Standardising the language of deterioration in healthcare

Dr Matt Inada-Kim and Mr Geoff Cooper

Wessex Patient Safety Collaborative

A Masterclass based on lessons learned from a collaborative pilot to standardise terminology relating to physical deterioration included a large general practice, 3 care homes, the acute hospital and the ambulance service.
Breakthrough Series (BTS)

Pre-Work
Set improvement goals, collect baseline data and prepare for Learning Event 1

Action Phase 1
Adapt and test improvement strategies

Action Phase 2
Further refine improvement strategies, begin spreading successful changes throughout the organisation

Action Phase 3
Adopt successful changes throughout the organisation

Learning Event 4
Document work, report on results and lessons learned

Learning Event 1

Learning Event 2

Learning Event 3

On-going support
Phone conferences, monthly team reports, on-site peer-to-peer visits

Wessex Patient Safety Collaborative
Connecting and sharing across Wessex to improve patient safety
Most Sepsis arises in the Community, but the focus is on hospitals

Hypotheses: A single, standardised language and pathway for sickness will improve outcomes

Why should the calculation of risk only start in the hospital?

Matt Inada-Kim, Acute Physician, Hampshire Hospitals
National Clinical Advisor, Clinical Lead for Physical Deterioration & Sepsis, Wessex PSC
1. We need to focus on the Community

NCEPOD Sepsis cases prehospital Obs

<table>
<thead>
<tr>
<th>Vital signs recorded</th>
<th>GP (n=129)</th>
<th>%</th>
<th>Paramedic (n=163)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>34</td>
<td>26.4</td>
<td>146</td>
<td>89.6</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>32</td>
<td>24.8</td>
<td>157</td>
<td>96.3</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>40</td>
<td>31.0</td>
<td>163</td>
<td>100</td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>8</td>
<td>6.2</td>
<td>159</td>
<td>97.5</td>
</tr>
<tr>
<td>AVPU</td>
<td>8</td>
<td>6.2</td>
<td>144</td>
<td>88.3</td>
</tr>
</tbody>
</table>

“National Early Warning Score (NEWS) should be used in both primary care and secondary care for patients where sepsis is suspected. This will aid the recognition of the severity of sepsis and can be used to prioritise urgency of care”

NCEPOD 2015
2. Separating Sepsis from Deterioration is harmful

Could this be sepsis in every deterioration?

But not all deterioration is Sepsis.
3. We don’t treat *sepsis*, we treat on *suspicion*

Rx Broad spectrum antimicrobials

Start Smart, then focus

Protocolised Diagnosis & Rx

Clinical Judgement

- Harm of Antibiotic treatment
- Antibiotic resistance
- Benefit of Early antibiotics
4. In order to improve, Processes must be hardwired to Outcomes

**PROCESSES**
- Screening
- Administration time
- Antibiotic reviewing

**OUTCOMES**
- Analyse the “Suspicion of sepsis” group
  - Mortality / ICU admissions
  - Length of stay / comorbidities
- Benchmark data over time and share results
- Evaluate the efficacy of sepsis improvement

**measurement for improvement**
4. Patients define their *badness* by where they are managed...

<table>
<thead>
<tr>
<th>Location</th>
<th>Label</th>
<th>“n”/year (estimated)</th>
<th>Mortality (estimated)</th>
<th>NEWS (off baseline)</th>
<th>Antibiotics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community</td>
<td>Stays at home</td>
<td>“Self limiting illness”</td>
<td>12 million</td>
<td>&lt;0.1%</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>Sees GP but not referred</td>
<td>“Infection”</td>
<td>8 million</td>
<td>&lt;1%</td>
<td>0-2</td>
</tr>
<tr>
<td></td>
<td>Referred but not admitted</td>
<td>“Infection”</td>
<td>400,000</td>
<td>2%</td>
<td>0-3</td>
</tr>
</tbody>
</table>

**Hospital**

Suspicion of Sepsis (SOS) = All bacterial infection derived codes (ICD 10)

≈ Sepsis outcomes measurement & Evaluation of sepsis screening/improvement

<table>
<thead>
<tr>
<th>Hospitalized (mild)</th>
<th>Suspicion of Sepsis</th>
<th>1,000,000(MIK)</th>
<th>7%</th>
<th>≥3</th>
<th>PO/IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalized (moderate)</td>
<td>Suspected Sepsis</td>
<td>300,000</td>
<td>23%</td>
<td>≥5</td>
<td>IV</td>
</tr>
<tr>
<td>Admitted to ICU</td>
<td>Suspected Sepsis</td>
<td>36,000(ICNARC)</td>
<td>35%</td>
<td>≥7</td>
<td>IV</td>
</tr>
</tbody>
</table>
Wessex PSC Outcomes from an Acute focus on Sepsis

**Wessex SOS total discharges**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Wessex Region SOS Mortality**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
“Speaking the same language is a game changer”

Mr AS- sepsis survivor

With thanks WEAHSN

https://vimeo.com/208284106
## Pan pathway Metrics

<table>
<thead>
<tr>
<th>Time point</th>
<th>Mr Sutton</th>
<th>Mrs X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient becomes unwell</td>
<td>20:00</td>
<td>20:00</td>
</tr>
<tr>
<td>Calls GP reception</td>
<td></td>
<td>09:00</td>
</tr>
<tr>
<td>GP Appointment</td>
<td></td>
<td>10:30</td>
</tr>
<tr>
<td>Ambulance call</td>
<td>20:08</td>
<td>10:45</td>
</tr>
<tr>
<td>Ambulance dispatch</td>
<td>20:08</td>
<td>14:00</td>
</tr>
<tr>
<td>Ambulance arrival</td>
<td>20:21</td>
<td>15:00</td>
</tr>
<tr>
<td>Ambulance departure</td>
<td>20:49</td>
<td>15:45</td>
</tr>
<tr>
<td>Pre alert</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>A&amp;E arrival</td>
<td>21:20</td>
<td>16:00</td>
</tr>
<tr>
<td>Antibiotic prescription</td>
<td>21:35</td>
<td>17:45</td>
</tr>
<tr>
<td>Antibiotic administration</td>
<td>21:45</td>
<td>18:35</td>
</tr>
<tr>
<td>Delay onset to antibiotics</td>
<td>1:45</td>
<td>22:35</td>
</tr>
<tr>
<td>Discharge</td>
<td>3 days</td>
<td>17 days</td>
</tr>
<tr>
<td>Function</td>
<td>Independent</td>
<td>Carer BD</td>
</tr>
</tbody>
</table>
Dialects & Tribes
A Collaborative improvement strategy

System
The same physiological language
Integrated pathways co designed
A single tool
Collaborative pan pathway Ownership
Sustained engagement
Seamless transitions of care

Strategy
1. Align Hospitals ✓
2. Implement in Ambulances ✓
3. Community pilot ✓
4. Widespread dissemination

Mark Ainsworth-Smith, Michael Lambert, Matthew Richardson
16 August 2016

Dear Colleague,

RE: Use of the National Early Warning Score in Primary Care

As GPs we not only want to provide the best care for our patients but also when we are concerned about patients, we need to be able to access the care they require in a timely manner. In addition, when patients’ health deteriorates it is always helpful to have robust evidence to justify how the decision was made regarding the actions taken by individual clinician.

The National Early Warning Score is being used routinely in hospitals, by the Ambulance Service and is going to be available for use in Care Home Homes. It is therefore important that not only general practice understands how this is used by the wider NHS but also how it may be a useful tool to be used in general practice. This tool has been tested in Mid Hampshire and has been found to be helpful.

It is estimated that integration of NEWS into the whole care pathway across England could save 6000 lives per year. A NEWS App can be downloaded for Android and Apple devises by searching NEWS and sepsis screen.

What is NEWS?

This is a validated scoring system recommended that will help and support clinicians and not replace clinical skills. A score of 0-3 is allocated to seven physiological measurements and these are:

- Respiration Rate
- Oxygen Saturations
- Supplemental Oxygen
- Temperature
- Systolic BP
- Heart Rate
- Level of Consciousness (defined on the AVPU system)

The NEWS scores are directly linked to mortality, the higher the score above what would normally be expected for the patient, the worse the prognosis.

When a single admission NEWS score is taken in patients with symptoms of infection (the commonest reason for admission) the mortality equates to:

<table>
<thead>
<tr>
<th>NEWS Score</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.5%</td>
</tr>
<tr>
<td>&lt;5</td>
<td>5.5%</td>
</tr>
<tr>
<td>≥5</td>
<td>22%</td>
</tr>
<tr>
<td>≥7</td>
<td>27%</td>
</tr>
<tr>
<td>≥9</td>
<td>38%</td>
</tr>
</tbody>
</table>

Baseline observations

Patients with chronic hypoxic states (e.g. COPD) are likely to always score for hypoxia even when well; knowing their baseline oxygen level and the presence of a deterioration in this and in their function is the best guide to determine admission.
NEWS in Care Homes

1. Signs of Deterioration/Sepsis
2. Baseline NEWS
3. Obs Chart
4. Escalation directions
5. Communication tool

CCG / AHSN Injected QI capacity
- Baseline 100 patients
- 27 PDSA cycles
- 3 pilot sites
- 4 training sessions
- 5 focus groups
- 5 case studies
- 100% +ve feedback

Now spreading pan Wessex + Across community care