The deteriorating patient – a community perspective
Deteriorating patient – a GP perspective

Graham Gauld, Clinical Lead – Primary Care Portfolio, Healthcare Improvement Scotland
Why focus on Sepsis

- 6 million deaths annually worldwide
- =someone dying every 3.5 seconds from sepsis
- UK-> 44,000 lose their lives every year
- Biggest direct cause of death in UK pregnancies
Sepsis awareness campaign launched
• Community acquired (RCGP 2017-\rightarrow 70\%)

• 60\% Public didn’t ask for help\rightarrow delay

• Hence “Just Ask” campaign
SEPSIS IN ADULTS IS A SERIOUS CONDITION that can initially look like flu, gastroenteritis or a chest infection. Sepsis affects more than 250,000 people every year in the UK.

Seek medical help urgently if you develop any or one of the following:

- Slurred speech or confusion
- Extreme shivering or muscle pain
- Passing no urine (in a day)
- Severe breathlessness
- It feels like you’re going to die
- Skin mottled or discoloured

JUST ASK “COULD IT BE SEPSIS?” It’s a simple question, but it could save a life.

The UK Sepsis Trust registered charity number (England & Wales) 1158843
Sepsis timeline

Our ongoing journey

2018
Preliminary findings and Report

2016
SPSP-PC Sepsis Collab

2015
NCEPOD

2012
National Sepsis Programme

Our ongoing journey
Data Lothian UCS

Percentage of cases with suspected sepsis referred with documented NEWS:
NHS Greater Glasgow and Clyde Data

% Completion of Sepsis Bundle

- In-Hours GPs joined programme
- Revised Data Bundle
- National Bundle Introduced

Total Number of Cases identified / Month

<table>
<thead>
<tr>
<th>Month</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>Nov-15</td>
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<td>Dec-15</td>
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<td>May-16</td>
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<td>Jun-16</td>
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<td>July-16</td>
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<td>Sep-16</td>
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<td>Oct-16</td>
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<td>Nov-16</td>
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<td>Jun-17</td>
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<td>Aug-17</td>
<td>7</td>
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<tr>
<td>Sep-17</td>
<td>7</td>
</tr>
<tr>
<td>Oct-17</td>
<td>16</td>
</tr>
</tbody>
</table>
National Early Warning Score (NEWS)

Relevant Symptoms
- URTI
- Meningitis
- Infect/wound
- LRTI
- UTI
- Abdo Pain
- Cellulitis
- Confusion
- Infect/device
- PUO (Other)

Score
- RESP. RATE: 22
- SpO2: 94
- TEMP: 36
- BP: 140/80
- HEART RATE: 50
- Conscious (AVPU): A
- Oxygen (Y/N): N

Total NEWS Score: 3
Low NEWS Score 1-4

Could this be SEPSIS
- Yes
- No

Treatment Plan (Not active)
- Given Oxygen
- IV Antibiotics
- IV Fluids

Other details:
- Peak flow
- Pupils
- LMP: 13 February 2018
- RBG
- Contacted hospital re admission
- Ambulance requested

Comments
[Blank]

Location
[Blank]
Doris’ nae well

- Daily visit by C/N to administer Dalteparin injection

- Doris is normally mobile and self caring, but has Myeloma and currently receiving oral chemo which is prothrombotic

- 72yrs, in bed, feels unwell, haematuria, bit breathless

- BP 90/53, P 78 reg., T 35.9C, O2 sat 96%, RR 20, NEWS =4. Urine dip + leuc, blood, protein
Doris’ nae well

- Impression: **clinical** presentation and PMH causing **concern**. Nurse contacted cancer helpline ARI

- Haematology unit arranged 999 ambulance direct admission to unit

- Found to have AKI, requiring dialysis, and pulmonary embolism

- 5 day hospital admission now home doing well
NEWS in the pre hospital setting: the evidence

- “all ambulance crews recorded the NEWS while transporting unselected patients to a single hospital in Scotland.”

- “The NEWS predicted 48-hour and 30-day mortality and ICU admission.”

- “The authors concluded that the use of the NEWS in the prehospital setting may facilitate earlier recognition of deteriorating patients, earlier involvement of senior ED staff and more appropriate levels of critical care.”

Primary Care / Scottish Ambulance Service

Pre-Alerting in NHS Lanarkshire, NHS Greater Glasgow and Clyde NHS Highland and NHS Grampian

Martin Carberry, and John Harden BMJ Qual Improv Report 2016;5:u212670.w5049
Pre-hospital administration of Cefotaxime 2g may be administered to adult patients with suspected sepsis who meet all of the following criteria:

a) Presence of clinical signs of infection where the source is either identifiable or unknown

b) The National Early Warning Score (NEWS) is ≥5

c) Anticipated time from assessment to arrival at hospital is >1 hour.

d) There is no history of anaphylaxis to beta lactam antibiotics
2. Blood cultures drawn prior to antibiotic administration (if feasible)

3. Antibiotic administration details shared with admitting team and documented in hospital notes

4. Normal care pathways for sepsis recognition and management, including blood culture and other microbiological investigations must follow routinely
SAPG Position Statement

5. Cefotaxime must not be continued and local hospital guidelines followed

6. Data on Cefotaxime use and adverse events must be collated by SAS and Primary Care teams and shared annually with local AMT’s and SAPG

7. Pre-hospital antibiotic choice to be reviewed based on data from C. Difficile surveillance, emerging antibiotic resistance and adverse event monitoring
Reduce Variation

- Common language
- Pre-alerting
- Consistent use of Antibiotics
Why Not?

graham.gauld@nhs.net
What support would you require both at an individual level and organisational level to implement change?
Identifying the deteriorating patient - Implementing NEWS in the community setting

Carol Clayton
South aligned NEWS implementation team

- Julie Taggart  Project Lead District Nurse/Team Leader
- Carol Clayton  District Nurse/Practitioner Teacher
- Dr Graham Gauld  General Practitioner/National Clinical Lead for Patient Safety in Primary Care
- Rosie Cooper  Scottish Quality and Safety Fellow
Aim of NEWS

- Early detection
- Timeliness
- Competency of clinical response
- Standardisation of language between professionals
- Reduction of inappropriate hospital admission
- Support earlier patient discharge
- Enable contemporaneous treatment
- Support the work of GPs, ANPs, SAS, OOHs
- Improve patient journey
NEWS 2 implementation

• Escalation protocol

• Staff training:-
  – NEWS 2 Tool/App.
  – NEWS 2 e-learning module.
  – Recognition of the deteriorating patient in the community setting

• Staff training:- How to record NEWS on VISION

• eFrailty Index:- Working group for earlier identification of frail elderly, using coding to identify potential deficits
## Community escalation protocol

<table>
<thead>
<tr>
<th>NEWS Score</th>
<th>Clinical Care Pathway NEWS Community Escalation Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Registered Nurse determines frequency of vital sign recordings. Concern about a patient should lead to escalation, regardless of the score.</td>
</tr>
</tbody>
</table>
| 1-4        | LOW CLINICAL RISK  
Acute illness or unstable chronic disease?  
Escalation to ANP/GP/OOH  
Consider Repeating Vital Sign Recordings |
| 5 or more or 3 in one parameter | MEDIUM CLINICAL RISK  
Likely to deteriorate rapidly  
Urgent escalation to GP/OOHs.  
Think SEPSIS  
Consider 999  
Repeat vital sign recordings |
| 7 or more   | HIGH CLINICAL RISK  
SEPSIS likely  
Potentially life threatening critical illness  
Consider 999 |

Note of Caution: Frequency of observations can be increased at the discretion of the individual clinician.
Staff training

- Using an Airway, Breathing, Circulation, Disability and Exposure (ABCDE) framework

- Using NEWS alongside clinical judgement

- Communication/SBAR
  - Situation
  - Background
  - Assessment
  - Recommendation
Aim of staff training

Is not to make Community Nurses diagnosticians and mini doctors
Is to empower & equip Community Nurses;

- to recognise the deteriorating patient
- provide a comprehensive holistic assessment
- effectively communicate findings in a standardised common language
- escalate to the right person at the right time
Transforming roles

Some of the core elements of the District Nursing role:

• Anticipatory Care
• Preventing inappropriate hospital admissions
• Managing acute illness at home
• Palliative and end of life care
Symptoms & signs of illness which can escalate into the deteriorating patient

- Confusion
- Self-neglect
- Falling
- Incontinence
- Apathy
- Anorexia
- Dyspnoea
- Fatigue
- Constipation
- Polypharmacy

= FRAILTY
### Situation
Increased breathlessness and fatigue, spent yesterday in bed. Still planning to go on holiday tomorrow.

### Background

### Assessment
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiration Rate</td>
<td>18 bpm</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>92 bpm radial/reg</td>
</tr>
<tr>
<td>Oxygen Saturations</td>
<td>85% on 5L Oxygen</td>
</tr>
<tr>
<td>Speaking in sentences</td>
<td></td>
</tr>
<tr>
<td><strong>NEWs 10</strong></td>
<td></td>
</tr>
<tr>
<td>Systolic BP</td>
<td>90</td>
</tr>
<tr>
<td>Temperature</td>
<td>35.5</td>
</tr>
<tr>
<td>Conscious Level</td>
<td>Alert</td>
</tr>
<tr>
<td>Chest clear</td>
<td></td>
</tr>
<tr>
<td>Unable to provide urine sample</td>
<td></td>
</tr>
</tbody>
</table>

### Recommendations
Sp02 is normal baseline for this lady. Systolic BP tends to run quite low. Discussed with GP – for no intervention meantime, husband very capable and able to call GMeds/ambulance if reqd while on holiday. Worsening statement. ACP updated. Both patient and husband had a good holiday, symptoms improved, no medical or nursing attention required while away.
**Situation**

DN scheduled home visit, patient found on her knees holding onto recliner chair, query for how long, 2nd fall in 2 days.

**Background**

90yr old lady, lives alone, no care, recent falls. Nurses visit daily for bilateral leg dressings. Doesn’t go to bed, sleeps in recliner chair. Has clearly stated does not want admissions.

**Assessment**

<table>
<thead>
<tr>
<th><strong>Respiration Rate</strong></th>
<th>- 16 bpm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heart Rate</strong></td>
<td>- 95 bpm radial/irreg</td>
</tr>
<tr>
<td><strong>Oxygen Saturations</strong></td>
<td>- 95% on air</td>
</tr>
<tr>
<td><strong>Systolic BP</strong></td>
<td>- 182</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>- 37.3</td>
</tr>
<tr>
<td><strong>Conscious Level</strong></td>
<td>- Alert</td>
</tr>
<tr>
<td><strong>SOU</strong></td>
<td>- NAD</td>
</tr>
</tbody>
</table>

**Recommendations**

In view of slightly raised temperature, de-ranged bloods and borderline tachycardia, this lady was commenced on antibiotics. Increased nursing visits over weekend, referred to OOH’s. Finally agreed to Care Management & Physio referral. ACP updated. She remained safely at home and condition improved.
Acknowledgements

• South Practice Aligned Community Nursing Team, Aberdeen City Health and Social Care Partnership (ACHSP). Rosie Cooper, Falls Lead, Physiotherapist, ACHSCP, and SQS Fellow. Dr Graham Gauld, GP and National Lead for Patient Safety Primary Care and SQS Fellow.

• Delayed Discharge Group, ACHSP, who kindly provided funding for the equipment.

Thanks for listening
Any questions?
What are the enablers and benefits of implementing similar changes within your area of work?
The deteriorating patient – a community perspective

Scottish Ambulance Service
November 2018
Andrew Parker – Clinical Governance Manager
@aparker2SAS
Our Model

- IMMEDIATELY LIFE THREATENING
- URGENT & EMERGENCY NON-LIFE THREATENING
- HEAR, TREAT & REFER
- SEE, TREAT & REFER
- ANTICIPATORY CARE
- ROUTINE DISCHARGES
- TRANSFERS
- SCHEDULED CARE

SPECIALIST/ADVANCED PARAMEDIC
ALTERNATIVE CARE PATHWAYS
INTEGRATED COMMUNITY CARE TEAMS
PRIMARY AND SOCIAL CARE
EMERGENCY AMBULATORY CARE
INTERMEDIATE CARE
MINOR INJURY UNITS
GP OUT OF HOURS
OTHER HOSPITAL SERVICES & DIRECT ACCESS TO SPECIALIST CARE
Evolution of the Ambulance Service
Technology Evolves
National Early Warning Score (NEWS)
Standardising the assessment of acute-illness severity in the NHS

Report of a working party July 2012
Validation of the National Early Warning Score in the prehospital setting.
Silcock DJ¹, Corfield AR², Gowens PA³, Rooney KD⁴.

@ Author information

Abstract
BACKGROUND: Early intervention and response to deranged physiological parameters in the critically ill patient improves outcomes. A National Early Warning Score (NEWS) based on physiological observations has been developed for use throughout the National Health Service (NHS) in the UK. Although a good predictor of mortality and deterioration in inpatients, its performance in the prehospital setting is largely untested. This study aimed to assess the validity of the NEWS in unselected prehospital patients.

METHODS: All clinical observations taken by emergency ambulance crews transporting patients to a single hospital were collated along with information relating to hospital outcome over a two month period. The performance of the NEWS in identifying the endpoints of 48h and 30 day mortality, intensive care unit (ICU) admission, and a combined endpoint of 48h mortality or ICU admission was analysed.

RESULTS: 1684 patients were analysed. All three of the primary endpoints and the combined endpoint were associated with higher NEWS scores (p<0.01 for each). The medium-risk NEWS group was associated with a statistically significant increase in ICU admission (RR=2.466, 95% CI 1.0-6.09), but not in-hospital mortality relative to the low risk group. The high risk NEWS group had significant increases in 48h mortality (RR 35.32 [10.03-123.7]), 30 day mortality (RR 6.7 [3.79-11.88]), and ICU admission (5.43 [2.29-12.89]). Similar results were noted when trauma and non-trauma patients were analysed separately.

CONCLUSIONS: Elevated NEWS among unselected prehospital patients is associated with a higher incidence of adverse outcomes. Calculation of prehospital NEWS may facilitate earlier recognition of deteriorating patients, early involvement of senior Emergency Department staff and appropriate critical care.
### National Early Warning Score (NEWS)*

<table>
<thead>
<tr>
<th>PHYSIOLOGICAL INDICATORS</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
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<th>2</th>
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<tbody>
<tr>
<td>Respiration Rate</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Oxygen saturation</td>
<td>≤8</td>
<td>≤9</td>
<td>≤10</td>
<td>≤11</td>
<td>≤12</td>
<td>≤13</td>
<td>≤14</td>
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<tr>
<td>Capillary refill time</td>
<td>≥3</td>
<td>≥2</td>
<td>≥1</td>
<td>≥0</td>
<td>≤1</td>
<td>≤2</td>
<td>≤3</td>
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<tr>
<td>Temperature</td>
<td>≤36°C</td>
<td>36.1°C - 36.5°C</td>
<td>36.6°C - 37°C</td>
<td>37.1°C - 38°C</td>
<td>≥38°C</td>
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<tr>
<td>Pulse Rate</td>
<td>≤80</td>
<td>≤90</td>
<td>≤100</td>
<td>≤110</td>
<td>≤120</td>
<td>≤130</td>
<td>≤140</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>≤110</td>
<td>≤119</td>
<td>≤120</td>
<td>≤129</td>
<td>≤130</td>
<td>≤140</td>
<td>≤150</td>
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<tr>
<td>Level of consciousness</td>
<td></td>
<td></td>
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</table>

*The NEWS initiative released by the Royal College of Physicians (RCPI) Development and Implementation Group (NEWDICG). Reports and was jointly developed and funded in collaboration with the Royal College of Physicians, Royal College of Nursing, Scottish Government, and NHS National Services Scotland Ltd to support the Scottish National Sepsis Strategy (SNSS). © RCPI Physicians 2012.

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**Exclusion criteria:**
- Pregnancy
- <16 years
- Cardiac Arrest

### Pre-hospital sepsis screening tool

**Incident Number**

**Name of Paramedic completing the screening tool**

**Date**

**Time the screening tool was commenced**

### Sepsis possible!

1. **Could this be a severe infection?**
   - Pneumonia
   - UTI
   - Abdominal pain or distension
   - Meningitis
   - Indwelling medical device
   - Colitis/eosinophilic arthritis/infected wound
   - Chemotherapy <6 weeks
   - Recent organ transplant
   - YES

2. **Are any 2 of the following present?**
   - Temperature >38.3°C
   - Respiratory rate >20 per minute
   - Heart rate >90 per minute
   - Acute confusion/reduced conscious level
   - Glucose >7.7 mmol/L (unless DM)
   - YES

3. **Are ANY of the following present?**
   - Mottled/cold peripheries
   - Central capillary refill 23 sec
   - Systolic B.P. <90 mmHg or MAP <60 mmHg
   - Purpure rash
   - Absent radial pulse
   - Lactate >2 mmol/L
   - YES

**Possible Sepsis!**

Evaluate need for transfer NEWS ≥5 transport to hospital:
- NEWS ≥5 Ensure assessment by medical professional in primary or secondary care via Prof to Prof line or transport.
- Provide details of NEWS and Sepsis Screening on hardcover of patient to hospital.
- Recent actions on ePrf

**Septic shock**

Immediate: 250ml boluses crystalloid to maximum 2000ml, repeated based on response (care in CHD)
- Oxygen 15L/min via NR3 (care in COPD target sat to 88% -92% SpO2 - Oxygen 4L/min)
- Recent actions on ePrf
- Transfer using lights and siren to nearest receiving Emergency Department
- Pre-alert, SBAR - NEWS: SUSPECTED SEPTIC SHOCK

---

Apply patient sticker here:

Discontinue form. Apply standard protocols

---

45
A) Patients arriving by ambulance using pre-alert

The clinical toolkit for prehospital services will recommend that Paramedics and Community First Responders be trained to screen for sepsis using the NEWS track-and-trigger scoring system. Supported by guidance from the Joint Royal Colleges Ambulance Liaison Committee (JRCALC) and by prehospital screening tools, practitioners may pre-alert receiving EDs. Pathways should be developed through collaborative workshops involving ED staff, ambulance service staff, patient representatives, managers and commissioners.

Patients pre-alerted as suspected severe sepsis should be routed directly to the Resuscitation area and assessed immediately. The aim of the initial assessment is to assess for the presence of sepsis and to then risk stratify the severity accordingly. A Sepsis Team should be available to see these patients. An example of a Sepsis Team and their roles within the ED is given in the UK Sepsis Trust Toolkits Appendix ‘Change management and the Sepsis Team’.
Primary Care to SAS
Prioritising
Appropriate Response
What was really going on
Sepsis: recognition, diagnosis and early management

NICE guideline [NG51]  Published date: July 2016  Last updated: September 2017  Uptake of this guidance
We all have cefotaxime
Patient Group Direction 011
FOR THE ADMINISTRATION OR SUPPLY OF CEFOTAXIME

Staff Grade:

Paramedic (All grades) ✓

Author/Document Owner: Andrew Parker
Version: 3.01
Issue Date: 1st March 2018
Review Date: 1st March 2019
Division/Organisation Wide: Organisation wide

Paramedics must be authorised, by name, under this PGD before attempting to treat any patient according to it, and have signed the relevant declaration.
Safeguarding antibiotics for Scotland, now and for the future
SAS Recorded Cefotaxime Administration including GP initiated for Scotland

Number of administrations

Median

Changes to PGD highlighted again
Via newsletter

Updated PGD released

Changes to PGD communicated

Number of Cefotaxime Administrations
by location Jan - Sept 2018

[Bar chart showing the number of Cefotaxime administrations by location from Alness to Hamilton.]
Next Steps
Thank you

Colin Crookston
Patient Safety Manager
@colin_crookston

Andrew Parker
Clinical Governance Manager
@aparker2SAS
Questions?
What are the opportunities and challenges to ensuring information is communicated effectively across different interfaces?