# APPENDIX 3

## SEPSIS COLLABORATIVE

*St John’s 24th June 2014*

Registration and coffee: 08.30-09.00

<table>
<thead>
<tr>
<th>TIME</th>
<th>TITLE</th>
<th>SPEAKER</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00</td>
<td>Welcome and introduction</td>
<td>Nikki Maran</td>
</tr>
<tr>
<td>9.10</td>
<td>‘Millionaire quiz’</td>
<td>Mags Watkins</td>
</tr>
<tr>
<td>9.25</td>
<td>Sepsis Overview</td>
<td>Alison Hunter</td>
</tr>
<tr>
<td>9.45</td>
<td>HIS Sepsis DVD</td>
<td></td>
</tr>
<tr>
<td>9.55</td>
<td>The Change package – what’s it all about?</td>
<td>Jane Muirhead</td>
</tr>
<tr>
<td>10.05</td>
<td>Local data and patient stories</td>
<td>Helen Gillett</td>
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<td></td>
<td></td>
<td>Paul Taylor</td>
</tr>
<tr>
<td>10.25</td>
<td>“Call for help early”- Sounds good, but why don’t we always do it?”</td>
<td>Ed Mellenby</td>
</tr>
<tr>
<td>10.45</td>
<td>Any questions?</td>
<td>Annette Henderson</td>
</tr>
<tr>
<td>10.55</td>
<td>Coffee</td>
<td></td>
</tr>
<tr>
<td>11.15</td>
<td>World Café</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td>1. Recognise: recognising and screening the septic patient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Resuscitate: delivering the Sepsis 6 in one hour</td>
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<tr>
<td></td>
<td>3. Refer: what happens after the ‘Golden Hour’?</td>
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<tr>
<td>12.20</td>
<td>Crash course in Quality Improvement</td>
<td>Ross Paterson</td>
</tr>
<tr>
<td>13.05</td>
<td>World Café feedback</td>
<td>All</td>
</tr>
<tr>
<td>13.15</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>14.00</td>
<td>Concurrent sessions: Simulation and Septris</td>
<td>Sylvia Kilpatrick</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ian Stewart</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ross Paterson</td>
</tr>
<tr>
<td>14.45</td>
<td>Local planning in teams / Coffee</td>
<td>All</td>
</tr>
<tr>
<td>16.00</td>
<td>Feedback from Local Planning Sessions</td>
<td>All</td>
</tr>
<tr>
<td>16.15</td>
<td>Plans for the future. Close and thanks</td>
<td>David Farquharson</td>
</tr>
</tbody>
</table>

8.2 at: [http://www.nhslothian.scot.nhs.uk/OurOrganisation/BoardCommittees/LothianNHSBoard/BoardPapers/Pages/BackgroundPapers.aspx](http://www.nhslothian.scot.nhs.uk/OurOrganisation/BoardCommittees/LothianNHSBoard/BoardPapers/Pages/BackgroundPapers.aspx)
Suspect Sepsis?

2 or more of SIRS criteria below THINK SEPSIS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>&lt;36°C or &gt;38°C</td>
</tr>
<tr>
<td>Pulse</td>
<td>&gt;90 beats/min</td>
</tr>
<tr>
<td>White blood count</td>
<td>&lt;4 or &gt;12</td>
</tr>
<tr>
<td>Respiratory rate</td>
<td>&gt;20 breaths per min</td>
</tr>
<tr>
<td>Mental state</td>
<td>New confusion</td>
</tr>
<tr>
<td>Blood sugar</td>
<td>&gt;7.7mmol/L in non-diabetic</td>
</tr>
</tbody>
</table>

and clinical suspicion of infection = SEPSIS

SEPSIS

CHANGE PACKAGE
INTRODUCTION

Sepsis is a medical emergency. 37,000 people die from severe sepsis in the UK each year and more people die from Sepsis than breast cancer, bowel cancer and prostate cancer.

We know that recognising Sepsis and early treatment can save lives. Risk of death from Sepsis increases by 6%-10% with every hour that passes from the onset of septic shock until the start of effective antimicrobial therapy.

**Time to effective antimicrobial therapy**

![Graph showing time to effective antimicrobial therapy.](image)

The Scottish Patient Safety Programme (SPSP) sepsis collaborative was launched in 2012; the aim of the collaborative being to improve the recognition and timely management of Sepsis in acute hospitals and reduce mortality from Sepsis by 10% by December 2014.

This will contribute to the overall aim of the SPSP to further improve the safety of people in acute healthcare by reducing harm and Hospital Associated Mortality by 20% by December 2015.

We seek to realise the aim by:
- Reliable recognition and assessment of sepsis
- Reliable delivery of sepsis 6 within one hour
- Reliable review and escalation
- Effective multidisciplinary working
GETTING STARTED

We know that implementation of the recognition and timely management of sepsis has been difficult for some of the reasons below:

- Chaotic systems
- Lack of knowledge / experience
- Time sensitive process requiring effective multidisciplinary team working
- Failure to recognise the severity of a situation
- Reluctance to seek help

However, it has been shown both locally and nationally that we can make improvements in the recognition and timely management of sepsis by putting in reliable processes that lead to improved patient outcomes.

SEPSIS DRIVER DIAGRAM

The driver diagram below tells us everything in the system that we need to work on to reach our aim.

**Sepsis driver diagram**

<table>
<thead>
<tr>
<th>Aim</th>
<th>Primary drivers</th>
<th>Secondary drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>To improve the recognition and management of sepsis and reduce mortality from sepsis by 10% by December 2014 in acute hospitals.</td>
<td>Reliable recognition and assessment</td>
<td>Reliable sepsis screening (SEWS and SIRS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ensure reliable communication across clinical teams of at risk patients</td>
</tr>
<tr>
<td></td>
<td>Reliable care delivery</td>
<td>Ensure timely recognition of deteriorating patient by competent teams</td>
</tr>
<tr>
<td></td>
<td>Education and awareness</td>
<td>Ensure reliable delivery of sepsis 6 within 1 hour</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Source control- Improve antibiotic stewardship</td>
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<tr>
<td></td>
<td></td>
<td>Ensure reliable escalation of septic patients to higher level of care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improve antimicrobial stewardship -3 day review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Review patient/reassess management including repeat lactate measurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Education on burden if illness &amp; current performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide training to staff on clinical knowledge and improvement skills</td>
</tr>
</tbody>
</table>
CHANGE PACKAGE

This change package provides a toolkit that you can use to enhance the provision of safe, high quality care in your clinical setting.

The changes, when applied reliably to patient care can improve patient outcomes.

Change 1: Reliable Observations

Change 2: Reliable escalation

Change 3: Reliable screening for sepsis

Change 4: Ensure reliable delivery of the sepsis 6 within one hour

Change 5: Reliable documentation of 3 day review of antibiotic therapy
Change 1: Reliable observations

**DRIVER:** Reliable recognition and assessment

**WHY:** Reliable observations are more accurate at identifying sick patients. Touching and talking to patients will tell you more than their blood pressure

**WHO:** All staff competent in clinical observation including manual pulse and blood pressure

**WHAT:** All patients are to receive reliable observations including pulse and blood pressure

**WHERE:** All wards and admission units for all patients

**HOW:**

1. Ensure all staff are assessed as competent to undertake clinical observations
2. Have all equipment ready to undertake observations
3. Observations are carried out without interruption in full, ensuring all elements of the SEWS are observed and recorded accurately
4. Calculate the SEWS accurately
5. SEWS of 3 or more or any other concerns?
   - **YES**
     - Perform ABCDE Assessment
     - Repeat observations manually
     - Screen for sepsis
     - Agree schedule of clinical observations
     - Inform nurse-in-charge / NP /local doctor of findings
     - Record using response stickers
   - **NO**
     - Calculate and Communicate when next observations are due
Change 2: Nurse-led Response to Deteriorating Patient (escalation)

**DRIVER:** Reliable recognition and assessment.

**WHY:** Early, simple interventions can prevent further deterioration.

**WHO:** All staff recording clinical observations.

**WHAT:** All patients are to receive an appropriate response to a raised early warning score.

**WHERE:** All wards and admission units for all patients. Nursing staff can utilise their skills and ensure appropriate calls to medical staff – optimising care for patients throughout the hospital.

**HOW:**

1. **Perform ABCDE assessment and manual observations.** N.B What are the trends?

2. Check SIRS criteria and if 2 or more commence SEPSIS 6

3. Escalate the frequency of manual observations

   - Review the frequency of and recommence appropriate observations
   - SEWS 3 or higher OR any other concerns
   - NO
   - YES

   - Reposition patient if parameters allow
   - Give prescribed oxygen to maintain 02 sats 94-98% (NB COPD pts 88-92%)

   - Assess the need for IVI +/- fluid bolus
   - Check prescription and give medication as prescribed

   - Re-check observations as clinically indicated

   - Refer to escalation board for appropriate response
Change 3: Reliable screening for sepsis

**DRIVER:** Reliable recognition and assessment.

**WHY:** Sepsis is not easy to diagnose and early treatment improves outcomes.

**WHO:** All staff recording clinical observations.

**WHAT:** All patients with SEWS of 3 or more or any other concerns are to be screened for sepsis.

**WHERE:** All wards and admission units for all patients.

**HOW:**

SEWS of 3 or more or any other concerns

\[ \text{Check SIRS Criteria (Systemic Inflammatory Response Syndrome)} \]

\[ 2 \text{ or more SIRS criteria} + \text{Clinical suspicion of infection} = \text{Sepsis} \]

**CHANGE IDEAS**

Examples of screening tools:

**Western General, Ward 23**

Sepsis 6 and sepsis screening

**Sepsis on SEWS chart**

**SEPSIS CHANGE PACKAGE** Version 1
Change 4: Ensure reliable delivery of the sepsis 6 within 1 hour

**DRIVER:** Reliable care delivery 6

**WHY:** For each hour’s delay in administering antibiotics in septic shock, mortality increases by 7.6%.

**WHO:** Multidisciplinary team

**WHAT:** All patients suspected of having sepsis will receive sepsis six within 1 hour

**WHERE:** All wards and admission units for all patients.

**HOW:**

Sepsis 6

- **Give OXYGEN** → **improves O2 delivery at cellular level**
  - HIGH FLOW via NON-REBREATHE MASK (aim SaO2 >94% NB COPD 88%-92%)

- **Give FLUIDS** → **corrects hypovolaemia caused by vasodilatation**
  - Up to 20ml/kg; crystalloid or colloid (e.g. 250ml / 30min)

- **Take BLOOD CULTURES** → **will influence long-term antibiotic choice**
  - BEFORE giving antibiotics

- **Take LACTATE & FBC** → **assesses tissue hypoperfusion**
  - will guide further management

- **Give ANTIBIOTICS** → **use local guidelines (after Blood Cultures)**

- **Measure URINE OUTPUT** → **Guides fluid replacement and measures organ dysfunction**
  - consider catheterising patient

**CHANGE IDEAS**

- **Sepsis trolley**
- **Labs order set**
- **Checklist**
Change 5: Reliable documentation of 3 day review of antibiotic therapy

**DRIVER:** Reliable care delivery  
**WHY:** Improve antimicrobial prescribing and review  
**WHO:** Multidisciplinary team  
**WHAT:** All patients who have received IV antibiotics will have antibiotic management rationalised within 72 hours of starting therapy  
**WHERE:** All wards  
**HOW:** Rationalise antibiotic management within 72 hours of starting therapy:

- Review of continuing need for antibiotic and indication for antibiotic  
- Review available microbiology and streamlining treatment according to susceptibility  
- Review need for IV therapy and potential to switch to oral therapy  
- Antibiotic policy and local protocol

**IDEAS FOR CHANGE**  
One way of implementing this change is through structured ward round:

![Diagram of ward round process]

**Example of Ward Round Checklist**
EDUCATION

Building staff confidence and competence to deliver the change package

There are a range of people to support you in the implementation of this change package:
Jo Bennett, Clinical Governance & Risk Manager
Steve Elliott, Quality & Safety Improvement Manager (QI Methodology Education)
Sarah Gossner, Quality & Safety Improvement Manager (Deteriorating Patient)
Annette Henderson, SPSP Manager
Jane Muirhead, Quality & Safety Improvement Manager NHS Lothian & Sepsis
Ross Paterson, Consultant Anaesthetist and Clinical Lead for Sepsis
Louise Robertson, Quality & Safety Improvement Manager WGH
Allison Todd, Quality & Safety Improvement Manager RIE
Margaret Watkins, Quality & Safety Improvement Manager St John’s

SUPPORT TEAM

Severe sepsis and septic shock: early recognition and management: An update 2017
Infection prevention and control

USEFUL WEBSITES

- Surviving Sepsis Campaign
- Sepsis Alliance
- The UK Sepsis Trust
- Survive sepsis
- FEAT

SEPSIS CHANGE PACKAGE Version 1 - 29 -
### Worksheet for Testing Change

**AIM:**

<table>
<thead>
<tr>
<th>Describe your first (or next) test of change</th>
<th>Person responsible</th>
<th>When to be done</th>
<th>Where to be done</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**PLAN**

<table>
<thead>
<tr>
<th>List the tasks needed to set up this test of change</th>
<th>Person responsible</th>
<th>When to be done</th>
<th>Where to be done</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Predict what will happen when the test is carried out</th>
<th>Measures to determine if prediction succeeds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DO**

<table>
<thead>
<tr>
<th>Describe what actually happened when you ran the test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**STUDY**

<table>
<thead>
<tr>
<th>Describe the measured results and how they compared to the prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**ACT**

<table>
<thead>
<tr>
<th>Describe what modifications to the plan will be made for the next cycle from what you learned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Workstream**  Ward 1000  
**date written:** 23/06/2014  **site:** St Johns

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**SEPSIS CHANGE PACKAGE**  Version 1
AIM: Increase staff's knowledge of SIRS criteria

<table>
<thead>
<tr>
<th>Describe your first (or next) test of change</th>
<th>person responsible</th>
<th>when to be done</th>
<th>where to be done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary will screen all patients with a SEWS of 3 or more</td>
<td>Mary</td>
<td>Day Shift 02/07/2014</td>
<td>Wd 1000</td>
</tr>
</tbody>
</table>

PLAN

<table>
<thead>
<tr>
<th>List the tasks needed to set up this test of change</th>
<th>person responsible</th>
<th>when to be done</th>
<th>where to be done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure Mary has completed SEWS/SBAR Learnpro module</td>
<td>Mary/SCN</td>
<td>01/07/2014</td>
<td>On line</td>
</tr>
<tr>
<td>Issue Mary with Suspect Sepsis cards</td>
<td>CGST</td>
<td>01/07/2014</td>
<td>Ward 1000</td>
</tr>
<tr>
<td>Staff to alert Mary of any patient with a sews ≥ 3 during the shift, this will be highlighted at the safety brief.</td>
<td>All Staff</td>
<td>Day Shift 02/07/2014</td>
<td>Wd 1000</td>
</tr>
</tbody>
</table>

predict what will happen when the test is carried out | measures to determine if prediction succeeds
-------------------------------------------------------|-------------------------------------------------------
All patients will be identified and screened | Total number screened

DO
described what actually happened when you ran the test
One patient with a SEWS ≥ 3 was not escalated to Mary

STUDY
describe the measured results and how they compared to the predictions
The prediction was inaccurate, although two patients were identified and screened one was missed.

ACT
describe what modifications to the plan will be made for the next cycle from what you learned
Further staff education regarding sepsis and SIRS criteria, re run test.