite adequate fluid intake? - Platelet count - Low platelet count (less than 80,000/mm ³) or PT/PTT greater than upper limit of normal? - Low pH (e.g. pH less than 7.30) or elevated lactate (greater than 4 mmol/L)? - Is ALT greater than 2x upper limit of normal?

DOES THIS PATIENT MEET ACUTE ORGAN DYSFUNCTION CRITERIA? YES This patient has SEVERE SEPSIS

Refer to Resuscitation Algorithm

Patients still at RISK for SEVERE SEPSIS refer to pre-printed order set to guide care

If acute organ dysfunction present begin resuscitation



Date: _____ Time: _____ Screen completed by: _____

EoPC

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

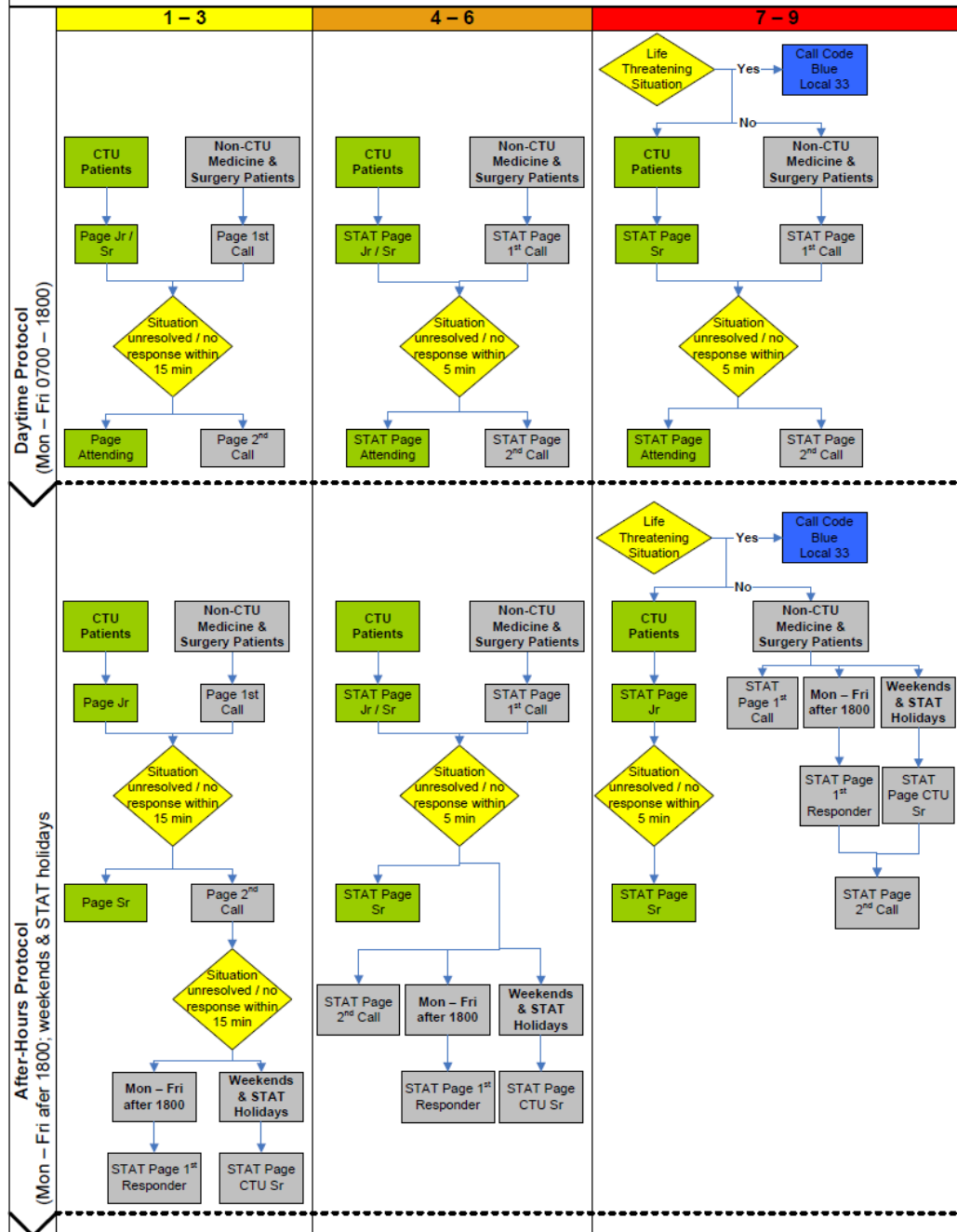
Description of supports available and how to access (e.g., nurse leader, RT and critical care supports)

Expectations of supports in responding to request for assistance

Escalation of Patient Care Scores				
	0	1	2	3
Behavior	<ul style="list-style-type: none"> Plays/acts appropriately 	<ul style="list-style-type: none"> Drowsy 	<ul style="list-style-type: none"> Difficult to wake with stimulation Irritable Persistent vomiting postoperatively 	<ul style="list-style-type: none"> Lethargic Confused Reduced response to pain Does not wake to painful stimuli
	<ul style="list-style-type: none"> Within normal age parameters No increased work of breathing 	<ul style="list-style-type: none"> 10 breaths above age appropriate parameters Using accessory muscles Requires O₂ support 	<ul style="list-style-type: none"> >20 breaths above age appropriate parameters Tracheal tug/nasal flare Increasing O₂ requirements 	<ul style="list-style-type: none"> Decreasing respiratory rate below age appropriate parameters along with: sternal indrawing; tracheal tug; or grunting Increasing O₂ requirements
	<ul style="list-style-type: none"> Pink skin colour, lips and tongue Capillary refill 1-2 seconds 	<ul style="list-style-type: none"> Pale Capillary refill 3 seconds Reduced urine output Fever (>38C Oral; >37.5C Axilla; >38.5 Rectal) 	<ul style="list-style-type: none"> Ashen/mottled Capillary refill 4 seconds Tachycardia of 20 beats per minute above age appropriate parameters Persistent fever despite antipyretics 	<ul style="list-style-type: none"> Grey/blue/mottled Capillary refill ≥5 seconds Tachycardia of 30 beats per minute above age appropriate parameters Bradycardia
	0	1 – 3	4 – 6	7 – 9
NURSING ACTIONS				
Primary Nurse	<ul style="list-style-type: none"> Routine clinical observations and vital signs as ordered 	<ul style="list-style-type: none"> Access Charge Nurse for support Increase clinical observations and vital sign frequency (in discussion with MD/Nurse Leaders) 	<ul style="list-style-type: none"> Access Charge Nurse for immediate support Increase clinical observations and vital sign frequency (in discussion with MD/Nurse Leaders) Ensure adequate IV access 	<ul style="list-style-type: none"> Stay with patient Access charge nurse for immediate support Increase clinical observations and vital sign frequency (in discussion with MD/Nurse Leaders) Ensure adequate IV access
Charge Nurse	<ul style="list-style-type: none"> Within normal age parameters No increased work of breathing 	<ul style="list-style-type: none"> Review patient within 15 minutes Access Physician Supports (see algorithm on back) 	<ul style="list-style-type: none"> Provide immediate support at bedside Access physician supports (see algorithm on back) 	<ul style="list-style-type: none"> If life threatening, call Code Blue (Local 33) and start ABC emergency support Provide immediate support at bedside Page porter at 41-01183 to standby on unit
Screen for Sepsis if EoPC Score Increases				
Critical Care Outreach	Patient Assessment Time	Within 60 minutes	Within 15 – 30 minutes	Within 5 – 15 minutes or immediately if Code Blue called
		<ul style="list-style-type: none"> Call PICU Charge Nurse (Local 2133) to consult Critical Care Nurse Page Respiratory Therapist 	<ul style="list-style-type: none"> Call PICU Charge Nurse (Local 2133) to consult: <ul style="list-style-type: none"> Critical Care Nurse PICU Physician (only after calling attending Physician) Page Respiratory Therapist 	<ul style="list-style-type: none"> Call Code Blue (Local 33) if emergent assistance needed Call PICU Charge Nurse (Local 2133) to consult: <ul style="list-style-type: none"> Critical Care Nurse PICU Physician (only after calling attending Physician) Page Respiratory Therapist

ACCESS PHYSICIAN SUPPORTS – Use SBAR for Communication
 Paging System Local 2161; indicate “01” on pager display for STAT pages

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

 SBAR – Report about a Critical Situation	
<p><i>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.</i></p> <p>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.</p>	
S	<p>Situation – What is the situation you are calling about?</p> <p>This is _____ (name) and I am the _____ (profession) for patient _____ (name and location). 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) .</p>
B	<p>Background - Pertinent Information & Relevant History</p> <p>Relevant history _____ (admitting diagnosis/ pertinent history from past hours) Relevant current care/Treatment:</p> <ul style="list-style-type: none"> • Admit date _____ • Recent procedures/ diagnostics/ OR's _____ • Vital signs: T: _____ P: _____ R: _____ BP: _____ Pain: _____ LOC: _____ • 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 _____
A	<p>Assessment – What do you think the problem is?</p> <p>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.</p>
R	<p>Recommendation – What do you want to happen?</p> <p>I suggest (or request) that you _____ (be specific and request time frames).</p> <ul style="list-style-type: none"> ○ 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 <p>Before you end the call, confirm plan of care by asking:</p> <ol style="list-style-type: none"> 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?

PHYSICIANS' ORDERS

WRITE FIRMLY WITH A BALLPOINT PEN

WEIGHT		HEIGHT																													
Pharmacy Use Only	Date & Time ordered	Diagnosis: Sepsis and/or Severe Sepsis	RN initials and time completed																												
		Investigations: <input checked="" type="checkbox"/> Blood Culture STAT <input checked="" type="checkbox"/> Blood Gas (Venous) STAT <input checked="" type="checkbox"/> Lactate STAT <input checked="" type="checkbox"/> CBC STAT <input checked="" type="checkbox"/> Glucose and bedside glucose STAT <input checked="" type="checkbox"/> Coagulation Profile: PT/INR, APTT, STAT <input checked="" type="checkbox"/> electrolytes, BUN, creatinine, calcium, liver function tests STAT <input type="checkbox"/> Group & Screen/Cross Match <input type="checkbox"/> Chest X-ray <input type="checkbox"/> Other X-ray <input type="checkbox"/> Naso-pharyngeal wash (NPW) for rapid respiratory panel (VIRAP) <input type="checkbox"/> Urinalysis <input type="checkbox"/> Urine for culture & sensitivity <input type="checkbox"/> other cultures: <input type="checkbox"/> Consult Critical Care General Orders: <input checked="" type="checkbox"/> oxygen at _____ L/min <input checked="" type="checkbox"/> strict intake and output Fluid therapy: <input type="checkbox"/> 0.9% sodium chloride (NS) bolus of 20 mL/kg over 5 minutes <input type="checkbox"/> repeat in 20 mL/kg increments up to 60 mL/kg to meet perfusion goals Medications: Antibiotics STAT (refer to Empiric Antibiotic Treatment for Sepsis) 1. _____ 2. _____ 3. _____ <i>(include drug name, (dose/kg formula), total dose, frequency, route)</i> If Mean Arterial Pressure (MAP) is at or below age related guideline begin Epinephrine Infusion <input type="checkbox"/> Epinephrine at _____ micrograms/kg/min IV (0.01-0.3 micrograms/kg/min) <table border="1"> <thead> <tr> <th colspan="7">Age Related Guidelines</th> </tr> <tr> <th>Age</th> <th><1wk</th> <th>1wk-1mo</th> <th>1mo-1yr</th> <th>1-5 yrs</th> <th>5-12 yrs</th> <th>12-<18 yrs</th> </tr> </thead> <tbody> <tr> <td>Sys</td> <td><65</td> <td><75</td> <td><90</td> <td><90</td> <td><100</td> <td><110</td> </tr> <tr> <td>MAP</td> <td></td> <td><55</td> <td><60</td> <td><65</td> <td><65</td> <td><65</td> </tr> </tbody> </table> Signature: _____ Pager #: _____ Print Name: _____ College ID#: _____	Age Related Guidelines							Age	<1wk	1wk-1mo	1mo-1yr	1-5 yrs	5-12 yrs	12-<18 yrs	Sys	<65	<75	<90	<90	<100	<110	MAP		<55	<60	<65	<65	<65	
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MAP		<55	<60	<65	<65	<65																									

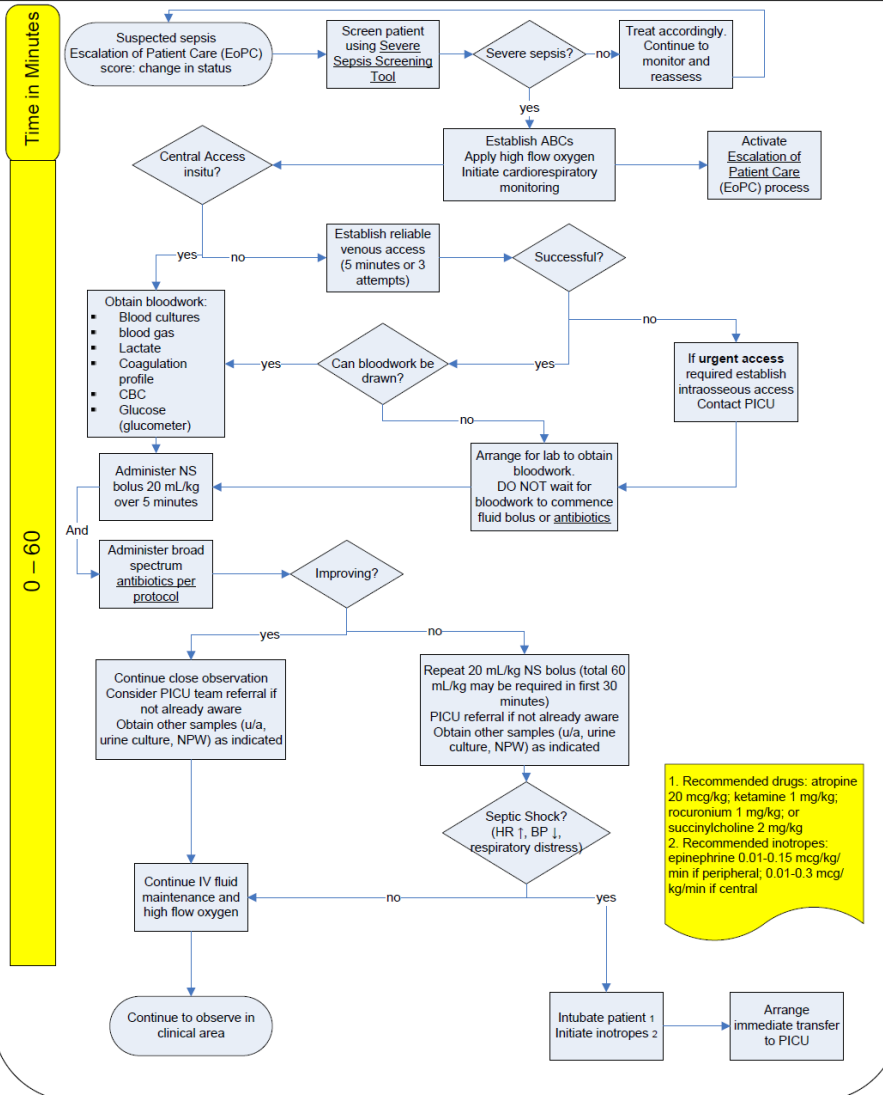
Begin to use the orders when SIRS present

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

mL=millilitre; kg=kilogram; mmHg= millimetres of mercury; min=minute; IV=intravenous

Resuscitation Algorithm

SEVERE SEPSIS/SEPTIC SHOCK RESUSCITATION BUNDLE: HOUR 0 -1 April 2011



Algorithm lists actions to be completed by a certain time

Found on back of order set

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

1. Recommended drugs: atropine 20 mcg/kg; ketamine 1 mg/kg; rocuronium 1 mg/kg; or succinylcholine 2 mg/kg
2. Recommended inotropes: epinephrine 0.01-0.15 mcg/kg/min if peripheral, 0.01-0.3 mcg/kg/min if central

u/a: urinalysis, NPW: nasopharyngeal wash, NS: normal saline

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?
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The BCPSQC website Sepsis Page

Let's improve sepsis

Knowledge Centre | Clinical Improvement | Learning | Culture & Engagement

Enter a search term here

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- Surgical Checklist
- Surgical Site Infections
- Venous Thromboembolism
-
- National Surgical Quality Improvement Program

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

AT A GLANCE

Interested in joining or forming a sepsis improvement team in your own hospital? Contact us today.

Key Sepsis CCM Contacts:

David Sweet
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BCPSQC
dsweet@bcpsqc.ca

Chantale Pamplin
Quality Leader
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Ross Hayward,
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Ross.Hayward@gov.bc.ca
250 952-1188

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.

WSD - 2012

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

Sweet D, McNeil J, Ho K, Krause G, Russell J. Emergency management to prevent the simple sepsis from becoming complex. *CMAJ*. 2011;183(17):195-8.



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



BC SepsisNetwork



WE SAVED OVER

**150
LIVES**

IN 

150 | OCT 2013
| MAR 2014

DAYS

BCSepsis.ca/150Lives



1000+

patients screened for severe sepsis & septic shock

750+

patients treated with sepsis protocol

WE DID IT TOGETHER!

32

BC Emergency
Departments
participated



Health Quality
Network

May 28, 2014

**THE BEST CARE,
NO MATTER WHERE.**

Game on!

How to play:

For every 5 sepsis protocols entered, you save 1 life. Your goal is to save 150 Lives in 150 Days.

Use of gamification to engage with and motivate clinicians to improve sepsis care in British Columbia

- Shari McKeown**
Director, Clinical Improvement,
BC Patient Safety & Quality Council
- Andrew Sill**
Campaigns & Engagement Specialist,
BC Patient Safety & Quality Council
- Maher Shergill**
Quality Leader,
BC Patient Safety & Quality Council
- Christina Krause**
Executive Director,
BC Patient Safety & Quality Council
- David Sweet**
Sepsis Clinical Lead,
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Vancouver General and
Surrey Memorial Hospitals,
University of British Columbia
- Julian Marsden**
Clinical Director,
BC Patient Safety & Quality Council,
St. Paul's Hospital, University
of British Columbia
- Mandy Roberts**
Program Assistant,
BC Patient Safety & Quality Council

Start

In the Great White North...

British Columbia, Canada has over 4.4 million residents with access to 80 emergency departments (EDs) distributed across a wide geographic area.

In 2013, the BC Patient Safety & Quality Council (BCPSQC) established the BC Sepsis Network, a distributed leadership model of interdisciplinary ED clinicians. Evidence-informed BC Sepsis Guidelines were adopted by the network, and BCPSQC was tasked with supporting implementation.

Disclosures: None

...we set out on an important quest.

150 LIVES

We launched a voluntary, clinician-led, action-focused campaign using elements of games in a non-earning context (gamification) to provide meaningful motivation for clinicians to use the protocols and accept a provincial challenge of saving 150 Lives in 150 Days.

When EDs follow sepsis and septic shock protocols, one life can be saved for every five patients treated*, based on the Number Needed to Treat, an epidemiological measure used to assess effectiveness of health interventions. Therefore, if 150 protocols were used, we could save 150 Lives.

Sepsis has one of the highest hospital mortality rates in Canada. Protocolized sepsis care is an effective way to reduce mortality and morbidity*. Despite widespread distribution of the BC Sepsis Guidelines across BC in 2012, provincial mortality rates for sepsis averaged 20% and patients were receiving appropriate therapy less than 30% of the time. This is in keeping with literature showing that sepsis protocols are underused*.

Using elements of games, we made it fun to use sepsis protocols...

We embedded gamification strategies into the campaign to increase engagement and motivate players. The "game" was wrapped in a meaningful story, saving lives. Game elements included, interactive challenges, live goals, live feedback points, leaderboards, countdowns, and rewards.

30 teams were invited to participate in the campaign, which ran for 150 Days between Oct 2013 and Mar 2014. We created a mobile app to track the number of protocols they used. Leaders at each site competed online entries with perfect scores to avoid penalties, creating a sense of fairness in the game.

Additional resources for players included a sepsis education video and a free e-learning module. We partnered with **BCPSQC** to embed key sepsis peer-reviewed journal articles within their knowledge translation app.

...and achieved some incredible results.

Gamification helped us save over 150 Lives in 150 Days. What can it do for you?

In one region, compliance with lactate testing increased and severe sepsis mortality rate decreased during the campaign to about 4% of their best results ever recorded.

32 teams from the 68 ED's in our province voluntarily joined the campaign, and stayed engaged throughout the 150 Days.

Over 1000 patients were screened for sepsis and over 750 protocols used to treat severe sepsis and septic shock. 151 Lives were saved.

Finish

- 1418 clinicians enrolled in the sepsis e-learning module, 90% completed it.
- We tracked a 53% growth in the BC Sepsis Network (to 204 participants) and a 4% average open-rate in our electronic newsletters (industry average 14%).
- The sepsis videos together generated 2268 YouTube hits (the most popular video on our YouTube channel).
- We recorded over 9288 BCSEpsis.ca web page views during the campaign, compared to 4862 in the 150 days preceding the campaign announcement.
- 22,290 clinicians viewed the promoted sepsis literature within the **exam** knowledge translation app.

Interested in gamification for health improvement? Let's connect!

sepsis@bcpsqc.ca
@BCSepsis
www.BCSepsis.ca

The 150 Lives in 150 Days campaign led to increased uptake of protocolized care for severe sepsis and septic shock, provided education, and raised awareness about the importance of screening and timely therapies for sepsis patients.

Our greatest success came from offering voluntary participation. The campaign strengthened ties within the Network and gave members experience in taking collective action for change, which can be leveraged for future initiatives.

Voluntary campaigns that incorporate meaningful gamification are an effective and compelling way to engage clinicians to adopt best practices and build momentum for change.

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. Niranjana (Tex) Kisson
 - Benefits, pitfalls and possible solutions of guideline implementation

BC SepsisNetwork
Sepsis Screening Tool

Does the patient have any **TWO** of the following?

- Heart rate > 90/min
- Respiratory rate > 20/min
- Temperature $\geq 38^{\circ}\text{C}$ or $< 36^{\circ}\text{C}$
- Altered level of consciousness
- WBC > 12.0 or $> 4.0 \times 10^9/\text{L}$

AND

Suspected or confirmed infection?

OR

- Cough/sputum/chest pain/shortness of breath
- Mottled skin, cold extremities

- Dysuria/frequency/indwelling catheter
- Skin or joint (pain/swelling/redness)
- Abdominal pain/distension/vomiting/diarrhea
- Central line present

YES

PATIENT HAS SEPSIS
Call physician & report assessment & findings

WATCH FOR SEPTIC SHOCK / SEVERE SEPSIS
Systolic blood pressure < 90 mmHg
OR
Lactate ≥ 4 mmol/L

WSD 2015

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?

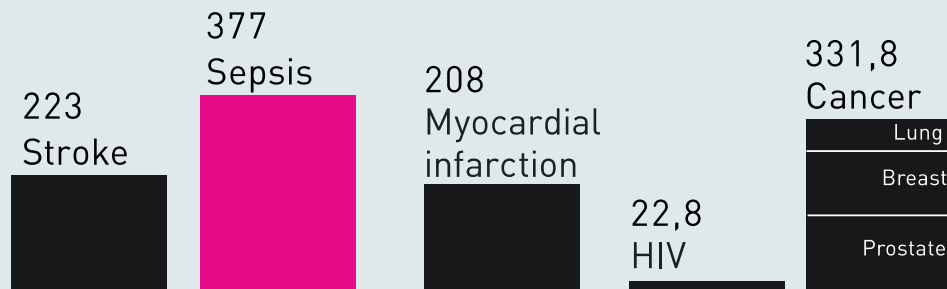
<https://www.youtube.com/watch?v=GNz3S3tvYLA>

Sepsis



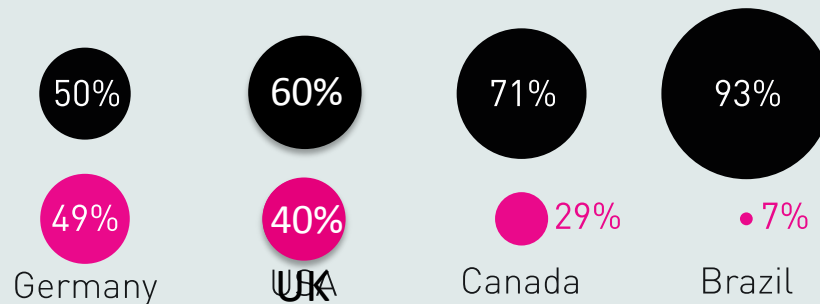
Awareness

Cases per
100,000 /
USA¹



Have you ever
heard the term
“Sepsis”?

NO / YES

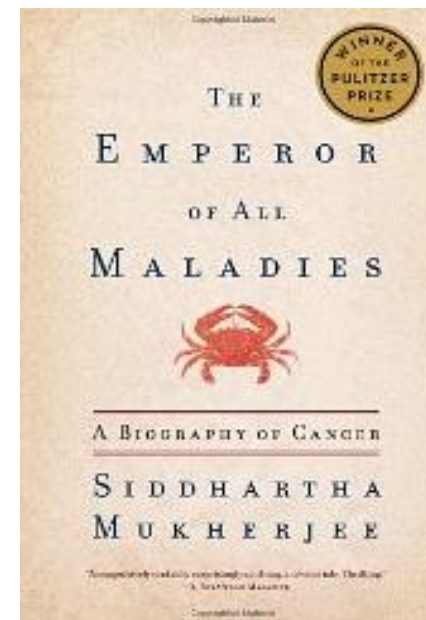


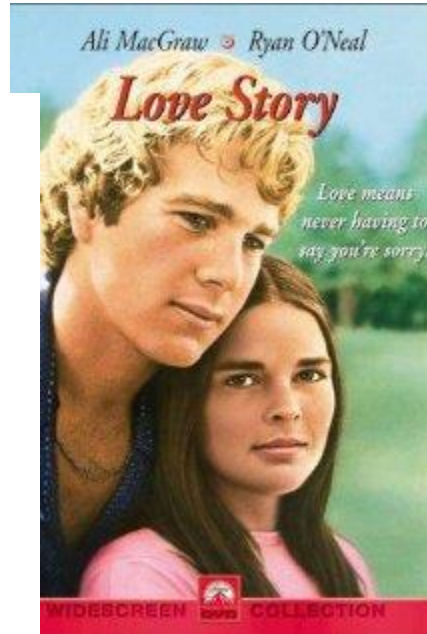
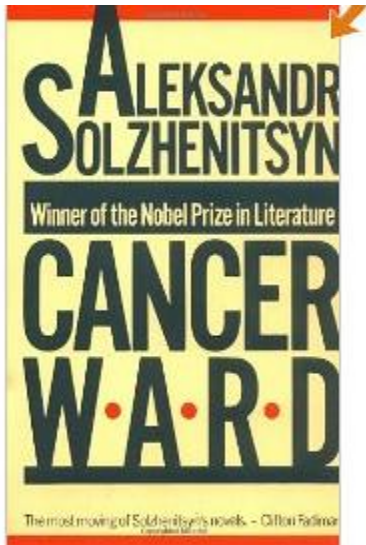
Join The Global Sepsis Alliance

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





The New York Times

WORLD U.S. N.Y. / REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPINION

AUTOS

Want FREE Movies and 10% Off M

Article Preview

Will More Money Bring the Elusive Cure?; Cancer:

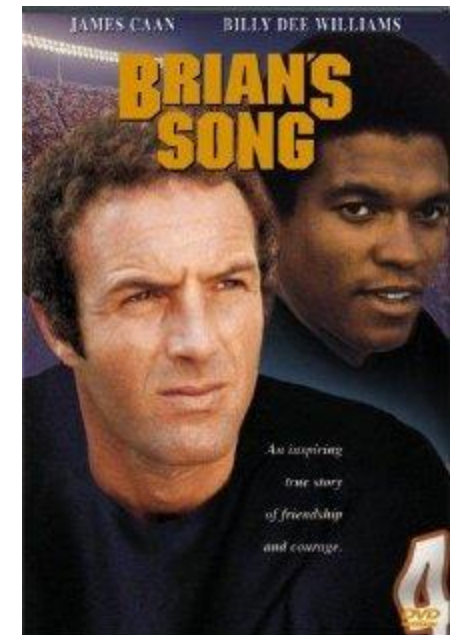
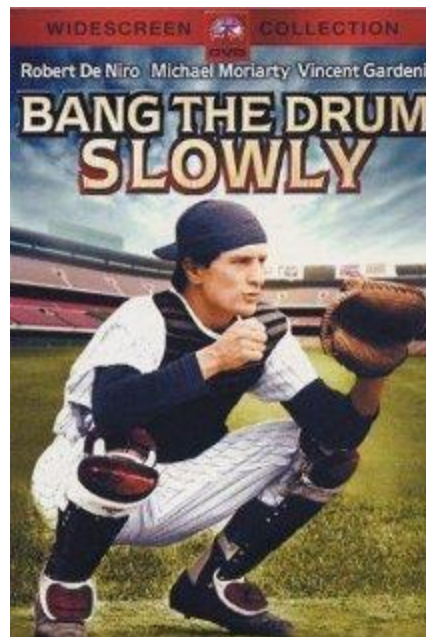
— EARL UBELL ();
January 31, 1971,
Section THE WEEK IN REVIEW, Page E7, Column , words

[DISPLAYING ABSTRACT]

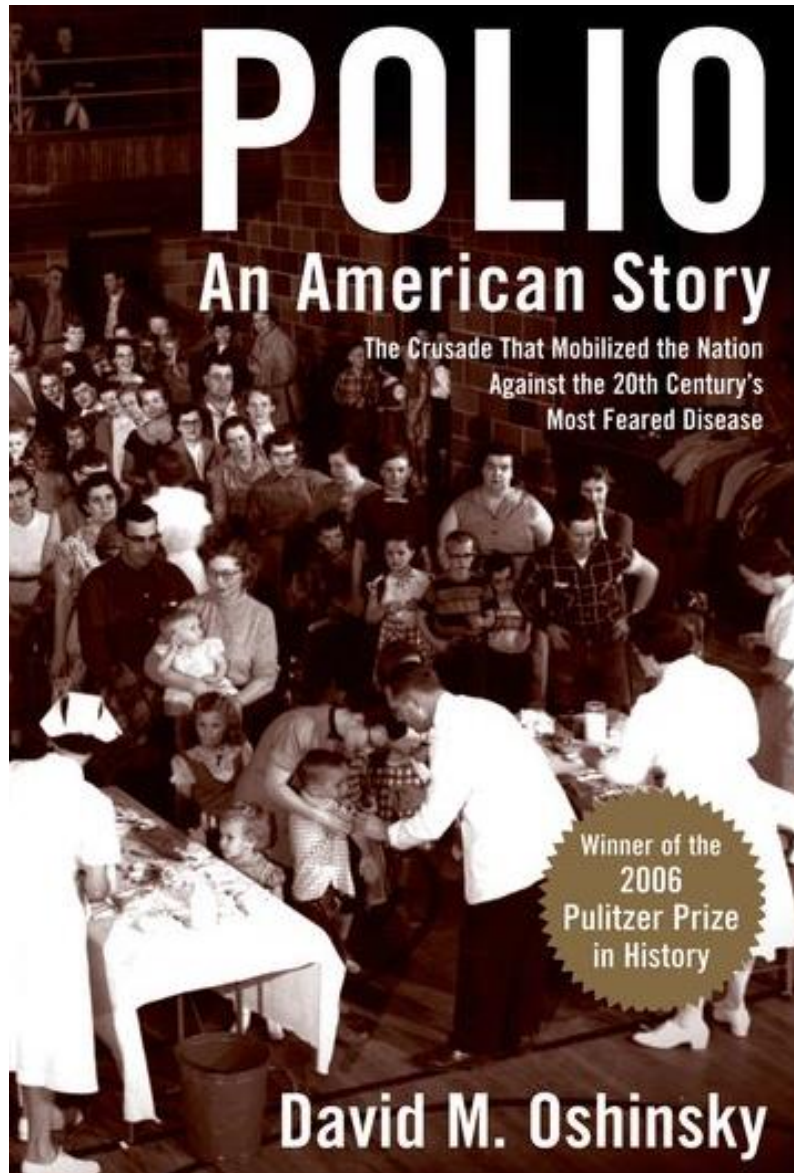
In 1949, a spellbinding cancer researcher sat before a committee of Congress and said: Give us the money and in 10 years we'll give you a penicillin for cancer. In the flush of success of the atom bomb, radar and the re-discovery and development of penicillin itself, all in war-time crash programs, the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

SIGN IN TO E-MAIL

PERMISSIONS



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

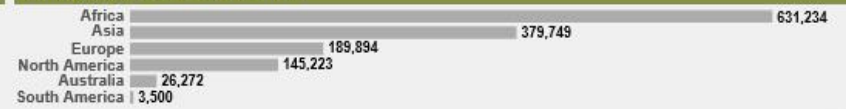
- Result – in 1954, 8 charities raised > \$US140 million
 - *about half for polio with 100,000 cases*
 - *AHA \$11.3 and National Assoc of Mental Health \$1.5 million for 10 million cases each)*

- INTRODUCTION
- MAP**
- SUBMIT A POINT
- CREDITS

NUMBER OF CASES BY DISEASE



NUMBER OF CASES BY REGION



YEAR: ALL 2008 2009 2010 2011 2012 2013 2014

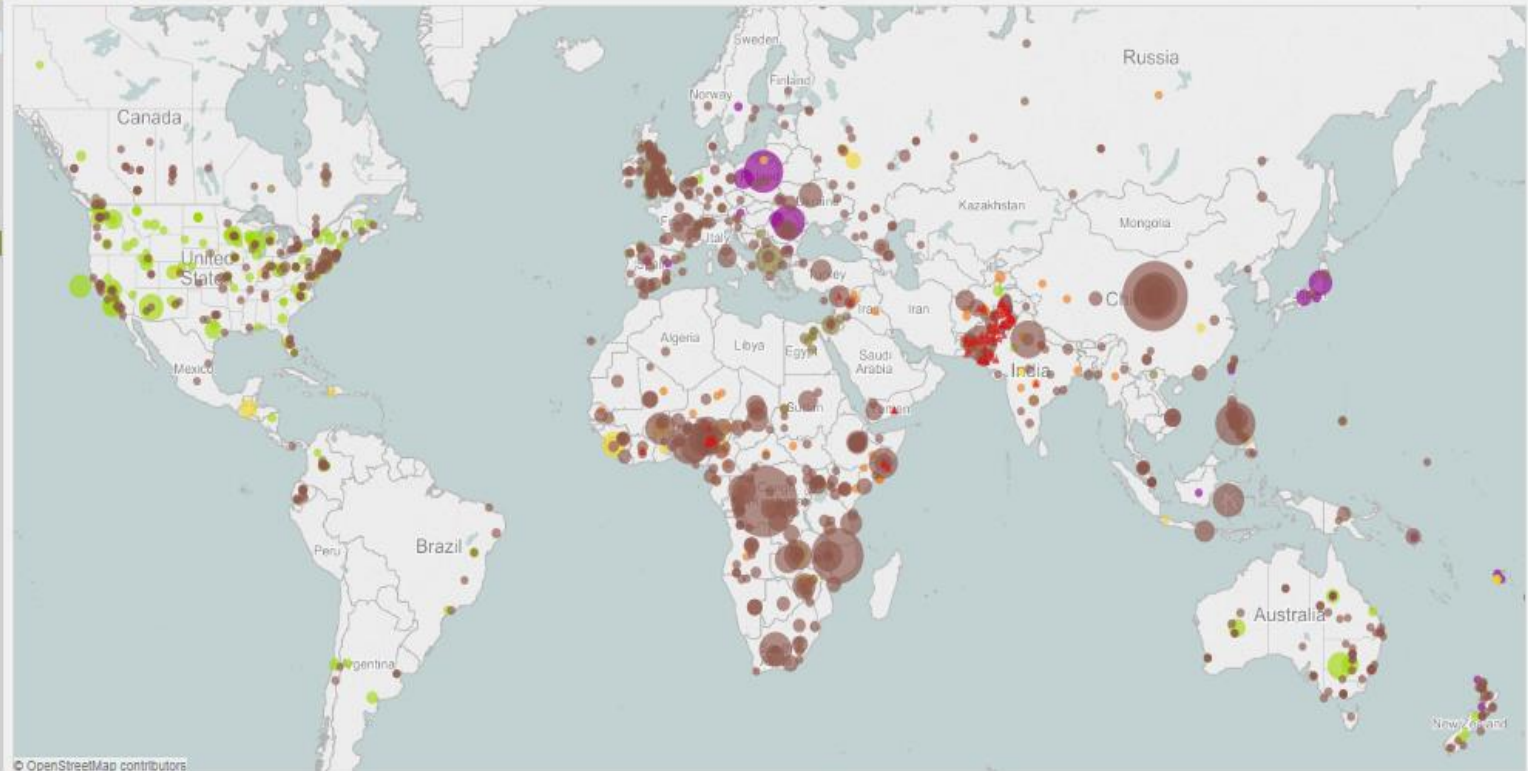
SELECT DISEASE

Shift+click to pan map | Double click to zoom

- (All)
 - Attacks
 - Measles
 - Mumps
 - Other
 - Polio
 - Rubella
 - Whooping Cough
- Apply Cancel

LEGENDS

- Attacks
 - Measles
 - Mumps
 - Other
 - Polio
 - Rubella
 - Whooping Cough
- 0
50,000
100,000
134,042

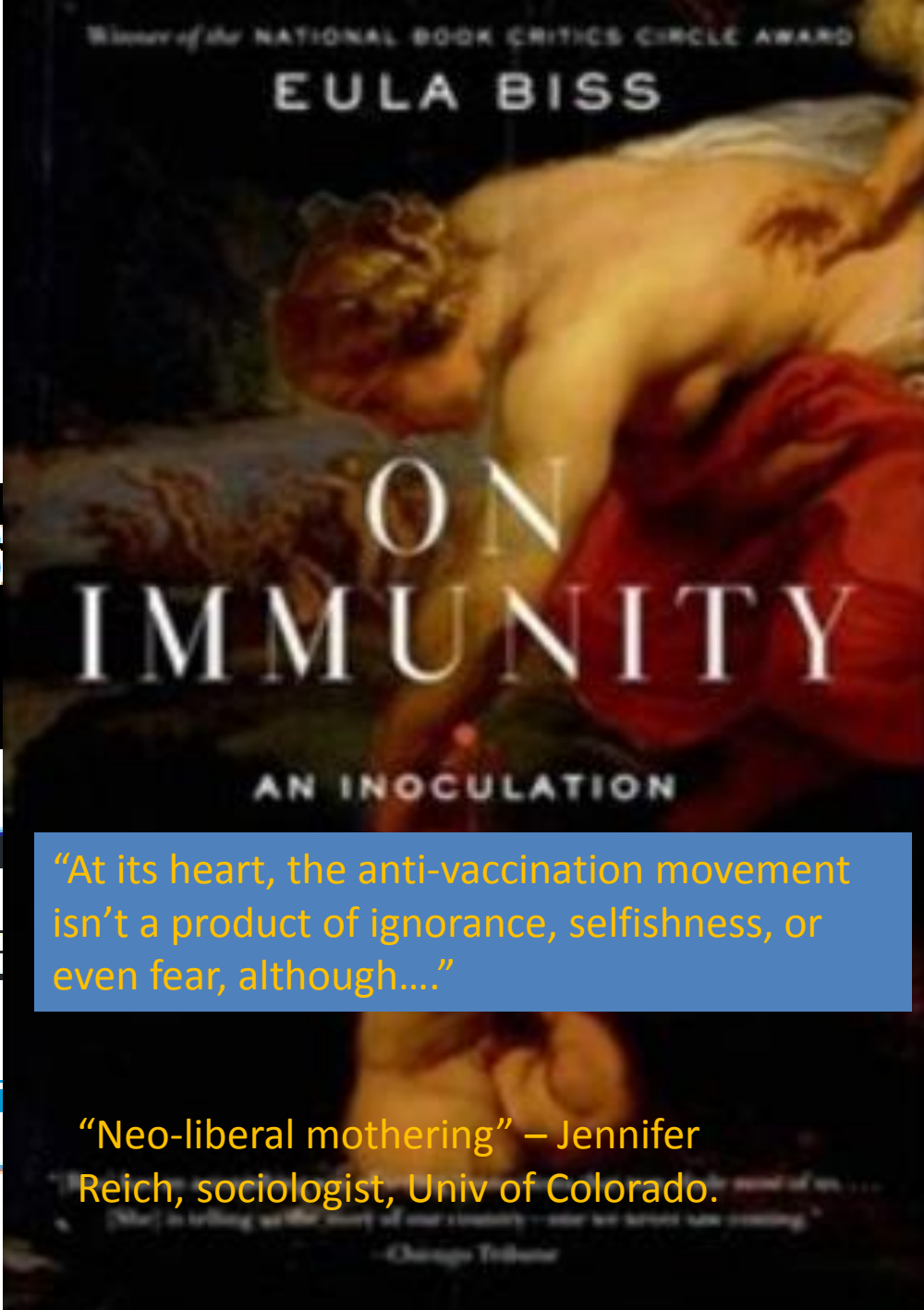


*Attacks not to scale

The power of politics, religion and celebrity

Im

er Of



Hollywood's

9:56 AM PDT 9/10/2014 by
Jenny McCarthy, Jim

ts

ween Autism and vaccinations

The A Forge

On the 100th
against vacci

JENNIE ROTHEN

“At its heart, the anti-vaccination movement isn’t a product of ignorance, selfishness, or even fear, although...”

t Is mic

about the backlash
eradicate deadly viruses.

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

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**

Emerging Viral Diseases



● Newly emerging

● Reemerging

Developments facilitating spread

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

Advances facilitating control

- Genome sequencing to identify emerging viruses
- Global communication networks
- Rapid diagnostics
- New approaches to vaccine and therapeutic design

Marston HD et al *Sci Transl Med* 6, (2014)

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*