THINK SEPSIS. ACT FAST.

SEPSIS IMPROVEMENT

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BETTER CARE VICTORIA

THINK SEPSIS ACT FAST

OVERVIEW

New South Wales Clinical Excellence Commission 'Sepsis Kills'

Peter MacCallum Cancer Centre

Royal Melbourne Hospital

(Better Care Victoria Innovation Fund)

11 health services/ 23 hospitals

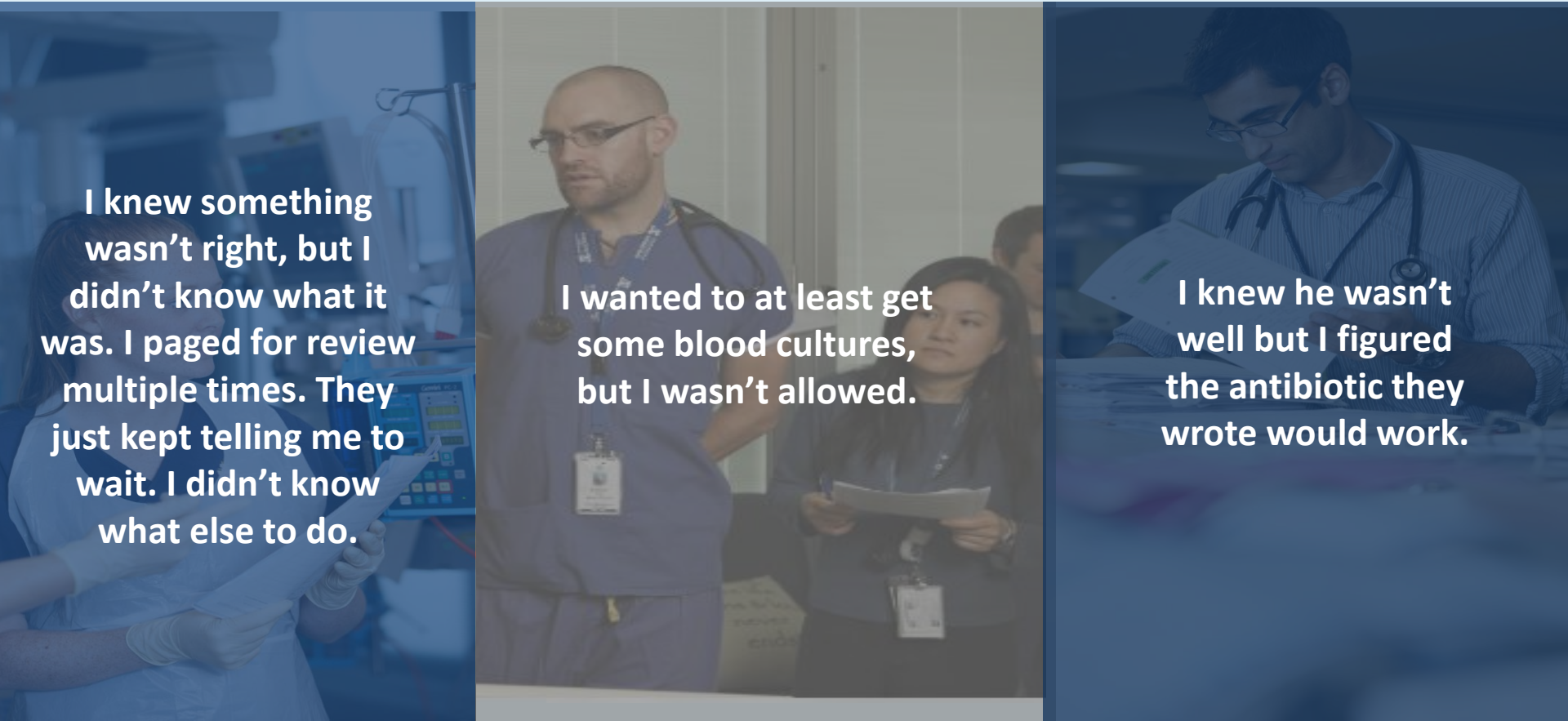
(Better Care Victoria Innovation Fund)

CASE

- 28 y/o male Tim* presents to clinic
- Background of pancytopenia
- Admitted for worsening neurological symptoms
- Treated with IV steroids
- Deterioration over hours
- Delayed recognition & delayed management

*Name has been changed

A NEED FOR CHANGE



Why a Pathway?

What is sepsis?

Sepsis is difficult to define, diagnose, and treat

Melbourne Health

Process mapping showed variability in recognition and management

Patient outcomes

20% mortality during MET calls

Evidence

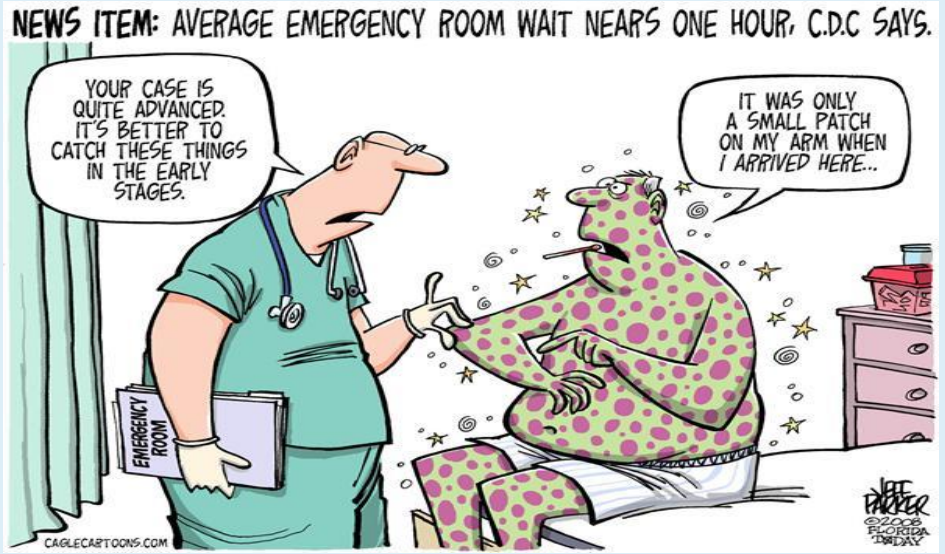
Quicker management = better outcomes!

OBJECTIVES

- Improve time to antibiotics
- Improve appropriateness of antibiotics
- Increase services utilising pathway
- Decrease length of stay for patients with sepsis
- Decrease sepsis related ICU admissions
- Decrease sepsis related mortality

BARRIERS & CHALLENGES

- Escalation
- Equipment
- Cannulation
- After-hours review
- Antibiotic availability
- ED to ward transfer
- Subacute access to pathology
- Busy!



INTERVENTIONS

Baseline performance

Evidence based clinical pathway

Hospital-wide education

Communications and marketing plan

Electronic triggers

Data collection and real time feedback

DAILY PROCESS

Sepsis rounds and Pathway audit

Restricted antibiotic audit

Electronic tools

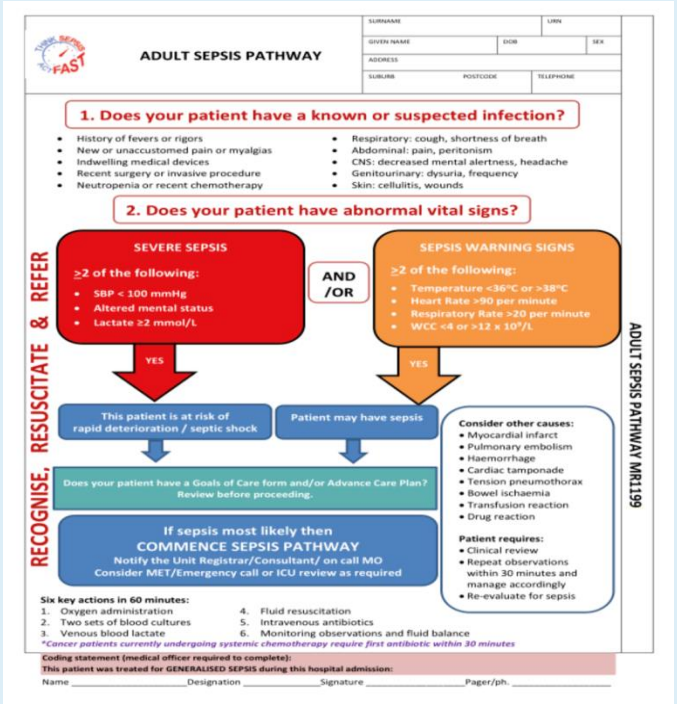
Daily summary

Medical team feedback

Nursing team feedback

PATHWAY OVERVIEW

- Medical record form
- 6 hour bundle
- 6 key actions in 60min
- Empiric guidelines included



ADULT SEPSIS PATHWAY

SURNAME | URN | GIVEN NAME | DOB | SEX | ADDRESS | SUBURB | POSTCODE | TELEPHONE

1. Does your patient have a known or suspected infection?

- History of fevers or rigors
- New or unaccustomed pain or myalgias
- Indwelling medical devices
- Recent surgery or invasive procedure
- Neutropenia or recent chemotherapy
- Respiratory: cough, shortness of breath
- Abdominal: pain, peritonism
- CNS: decreased mental alertness, headache
- Genitourinary: dysuria, frequency
- Skin: cellulitis, wounds

2. Does your patient have abnormal vital signs?

RECOGNISE, RESUSCITATE & REFER

SEVERE SEPSIS

≥2 of the following:

- SBP < 100 mmHg
- Altered mental status
- Lactate ≥2 mmol/L

AND /OR

SEPSIS WARNING SIGNS

≥2 of the following:

- Temperature <36°C or >38°C
- Heart Rate >90 per minute
- Respiratory Rate >20 per minute
- WCC <4 or >12 x 10^9/L

YES

YES

This patient is at risk of rapid deterioration / septic shock

Patient may have sepsis

Consider other causes:

- Myocardial infarct
- Pulmonary embolism
- Haemorrhage
- Cardiac tamponade
- Tension pneumothorax
- Bowel ischaemia
- Transfusion reaction
- Drug reaction

Does your patient have a Goals of Care form and/or Advance Care Plan? Review before proceeding.

If sepsis most likely then
COMMENCE SEPSIS PATHWAY
Notify the Unit Registrar/Consultant/ on call MO
Consider MET/Emergency call or ICU review as required

Patient requires:

- Clinical review
- Repeat observations within 30 minutes and manage accordingly
- Re-evaluate for sepsis

Six key actions in 60 minutes:

1. Oxygen administration
2. Two sets of blood cultures
3. Venous blood lactate
4. Fluid resuscitation
5. Intravenous antibiotics
6. Monitoring observations and fluid balance

**Cancer patients currently undergoing systemic chemotherapy require first antibiotic within 30 minutes*

Coding statement (medical officer required to complete):
This patient was treated for GENERALISED SEPSIS during this hospital admission:

Name _____ Designation _____ Signature _____ Pager/ph. _____

ADULT SEPSIS PATHWAY MR1199

Acknowledgements: NSW Clinical Excellence Commission, Sepsis Kills Program

CONSENSUS APPROACH

Does your patient have a known or suspected infection?

Does your patient have risk factors, signs or symptoms?

PLUS

≥ 2 Severe signs

SBP <100mmHg
Altered mental status
Lactate >2mmol/L

YES

This patient is at risk of rapid deterioration/septic shock

AND / OR

≥2 Early warning signs

T <36°C or >38°C
HR >90 per minute
RR >20 per minute
W[illegible]4 or >12 x10^9/L

YES

Patient may have sepsis

NO

Look for other causes

KEY ACTIONS IN 60 MINS

Oxygen

2 sets of blood cultures

Lactate

Fluid bolus

Appropriate antibiotics

Continue monitoring

RESULTS

	Baseline	Pathway	P Value
Episodes, n	126	716	
Age, years, median	65.5	66	
Charlson Comorbidity Index, median	4	4	
Sepsis recognised in ED, n (%)	88 (69.8%)	611 (85.3%)	<0.05
Sepsis recognised on ward, n (%)	36 (28.6%)	105 (14.7%)	<0.05
Lactate collected, n (%)	85 (67.5%)	670 (93.6%)	<0.05
≥2 blood cultures n, (%)	53 (42.1%)	611 (85.3%)	<0.05
Time to first dose antibiotics, median, mins	120.5 mins	58 mins	<0.05
Appropriateness of antibiotic (%)	95.2%	97.3%	>0.05
Admission to ICU n, (%)	**25.4%**	**8.8%**	<0.05
Length of stay, median, days	**7 days**	**4 days**	<0.05
In-hospital mortality (%)	**13.5%**	**6.7%**	<0.05
Services using pathway (%)	4%	100%	

OUTCOMES

51.9% reduction in time to antibiotics

100% services using pathway

42.9% reduction in length of stay

65.4% reduction in ICU admissions

50.4% reduction in mortality

IMPACT

“

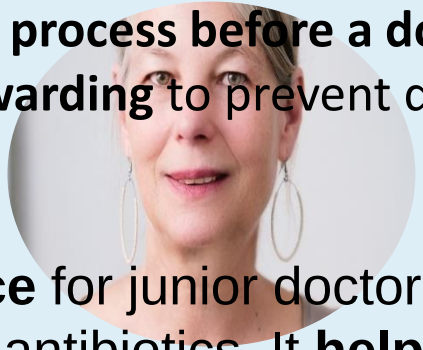
I find it **empowering**. It gives me a voice as a nurse. I the patient m teria for sepsis and you iew th delay review I have I n nd **advocate** for my

oject saved l will continue to save lives. I’m now confident **we’re doing the best** for our patients and their families.

Nursing **Medical** **Consumers**

”

IMPACT



“

Staff had an increased ability to recognise sepsis, identify what needed to be done and already **began the management process before a doctor had arrived**. It's **extremely rewarding** to prevent deterioration of patients.

A **great resource** for junior doctors, especially with the empiric antibiotics. It **helps guide us on what to do.**

Nursing

Medical

Junior doctors love that it’s straight forward. Consultants like it because patients are getting **recognised earlier**.

Consumers

”

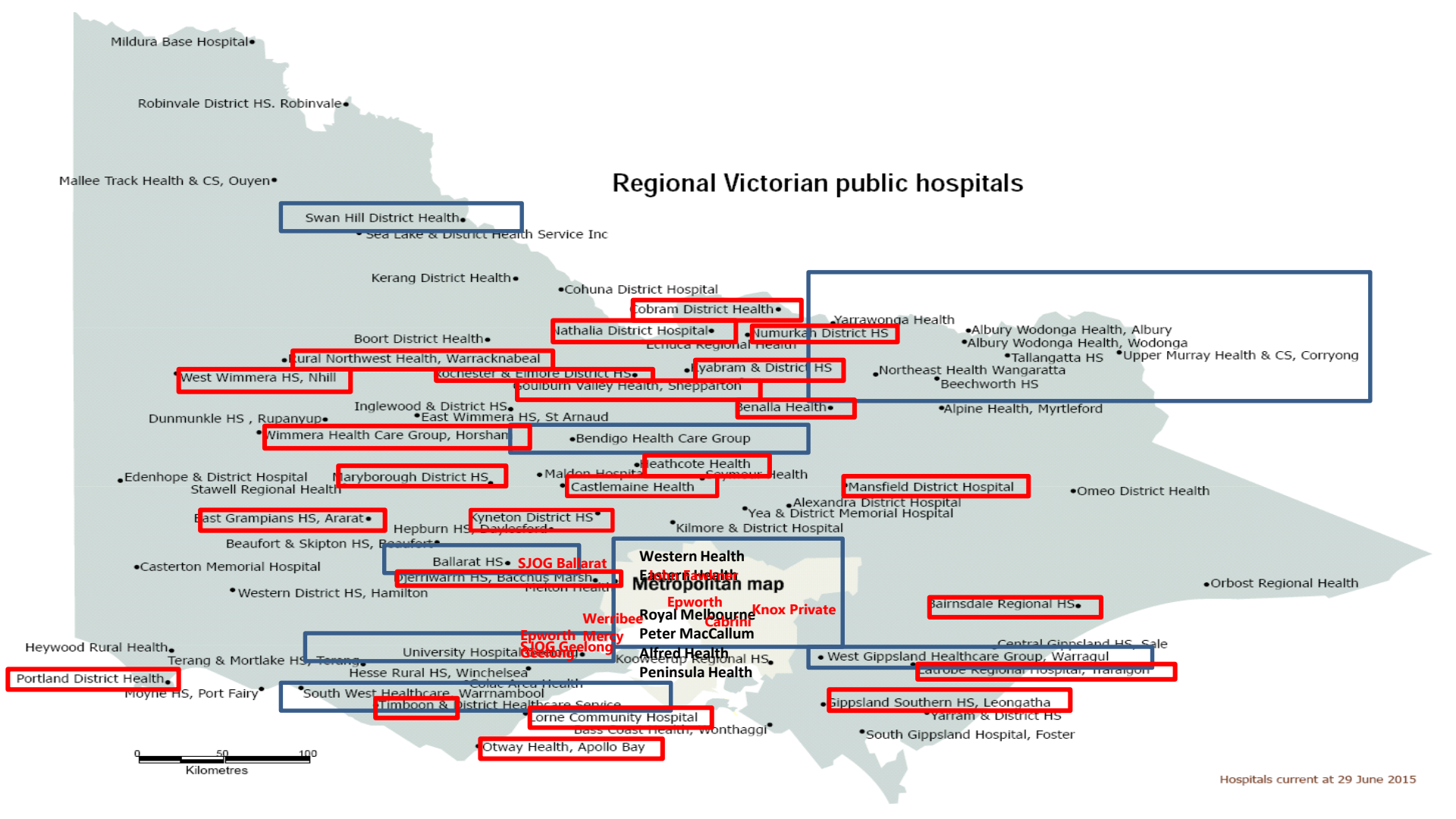
IMPACT

“I felt like the Sepsis Pathway was a **call to action**, rallying the troops. The result was a **highly coordinated** response that was time sensitive with **all staff communicating clearly**, thoroughly and including us at all times. We felt at every step that my son was receiving **expert** and **focused care**.”

Nursing **Medical** **Consumers**

SEPSIS SCALING COLLABORATION

- Better Care Victoria innovation fund
- Scaling MH pathway to 11 health services (23 hospitals)
- MH as lead with support of Safer Care Victoria


Regional Victorian public hospitals
Mildura Base Hospital
Robinvale District HS. Robinvale
Mallee Track Health & CS, Ouyen
Swan Hill District Health
Sea Lake & District Health Service Inc
Kerang District Health
Cohuna District Hospital
Cobram District Health
Yarrawonga Health
Nathalia District Hospital
Numurkah District HS
Albury Wodonga Health, Albury
Albury Wodonga Health, Wodonga
Tallangatta HS
Upper Murray Health & CS, Corryong
Boort District Health
Echuca Regional Health
Rural Northwest Health, Warracknabeal
West Wimmera HS, Nhill
Rochester & Elmore District HS
Kyabram & District HS
Northeast Health Wangaratta
Beechworth HS
Goulburn Valley Health, Shepparton
Inglewood & District HS
Benalla Health
Alpine Health, Myrtleford
Dunmunkle HS , Rupanyup
East Wimmera HS, St Arnaud
Wimmera Health Care Group, Horsham
Bendigo Health Care Group
Heathcote Health
Edenhope & District Hospital
Maryborough District HS
Maldon Hospital
Seymour Health
Stawell Regional Health
Castlemaine Health
Mansfield District Hospital
Omeo District Health
Alexandra District Hospital
Yea & District Memorial Hospital
East Grampians HS, Ararat
Kyneton District HS
Hepburn HS, Daylesford
Kilmore & District Hospital
Beaufort & Skipton HS, Beaufort
Ballarat HS
SJOG Ballarat
Western Health
Casterton Memorial Hospital
Djerriwarrh HS, Bacchus Marsh
Melton Health
Metropolitan map
Orbost Regional Health
Western District HS, Hamilton
Epworth
Knox Private
Cairnsdale Regional HS
Werribee
Royal Melbourne
Cabrini
Epworth Geelong
Mercy
SJOG Geelong
Peter MacCallum
Heywood Rural Health
University Hospital Geelong
Alfred Health
Central Gippsland HS, Sale
Terang & Mortlake HS, Terang
Kooweerup Regional HS
West Gippsland Healthcare Group, Warragul
Peninsula Health
Hesse Rural HS, Winchelsea
Latrobe Regional Hospital, Traralgon
Portland District Health
Colac Area Health
Moyne HS, Port Fairy
South West Healthcare, Warrnambool
Gippsland Southern HS, Leongatha
Timboon & District Healthcare Service
Yarram & District HS
Lorne Community Hospital
Bass Coast Health, Wonthaggi
South Gippsland Hospital, Foster
Otway Health, Apollo Bay
0
50
100
Kilometres
Hospitals current at 29 June 2015

COLLABORATION

- Collaborative model
- Whole of hospital approach
- Project + clinical lead at each service
- Barriers and enablers assessment
- Toolkit x 4 provided

THINK SEPSIS
ACT FAST

SEPSIS

THINK SEPSIS
FAST

THANK YOU

Prof Karin Thursky, Better Care Victoria Innovation Fund, Safer Care Victoria, NSW Clinical Excellence Commission, Peter MacCallum Cancer Centre, RMH ED Sepsis Special Interest Group and Sepsis Working Party, RMH and PMCC Antimicrobial Stewardship Team, MH Transformation and Quality, MH Business Intelligence, Sepsis Scaling Collaboration health services and teams, Tristan Vasquez, Lizzie Summers, Thao Nguyen, Dominic Gasparini, Robert McCubbin, Dr David Griffin, Dr Tim Fazio, UK Sepsis Trust, Surviving Sepsis Campaign

BETTER CARE VICTORIA

SCV Safer Care Victoria

The Royal Melbourne Hospital