SEPSIS KILLS: the NSW experience

Dr Jonny Taitz
Director Paediatric Patient Safety
Clinical Excellence Commission
Paediatric Patient Safety Program
CLINICAL EXCELLENCE COMMISSION

LEADING SAFETY & QUALITY IN HEALTH CARE

7.7 MILLION NSW RESIDENTS ON 809,444 SQ. KM

230 HOSPITALS

NSW GOVERNMENT CLINICAL EXCELLENCE COMMISSION
The Problem- SAC2 Data in NSW

• Failure to recognise,
• Failure to respond to deteriorating patients
• Sepsis

“Patients don’t suddenly deteriorate. Healthcare professionals suddenly notice”

Dr Patrick Brady, Cincinnati Hospital
The problem: failure to recognise and treat sepsis as a medical emergency

Elijah’s death prompts new set of guidelines for treating children

Elijah Slavkovic ... was not given needed antibiotics soon enough.

Paul Bibby

CLEAR and simple guidelines for treating children who are suffering from potentially life-threatening sepsis infections will be introduced at hospitals across NSW following the death of four-month-old Elijah Slavkovic, NSW Health says.

The inquest into Elijah’s death in May 2009 from meningococcal meningitis has heard that he wasn’t given the antibiotics needed to treat the infection for more than seven hours after he first presented at a South Coast hospital vomiting and with a high temperature. Two doctors and a nurse who treated the baby during the most crucial period of his care said they had been unaware that, under NSW and federal health policies, they should have administered antibiotics earlier.

NSW Health tendered a letter from the state’s top paediatrician, Les White, yesterday setting out a series of changes to the health system as a result of Elijah’s death. Elijah’s mother Sandra Bemboch welcomed the move.

“I’ll never bring back Elijah but if we can save one life then I’ve done what I came here to do,” she said. “It becomes Elijah’s little flow chart in my mind. I want to see that these have been put into place and that feedback has come from them. People can make recommendations, but unless they actually do it it means nothing.”

The new guidelines include the introduction of a Paediatric Sepsis Pathway – a clear, easy to understand flow chart that guides doctors and nurses, step by step, through the process of treating children who may have septic infections, and the appropriate treatment options.

The chart directs doctors and nurses to administer antibiotics within an hour if a child presents with symptoms such as a temperature above 38.5 degrees, elevated heart rate, abdominal pain, neck stiffness and headache.

Professor White said the chart was being trialled at several hospitals and would then be rolled out statewide. The inquest heard that this roll-out would take place next year, and every hospital would have a chart in its emergency room by March.

Coroner Carmel Forbes on Wednesday adjourned the inquest until April next year so that the effectiveness of the new guidelines could be evaluated before she handed down her formal recommendations.

The inquest heard that while meningococcal meningitis can be difficult to diagnose, there is a relatively low mortality rate of 5 to 10 per cent among children if the illness is treated quickly with antibiotics.

The administration of antibiotics to Elijah was delayed for crucial hours while doctors carried out a series of blood and urine tests in an attempt to diagnose what was wrong, and to arrange for his transfer to hospital with a paediatric intensive care unit.

In calls between 1.20am and 1.30am on the night Elijah came to hospital, the paediatric registrar at Canberra Hospital and a consultant paediatrician at the Newborn Emergency Transport Service advised of the need to administer antibiotics. It was another 30 minutes before they were.

At 4am Elijah was flown to Canberra Hospital. His condition initially improved but then deteriorated rapidly and he suffered several violent seizures. By the time he arrived at Sydney Children’s Hospital he had severe brain damage.

Ms Bemboch said yesterday the hearings had been gruelling but she would return in April.

“On the inside I’m struggling,” she said.
Moving up the ‘slippery slope’

**Prevention**

**Clinical Review**

**Rapid MET Response**

**Advanced Life Support**

Between the Flags
Keeping patients safe
A statewide initiative of the Clinical Excellence Commission

Time

Patient Condition

Death
SEPSIS KILLS PROGRAM

Aim: Improve sepsis recognition and management and reduce preventable harm to patients in NSW hospitals

RECOGNISE
Risk factors, signs and symptoms of sepsis

RESUSCITATE
With rapid IV antibiotics and fluids within 60 minutes

REFER
To specialist care and initiate retrieval if needed
OBJECTIVES

• Promote uptake of standardised decision support tools
• Improve reliability of recognition of sepsis
• Decrease time to commence treatment
• Promote appropriate use of antibiotics

• Decrease the rate of in-hospital sepsis related mortality
• Decrease admissions/length of stay in ICU
• Decrease hospital length of stay for sepsis related admissions
Reliability: bundle six actions

• Give oxygen
• Take a lactate
• Take blood cultures
• Give empirical intravenous antibiotics
• Administer intravenous fluids
• Monitor, reassess and senior review
TIMELINE

2010
Sepsis Pilot in 5 EDs

2011
Sepsis Adult Emergency

2013
Paediatric Emergency

2014
Inpatient wards

2015
Maternal and Newborn

2016
All pathways published as medical record forms

Between the Flags
Keeping patients safe
A statewide initiative of the Clinical Excellence Commission

NSW Government
CLINICAL EXCELLENCE COMMISSION

Are you worried about a sudden change in your condition?
If you're unsure, ask a friend or family member to help you

+ REACH

PROCESS DATA

Median time to 1st antibiotic in NSW public hospitals

Pilot

Paediatrics (n=1,814)

Adults (n=39,233)

- Paediatrics (median 95)
- Adults (median 60)
ANTIBIOTICS: PAEDIATRICS

First antibiotic within specified time (%)

- Within 60 minutes
- Between 61 and 120 minutes

<table>
<thead>
<tr>
<th>Date Range</th>
<th>First Antibiotic (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-Jun 2013</td>
<td>25.0</td>
</tr>
<tr>
<td>(n=60)</td>
<td></td>
</tr>
<tr>
<td>Jul-Dec 2013</td>
<td>28.9</td>
</tr>
<tr>
<td>(n=201)</td>
<td></td>
</tr>
<tr>
<td>Jan-Jun 2014</td>
<td>32.6</td>
</tr>
<tr>
<td>(n=224)</td>
<td></td>
</tr>
<tr>
<td>Jul-Dec 2014</td>
<td>21.9</td>
</tr>
<tr>
<td>(n=155)</td>
<td></td>
</tr>
<tr>
<td>Jan-Jun 2015</td>
<td>26.0</td>
</tr>
<tr>
<td>(n=179)</td>
<td></td>
</tr>
<tr>
<td>Jul-Dec 2015</td>
<td>29.1</td>
</tr>
<tr>
<td>(n=144)</td>
<td></td>
</tr>
<tr>
<td>Jan-Jun 2016</td>
<td>27.8</td>
</tr>
<tr>
<td>(n=150)</td>
<td></td>
</tr>
<tr>
<td>Jul-Dec 2016</td>
<td>16.0</td>
</tr>
<tr>
<td>(n=154)</td>
<td></td>
</tr>
<tr>
<td>Jan-Jun 2017</td>
<td>28.6</td>
</tr>
<tr>
<td>(n=201)</td>
<td></td>
</tr>
<tr>
<td>Jul-Dec 2017</td>
<td>18.8</td>
</tr>
<tr>
<td>(n=86)</td>
<td></td>
</tr>
<tr>
<td>Jan-Jun 2018</td>
<td>48.8</td>
</tr>
<tr>
<td>(n=86)</td>
<td></td>
</tr>
</tbody>
</table>

NSW Government

Clinical Excellence Commission
Patients with a sepsis diagnosis who die in a NSW hospital 2009 - 2018

Overall 30% decrease

ED launch

12.9%
5 ELEMENT FRAMEWORK

GOVERNANCE

Standard Clinical Tools
Clinical Emergency Response System
Education
Evaluation
IMPLEMENTATION STRATEGY

LHD/SHN
- Director Clinical Governance
- Sepsis Lead
- LHD/SHN Committee

Facility
- Executive sponsor
- Sepsis Clinical Lead
- Project Team plus Governance Committee

ED/Ward
- Nursing lead
- Medical lead

CLINICAL EXCELLENCE COMMISSION
COLLABORATION

- Clinical lead and Executive support
- Monthly teleconferences
- Phone support
- Site visits
- 6 monthly reports
- Webinars
- Statewide and local workshops
SEPSIS TOOLKIT

Guide to ‘think sepsis’

NOT prescriptive ......clinical judgement is KEY

Emphasis on senior clinician review

6 interventions - O₂, lactate, cultures, abs, fluids, monitoring
EDUCATION

- Deteriorating patient education
- Paediatric Watch Newsletters
LESSONS LEARNED

• Picking the septic child
• Don’t use temperature to rule sepsis in/out
• Persistent tachycardia is key
• Significance of lactate ≥ 2mmol/L
• Fluid volumes – jury still out
• Importance of paediatrician engagement
LESSONS LEARNED

• Allocate time and human resources

• Keep measures frequent and simple - process, outcome and balancing

• Governance - reporting and feedback processes

• Celebrate success and failure
Current and future priorities

eMR / digital environment
• Between the Flags (BTF) (similar to VicTor) Version 4 eMR
• Electronic sepsis alert in the eMR

Evaluation
• SEPSIS KILLS evaluation - linked data sets

Systems Improvement
• Reliability in ED’s (every patient, every time)
• Inpatient ward
• Spread and sustainability
ACKNOWLEDGEMENTS

• NSW Health clinicians and clinical governance units

• CEC Adult Patient Safety and Paediatric teams

• CEC Deteriorating Patient/Sepsis Committees
SEPSIS KILLS
TIME IS LIFE
Recognise Resuscitate Refer
For further information:
CEC-sepsis@health.nsw.gov.au
www.cec.health.nsw.gov.au