Combating Severe Sepsis – a multidisciplinary approach
The Great Western Hospital Sepsis Working Group

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Combating Severe Sepsis – a multidisciplinary approach

- The Problem
- What we did
- Re-audit
- Methods
- Results
- Where we go from here
- Conclusions
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Sepsis - the problem

- 20 – 30,000,000 people / year
- 37,000 die in UK/year
- Kills more than Breast/Colon & Prostate Ca
- 1 person dies every 14 minutes in UK
- Increase of 8 – 13% of cases over last decade
Sepsis - the problem

- National ED audit 2011 - only 27% of cases got antibiotics in the 1st hour

- A recent GWH mortality review - 3 patients who died did not receive treatment for sepsis at the right time – Dec 2012

- ED/AMU sepsis audit – only 1 :30 sepsis cases reviewed received all of sepsis 6 in 1 hour
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In order to tackle this we formed ......
Sepsis Working Group
Sepsis Working Group

We have formed a large multidisciplinary group:

- Doctors
- Nurses
- Pharmacists
- EDA’s
- Admin staff

We work in different areas of the hospital
We are all “Sepsis Champions”
What we did (I)

1. Sepsis working group
2. Sepsis Champions
3. Sepsis trolley
4. Sepsis screening tool
5. Sepsis measurement tool
6. Sepsis card for lanyard
7. Sepsis six posters
What we did (II)

1. Teaching – all health care staff across the trust

2. World Sepsis day – Sepsis Café on 13/09/2013

3. Intranet page

4. Horizon & media coverage

5. Ongoing audit

6. E-learning Module

7. Employment of a sepsis nurse for the trust

8. CQUINN
NEW TOOLS

Severe Sepsis

Think SEPSIS SIX!

Perform within 1 hour

Give 3 things:
- 100% Oxygen
- IV Fluids
- IV Antibiotics

Take 3 things:
- Blood cultures
- Urine culture
- Full blood count

Sepsis of Unknown Origin

- Pneumonia
- UTI
- Abdominal Infection/biliary sepsis
- Septicemia
- Meningitis
- Cellulitis

Sepsis of Unknown Origin: Recent History of MRSA

START ANTIBIOTICS WITHIN 1 HOUR

Infection: Focus unknown

Sepsis of Unknown origin

Co-amoxiclav 1.25g IV tid (see further detail box)

Cefaclor 2 g IV q8h (see further detail box)

Gentamicin 80mg IM q12h (see further detail box)

Teicoplanin - Gentamicin (see further detail box)

Further Details

- Patient is normotensive and functioning
- Vascular access established
- Adequate monitoring

Infection: Focus present

Respiratory tract - CAP

- Co-amoxiclav 1.25g IV tid (see further detail box)
- Cefaclor 2 g IV q8h (see further detail box)

UTI

- Ceftriaxone 1g IM q24h (see further detail box)
- Amoxicillin 2g 6 hourly (see further detail box)

Abdominal infection/biliary sepsis

- Metronidazole 1.5g IM q6h (see further detail box)
- Pefloxacin 400mg IV q12h (see further detail box)

Meningitis

- Ceftriaxone 2g IM q12h (see further detail box)
- Amikacin 1g IV q12h (see further detail box)

Cellulitis

- Pefloxacin 400mg IV q12h (see further detail box)
- Benzathine Penicillin 2.4mIU IV (120mIU per site)

Neutropenic Bacteraemia

- Meropenem 1g IV q6h (see further detail box)
- Ceftazidime 2g IV q8h (see further detail box)

- Vancomycin 1g IV q8h (see further detail box)
- Ceftriaxone 1g IM q24h (see further detail box)

- Pefloxacin 400mg IV q12h (see further detail box)

- Metronidazole 1.5g IM q6h (see further detail box)

- Ceftriaxone 1g IM q12h (see further detail box)

- Amikacin 1g IV q12h (see further detail box)

- Meropenem 1g IV q6h (see further detail box)

- Ceftazidime 2g IV q8h (see further detail box)
Teaching

• F1/F2/CMT

• USC Directorate Meeting

• Nurse teaching – AMU/ED/Wards

• Consultant teaching
Please support our trust and get involved with raising awareness!

Our Values
Service Teamwork Ambition Respect
World Sepsis day at the GWH - Sepsis Cafe

Sepsis café:

1. A number of small tables in the academy
   (i) SOS and ABG interpretation
   (ii) IV fluids – how to give
   (iii) Antibiotics – how to make up and give
   (iv) Promise Trial
   (V) Infection control
   (Vi) How to take a blood culture

2. Simulation room with sepsis scenarios

2. Teaching & True life stories

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GWH Sepsis Intranet web page

http://gwh-intranet/trust-wide/sepsis.aspx

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Surviving Sepsis
Campaign launched to tackle condition

Sepsis, previously known as septicemia or blood poisoning, is the body’s reaction to an infection where it attacks its own organs and tissues. It can start from any minor infection, such as a chest or urinary infection or an infected cut, bite or wound and can be difficult to diagnose. Early detection is vital, as if not treated within six hours, severe cases can be fatal.

Staff across the Trust marked World Sepsis Day on 12 September with the launch of a transformational campaign – the Sepsis Six – to tackle the condition which claims over 37,000 lives a year in the UK, more than breast cancer and bowel cancer combined.

In just three months, from October to December last year, 20% of all patients in the Intensive Care Unit had severe sepsis – 42 out of 213 patients.

The Sepsis Working Group, made up of nurses, doctors and pharmacists, have been working to introduce the internationally-recognised “Sepsis Six” and put sepsis at the forefront of patients’ minds.

Speed Six is a package of critical interventions which need to be performed within the first hour of severe sepsis being diagnosed. Simple interventions including giving the right antibiotics and intravenous fluids can increase the patient’s chance of surviving up to 30%.

Amanda Regan, Consultant Physician on the Acute Assessment Unit at the Great Western Hospitals, has been leading the campaign. “Sepsis can come from a mild illness, to a life-threatening condition very quickly, so it’s essential that treatment can begin without delay.”

Symptoms usually develop quickly:
- A fever or high temperature over 38C (100.4F)
- Chills
- Fast heartbeat or breathing
- Feel dizzy when you stand up
- Confusion or disorientation
- Nasal and vomiting
- Cold, clammy and pale skin

If you think that you or someone in your care has sepsis, phone 999 immediately and ask for an ambulance.

To learn more about sepsis visit the UK Sepsis Trust www.sepsistrust.org

“Speed really does save lives”

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Re- audit

Audit of all patients coded as having sepsis for July to September 2013
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Methods

• Retrospective data collection

• Patients coded as sepsis
  – Focused on severe sepsis

• Between dates July 2013 – September 2013
Data Collection

• 66 patients identified by coding

• 39 patients data obtained

• 17 patients identified as severe sepsis
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Results

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<table>
<thead>
<tr>
<th>Criteria</th>
<th>Standard</th>
<th>Number (n)</th>
<th>Exceptions</th>
<th>Compliance</th>
<th>Re-Audit Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Location of identification of severe sepsis</td>
<td>100%</td>
<td>17</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>2) Compliance with sepsis 6 (excluding oxygen) in severe sepsis</td>
<td>100%</td>
<td>17</td>
<td>0</td>
<td>59%</td>
<td></td>
</tr>
<tr>
<td>3) Use of sepsis management tool (in all patients coded as sepsis)</td>
<td>100%</td>
<td>66</td>
<td>0</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>4) Compliance of Oxygen administration within 60mins of severe sepsis</td>
<td>100%</td>
<td>17</td>
<td>17</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5) Compliance of Antibiotics administration within 60mins of severe sepsis identification</td>
<td>100%</td>
<td>17</td>
<td>4</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>6) Compliance of IV fluid administration within 60mins of severe sepsis identification</td>
<td>100%</td>
<td>17</td>
<td>4</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>7) Compliance of taking bloods within 60mins of severe sepsis identification</td>
<td>100%</td>
<td>17</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>8) Compliance of taking blood cultures within 60mins of severe sepsis identification</td>
<td>100%</td>
<td>17</td>
<td>17</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9) Compliance of monitoring fluid balance within 60mins of severe sepsis</td>
<td>100%</td>
<td>17</td>
<td>7</td>
<td>60%</td>
<td></td>
</tr>
</tbody>
</table>
Antibiotics

• 9/13 (70%) received in first hour

• Mean time: 1hrs 36mins
IV Fluids

60% received in first hour
8% did not receive IV fluids

Mean Time: 1 hour 33mins
# Re-audit Data

<table>
<thead>
<tr>
<th>Sepsis 6</th>
<th>Average time of Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>-</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>1hr 36mins</td>
</tr>
<tr>
<td>IV fluids</td>
<td>1hr 47mins</td>
</tr>
<tr>
<td>Bloods</td>
<td>11mins</td>
</tr>
<tr>
<td>Blood Cultures</td>
<td>-</td>
</tr>
<tr>
<td>Monitoring fluid Balance</td>
<td>2hr 12mins</td>
</tr>
</tbody>
</table>
Comparison Between Audits- pre and post sepsis working group

Comparison of sepsis 6 management between 2013 and 2014 audits

Our Values
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Comparison Between Audits - pre and post sepsis working group

Audit comparison of patients receiving Intervention within a time frame as percentage
Outcomes

• All patients received Antibiotics
• Antibiotics within first hour improved from 10% to 70%
• Patients with severe sepsis receiving all of “Sepsis 6” improved from 3% to 11%
• Patients with severe sepsis receiving ≥5 of “Sepsis 6” improved from 13% to 57%
Learning points

• Management Tool
  – Often unused

• Documentation
  – Time of sepsis identification
  – Timing of interventions
  – Oxygen prescription
Proposals

• Place SMT inside all medical proformas
• SIRS criteria on obs charts
• Real-time data collection
• Sepsis specialist nurse
  — Finally......

sepsisrefs@gwh.nhs.uk

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Sepsis Specialist Nurse

Motivation for a pilot project for 1 year – charitable funds agreed

Approved and appointed to start in May 2014

All septic patients to be referred to sepsis nurse
- Ensure managed correctly
- Education
- Identification for data collection/sepsis database/audit
Database and audit
E-learning module

Great Western Hospitals
NHS Foundation Trust

New Poster

Severe Sepsis

Think SEPSIS SIX!

PERFORM WITHIN 1 HOUR

World sepsis day 2014

Ongoing teaching
Sepsis Song

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Conclusions

• Sepsis is serious – killing > breast; colon & prostate Ca.

• Global/National and Local action is happening
• Get involved where you work
• Form a MDT sepsis working group
• Develop or “pinch” sepsis tools
• Make the diagnosis of Sepsis/ Severe sepsis
• Use “Sepsis Six”

• You can make a difference – we are!
Thank you for your time

Any Questions?

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