SEPSIS KILLS

Recognising & Managing Sepsis in NSW

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Clinical Excellence Commission

Australasian College for Infection Prevention and Control
7th International Conference - 21 November 2018

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7.7 MILLION NSW RESIDENTS ON **809,444** SQ. KM

230 HOSPITALS

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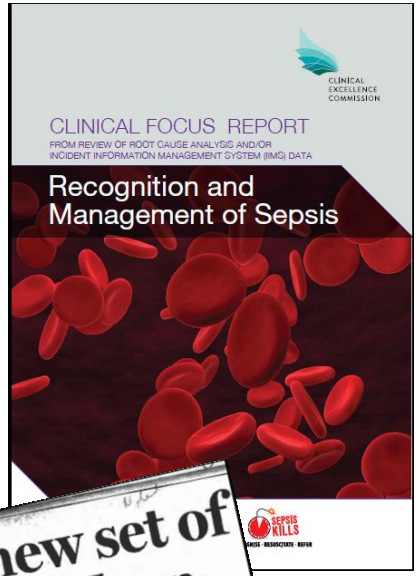
THE PROBLEM IN NSW

- 167 sepsis related incidents over 18 months
- Failure to **recognise** sepsis in wards and ED
- Failure to take **appropriate and timely action**
- Poor patient outcomes
- **Failure to see sepsis as a medical emergency**



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

Paul Bibby
COURTS

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.

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

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 Bernobic 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 what 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 assessing 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 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 of Canberra Hospital and a consultant paediatrician at the Newborn Emergency Transport Service advised of the urgent need to administer antibiotics. It was another 90 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 Bernobic said yesterday the hearings had been gruelling but she would return in April.

"On the inside I'm screaming," she said.

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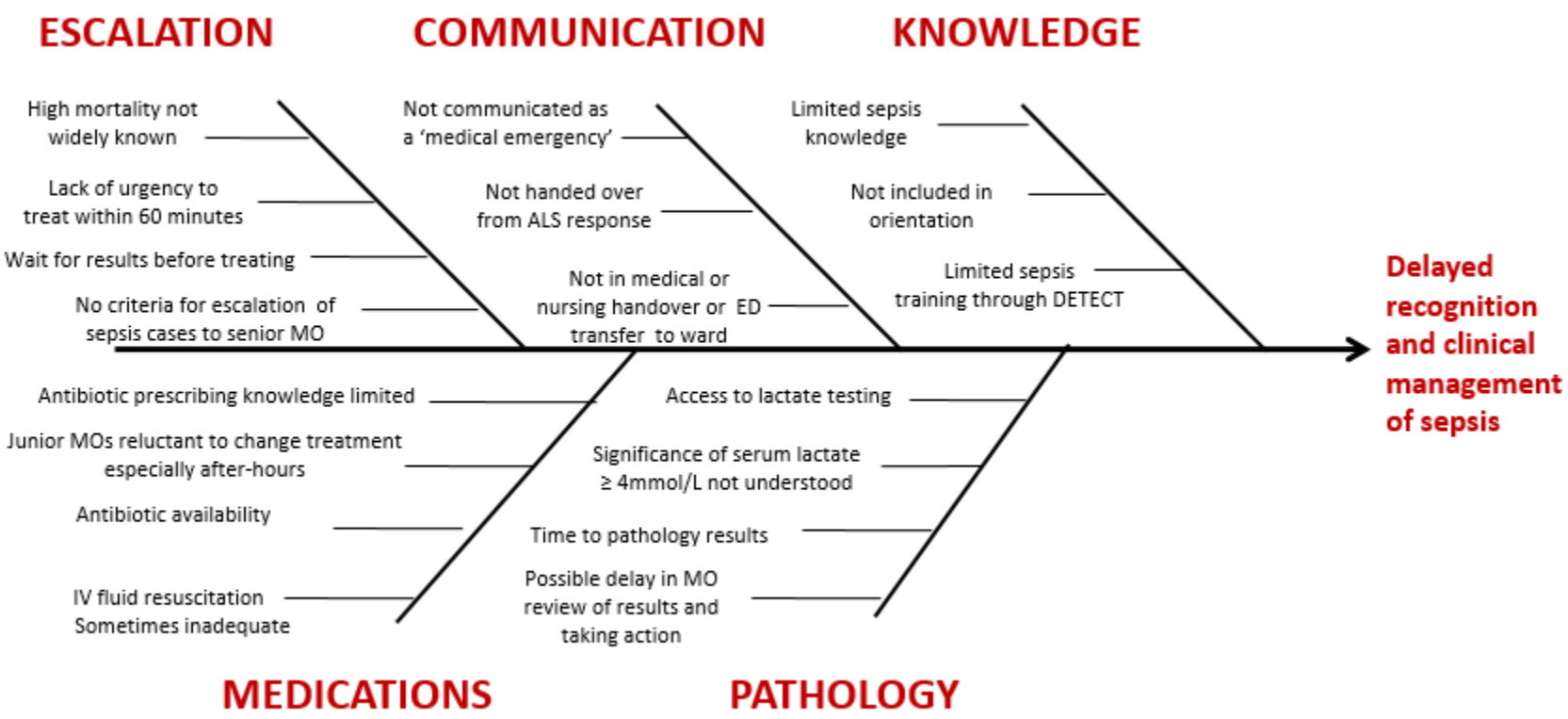

Source: Westmead Hospital, 2014

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NSW SEPSIS KILLS commenced 2011

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

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SYSTEM IMPROVEMENT

- Sepsis Toolkit
- Pathways
- Antibiotic and blood culture guidelines

- Patient stories
- Case studies
- Videos
- E-learning
- Webinars
- Info for patient/family

- BTF safety net
- Standard Charts
- Clinical Review
- Rapid Response

- CEC database
- Time to abs and fluids
- Data linkage

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COLLABORATIVE APPROACH

Clinical leadership and Executive support

Site visits

Teleconferences

Phone support

Tools and resources

Improvement science: PDSA cycles

Sepsis Learning Sessions - webinar

Statewide and Local Workshops

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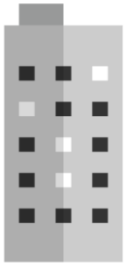
TIMELINE

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



2010	2011	2013	2014	2015	2016
Sepsis Pilot in 5 EDs	Sepsis Adult Emergency	Paediatric Emergency + REACH	Inpatient wards	Maternal and Newborn	**All pathways published as medical record forms**

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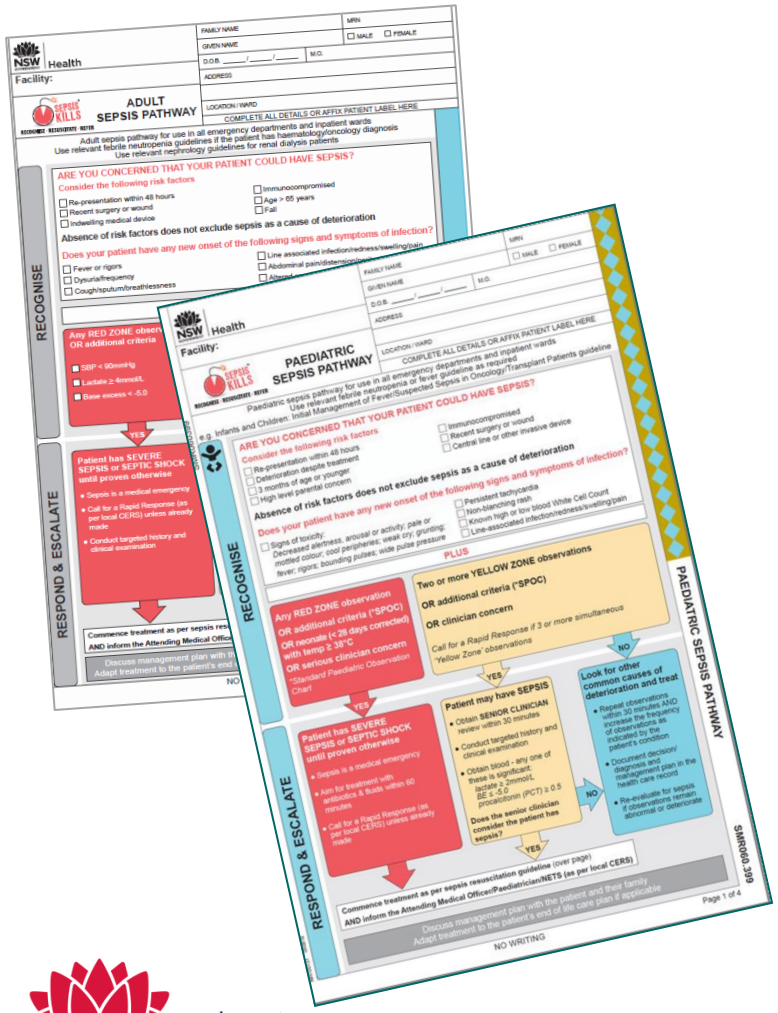
SEPSIS PATHWAYS



Guide to ‘think sepsis’

NOT prescriptive ……clinical judgement is KEY

Senior medical staff involvement

Consider sepsis **any** time your patient **deteriorates**

AND/OR have signs and symptoms of infection

PLUS Red or Yellow Zone observations

OR a clinician is concerned/suspects sepsis

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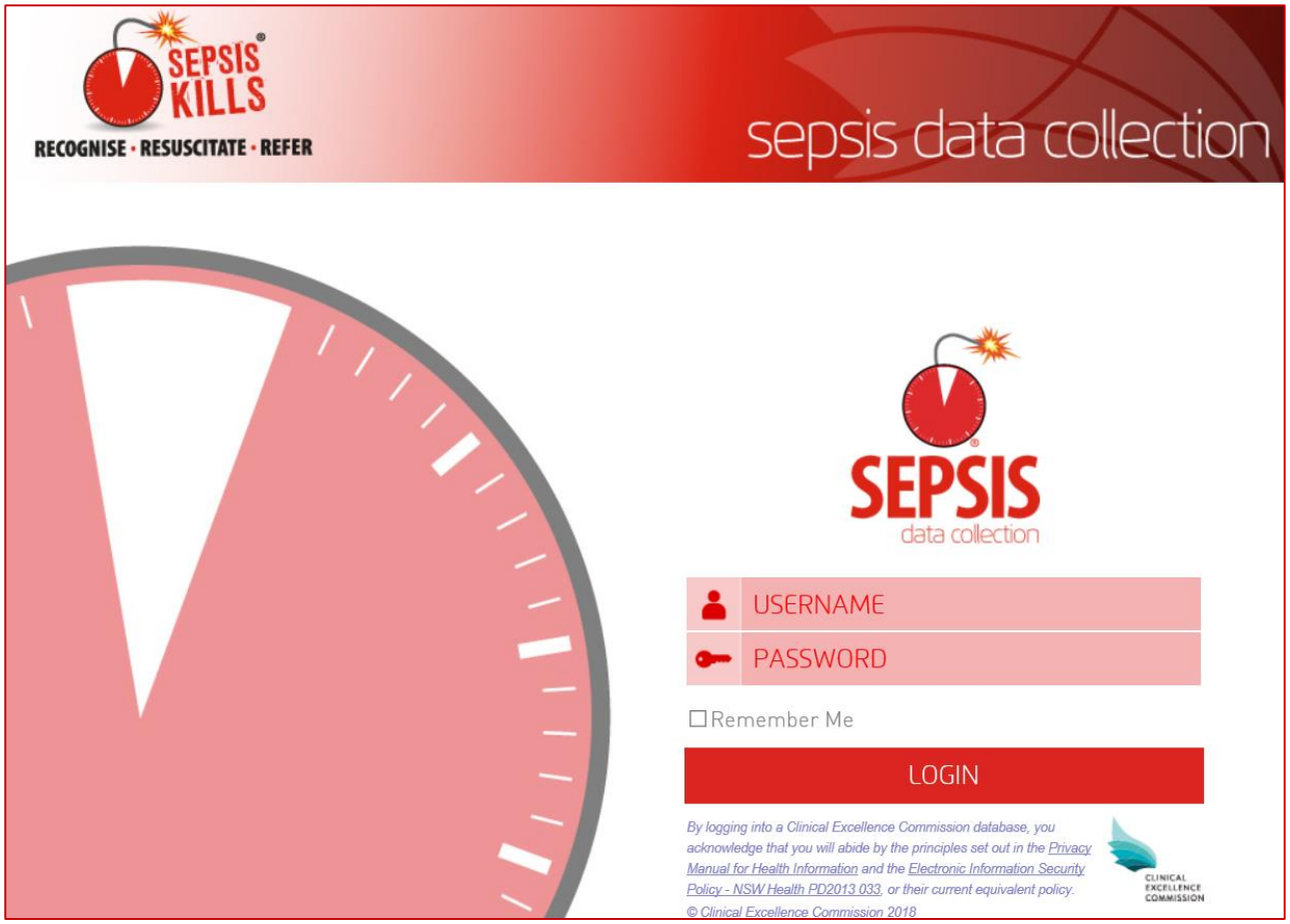
EVALUATION



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BUNDLE: SIX ACTIONS

Give oxygen

Take a lactate

Take blood cultures

Give empirical intravenous antibiotics

Administer intravenous fluids

Monitor, reassess and clinical handover

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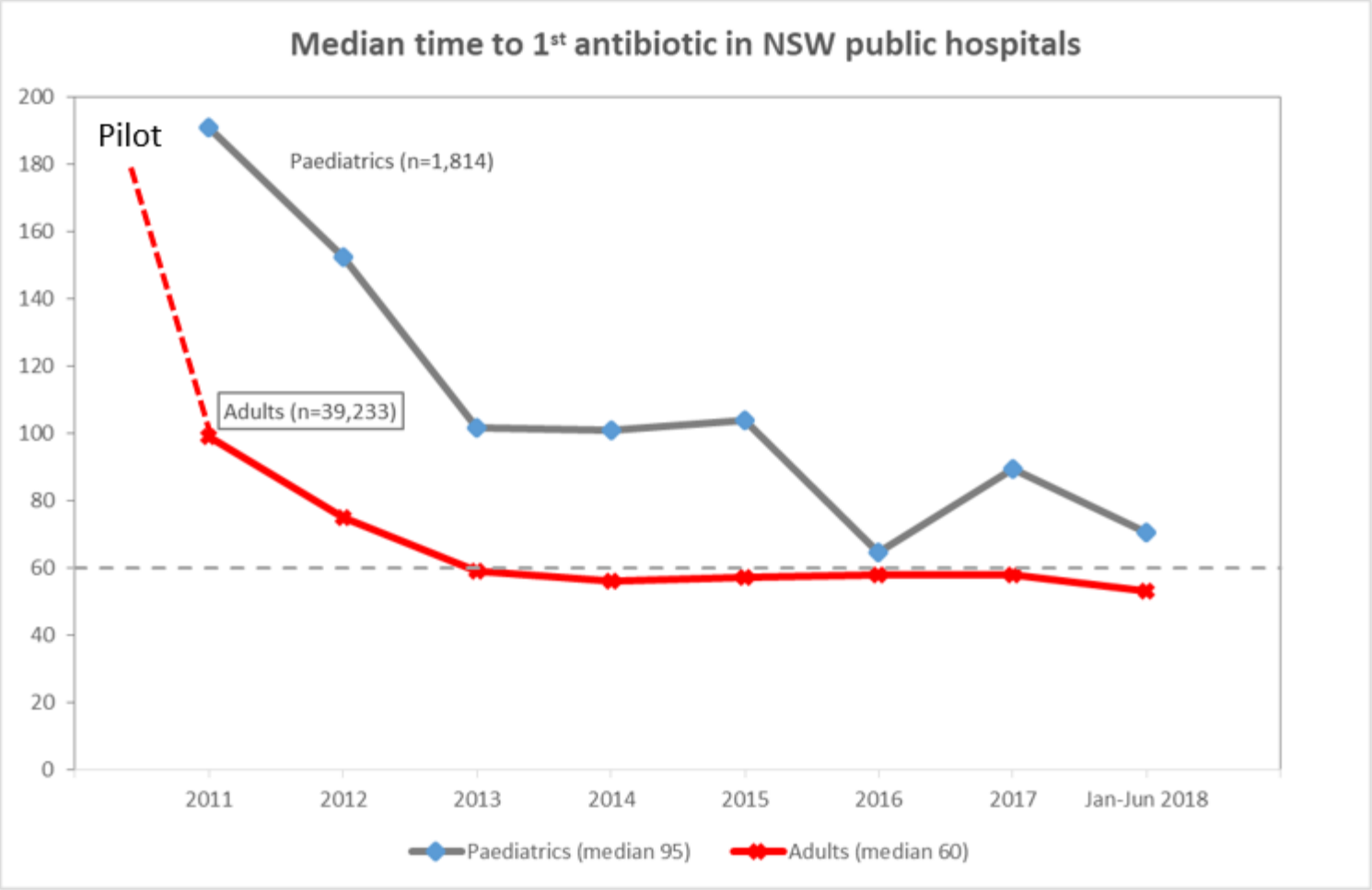
PROCESS DATA



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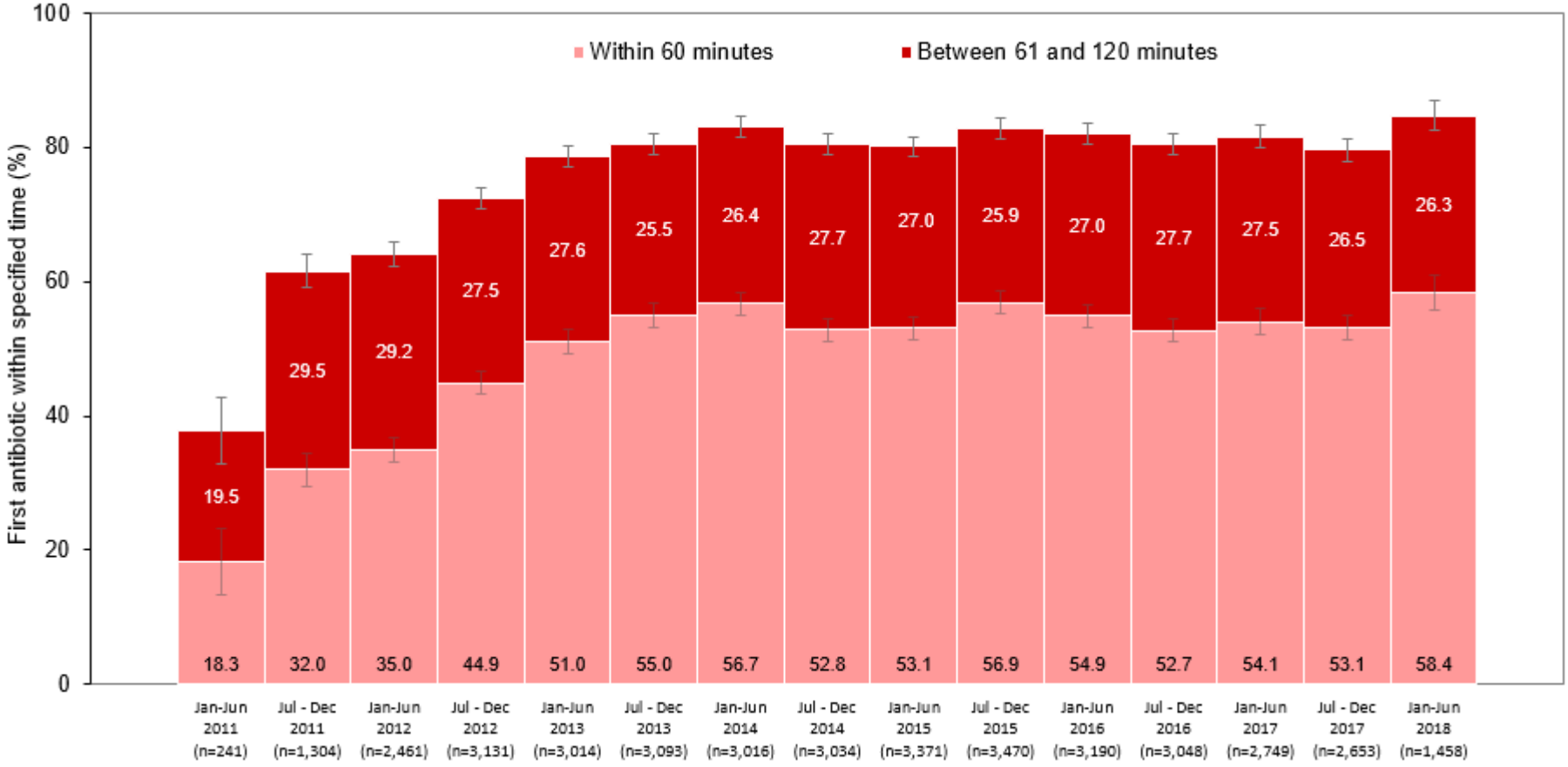
ANTIBIOTICS: ADULTS



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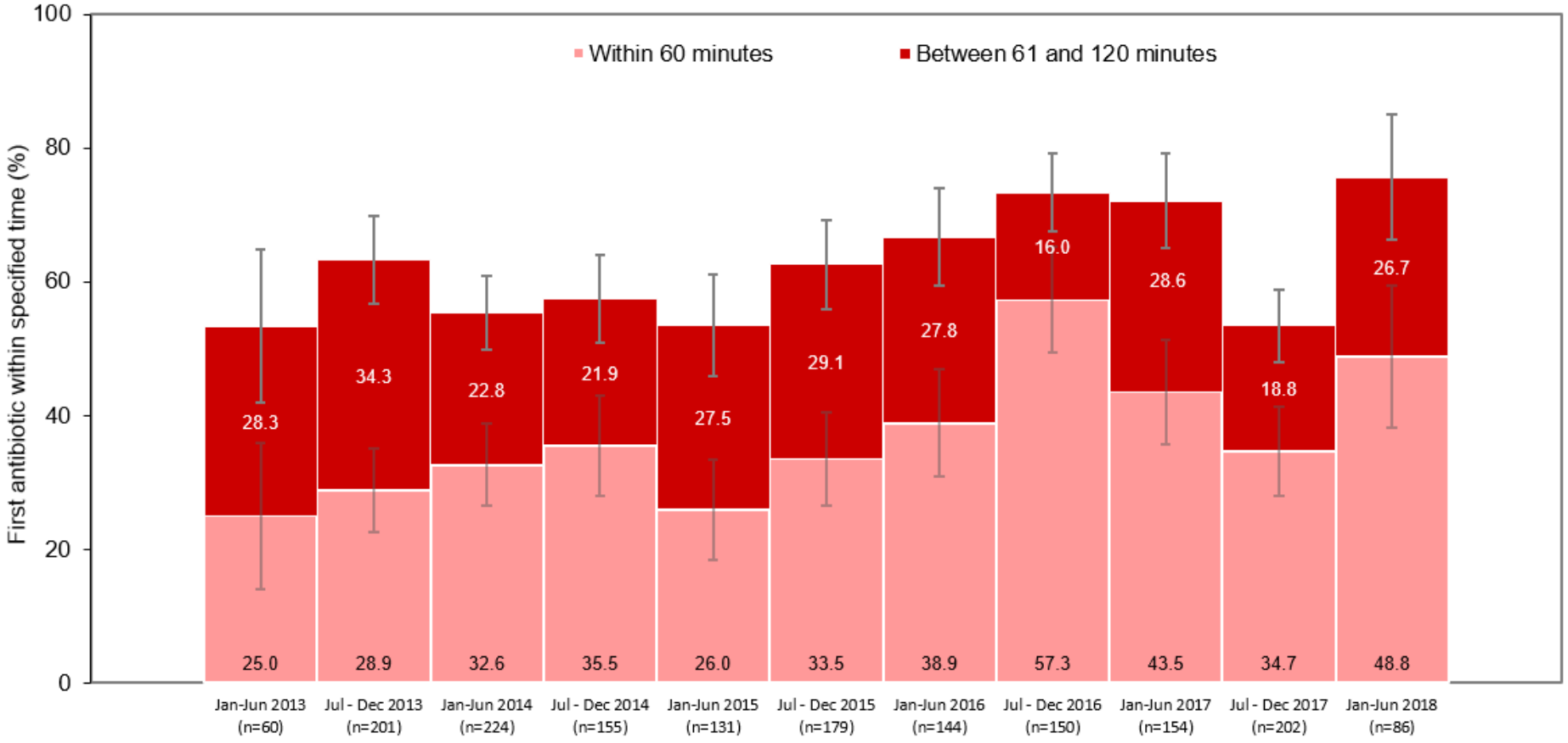
ANTIBIOTICS: PAEDIATRICS



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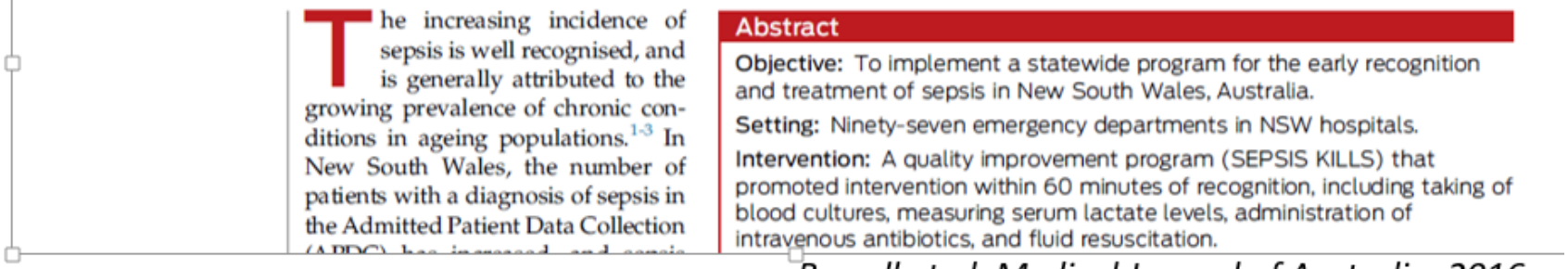
OUTCOME DATA

SEPSIS KILLS: early intervention saves lives



The increasing incidence of sepsis is well recognised, and is generally attributed to the growing prevalence of chronic conditions in ageing populations.[1-3] In New South Wales, the number of patients with a diagnosis of sepsis in the Admitted Patient Data Collection

Abstract

Objective: To implement a statewide program for the early recognition and treatment of sepsis in New South Wales, Australia.

Setting: Ninety-seven emergency departments in NSW hospitals.

Intervention: A quality improvement program (SEPSIS KILLS) that promoted intervention within 60 minutes of recognition, including taking of blood cultures, measuring serum lactate levels, administration of intravenous antibiotics, and fluid resuscitation.

Burrell et al, Medical Journal of Australia, 2016

- Mortality (overall) decreased from 19.3% to 14.1% ($p < 0.0001$)
- Mean ICU hrs ↓ 32.7 hours to 25.8 hours ($p < 0.0001$)
- Mean LOS ↓ 13.5 days to 11.5 days ($p < 0.0001$)
- Risk of Death ↑ 3.3 x for patients > 65 years ($p = 0.001$)

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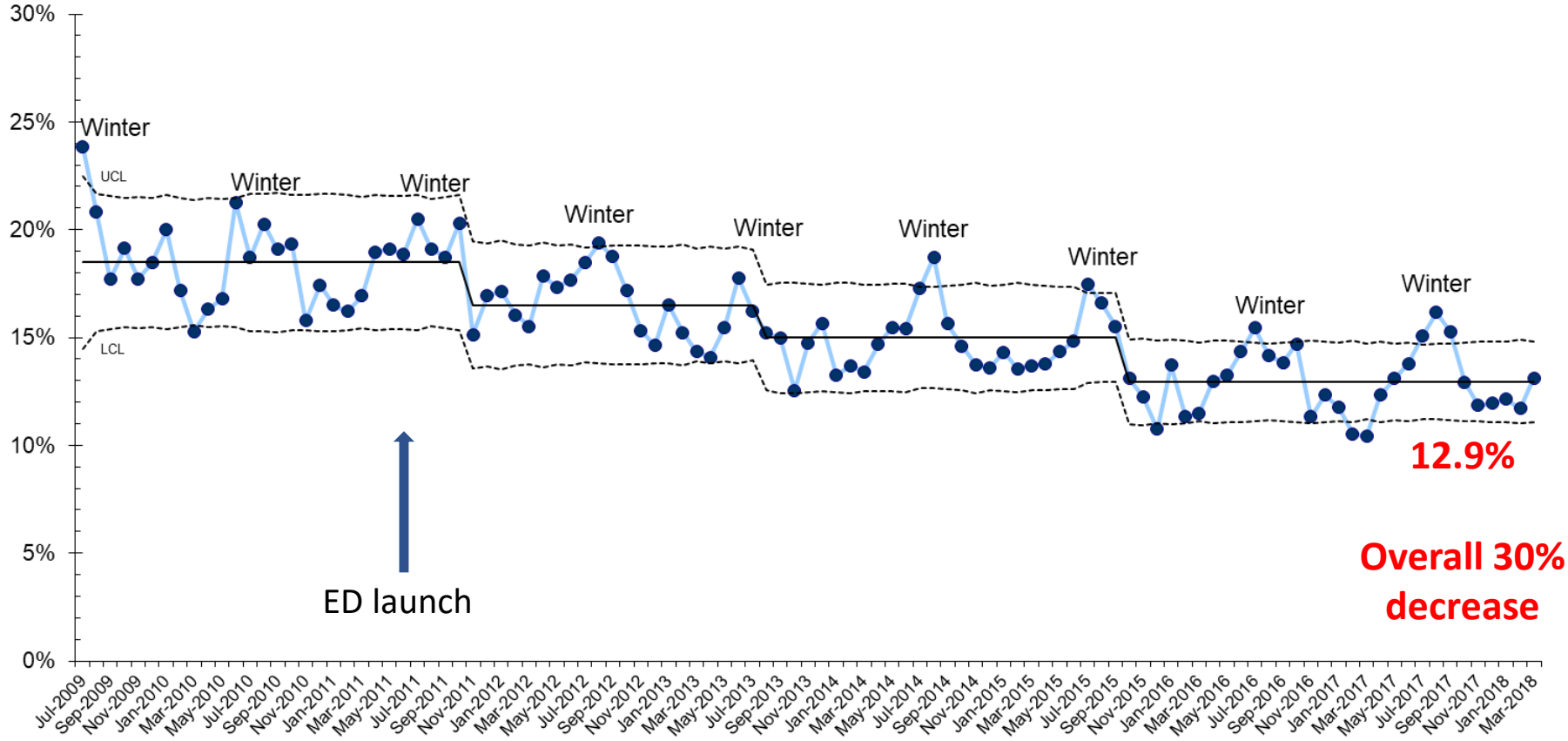
% of patients with a sepsis diagnosis who die in a NSW hospital 2009 -2018



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CHALLENGES

- Inpatient vs ED uptake
- Medical engagement and leadership (ID vital)
- Deterioration post initial treatment
- Monitoring and feedback loops
- Unintended consequences

  - Broad diagnostic parameters + emphasis on abs within 60 mins
  - Missed cultures
  - Antibiotics not reviewed when results are available

  ……all pathways revised with AMS experts Sept 2016

RELIABILILITY

What matters to the patient?

Every patient every time - ED and wards

What else is needed to achieve reliability?

CURRENT AND FUTURE PRIORITIES

1. Electronic sepsis alert in the eMR

2. Deteriorating patient BTF education

3. Systems improvement
   - Enhance LHD/hospital implementation fidelity
   - Spread and sustainability

4. Evaluation using linked data sets

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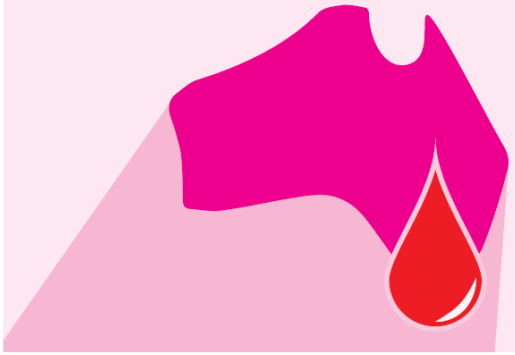
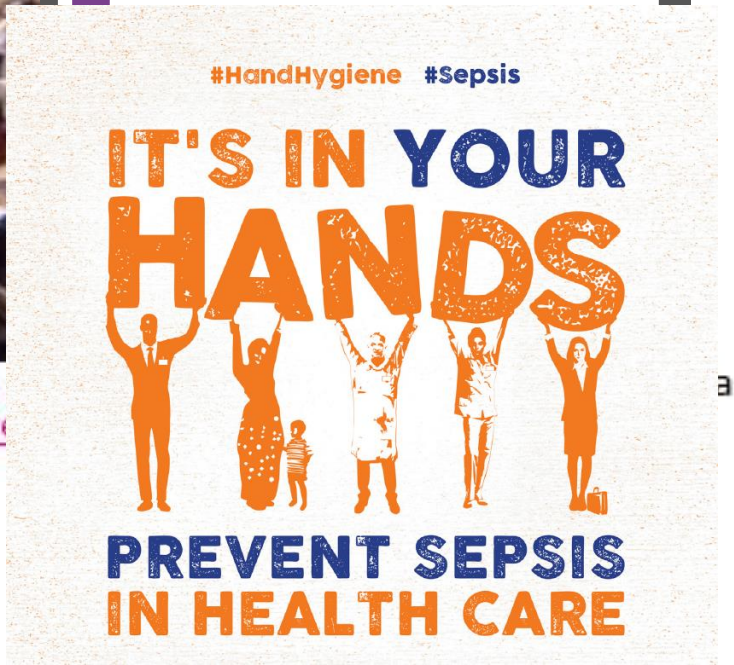
WHA Adopts Resolution on Sepsis

On Friday, May 26th, 2017, the World Health Assembly and the
global health priority, by adopting a resolution to improve, preve

Stopping Sepsis:
A National Action Plan



A health policy report
December 2017



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ACKNOWLEDGEMENTS

- NSW Health clinicians + clinical governance units
- CEC Adult Patient Safety and Paediatric teams
- CEC Deteriorating Patient/Sepsis Committees
- UK Sepsis Trust, 1000 Lives/NHS Wales, British Columbia Sepsis Network

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http://www.cec.health.nsw.gov.au/patient-safety-programs/adult-patient-safety/sepsis-kills