Main Themes

- Patient safety is the foundation for quality
- Safety improvement...
  - May require better structures, resources
  - Always requires better processes
  - Standardising process improves safety
  - Improving processes can save money
- Process improvement drives outcome improvement
  - But auditing process is time consuming
- Therefore
  - Monitor only key processes
  - If outcome parameters change examine all processes

Main Themes (2)

- EBM- do what we should do. Do we?
- Creating a learning organisation
  - Blame free reporting
  - Near incident reporting
  - Stoplight system
- Conclusions

Safe Care Of Patients?

Questions to ask

Three questions:
1. Do you know of any mistakes in patient care in the last 3 months?
2. Do you have complete confidence in your hospital to provide safe care for someone you love?
3. If your hospital was an aircraft, would you fly in it?

‘Medical’ Error in hospital practice

<table>
<thead>
<tr>
<th>Country</th>
<th>n</th>
<th>AEs</th>
<th>Negligent</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>30121</td>
<td>3.7%</td>
<td>27.6%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Col/Utah²</td>
<td>15000</td>
<td>2.9%</td>
<td>30%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Australia³</td>
<td>14000</td>
<td>16.6%</td>
<td>51%</td>
<td>4.9%</td>
</tr>
<tr>
<td>London⁴</td>
<td>1014</td>
<td>10.8%</td>
<td>48%</td>
<td>8%</td>
</tr>
<tr>
<td>ICU, France</td>
<td>1024</td>
<td>16%</td>
<td>-</td>
<td>0.6%</td>
</tr>
<tr>
<td>ICU, Israel⁵</td>
<td></td>
<td>1.7/p/d</td>
<td>2/day</td>
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</tr>
</tbody>
</table>


Medical Admissions to Intensive Care

NCEPOD report ‘An Acute Problem?’ May 12th 2005

NCEPOD findings

Case note review of 469 of 560 deaths
- 1:10 cases inadequate initial history & clerking
- 42% suboptimal management after hospital admission
- 61% not seen by consultant physician in first 24 hrs
- 46% of cases including 28 stayed > 24 hrs in the ward; 11:28 (35%) seen by consultant physician within 24 hrs
- 11-16% deficiencies in resuscitation and physiological management
- 57% consultant physician unaware of ICU referral
- 24% no ICU consultant involvement within 12 hrs of ICU admission
- 58 patients admitted to ICU, but classified by assessors as unsuitable, because likely to die

NCEPOD: areas for improvement

- Pre-ICU care: acute care physicians
- Patient observation and review
- Training, supervision & support
- Outreach
- ICU referral, assessment, admission and review processes
- Record keeping
- Pathology services, M&M

The view of the media?

Lessons from NCEPOD

- Process control
  - Identifying system weaknesses
  - Error-proofing: care bundles, IT
  - Team-based care
- Communication & leadership
  - Bridging gaps
  - Media
- Education & training
- Focus on integrated acute care

Changing Health Systems: Commonalities

The common challenge of the acutely ill patient

- Cost containment
- Use of for-profit services
- Mobility of workforce
- Working hours ↓
- Demographic changes
- Acute hospital beds ↓
- Throughput ↑, LOS ↓
- Emergency admissions ↑
- Proportion > 65 yrs ↑
- Clinical error – the new “epidemic”

Changing perceptions of health care

Views of Physicians & the Public on Medical Errors

Blumenthal RJ et al. NEJM 2002; 347: 1933-1940

- Questionnaire surveys of 831 practicing physicians
- Telephone interviews with 1207 members of the public
- 35% physicians, 42% members of the public reported errors in their own or a family member’s care

Public’s views about methods for improvement:
- Physicians to spend more time with patients (78%)
- Teamworking & communication issues (67%)
- Hospital systems for preventing errors (74%)
- Better training of health professionals (73%)
- Intensivist-delivered care in ICUs (79%)
- Suspension of licenses of health professionals (50%)

Improving Patient Safety

Methodological issues

- Taxonomy of error
- Risk assessment
- Opportunity for error
- Measurement:
  - outcome or process
- Complexity & process control
- Interventions
- Translation into clinical practice
Adverse events: the tip of the iceberg


Unsafe systems: penetration of latent errors

Reason JT, Human Error, Camb Univ Press, 1990

Types of Adverse Events

Frontline clinicians: Managing risk at the sharp end

Interpreting risk & reliability

How (Un)reliable is Healthcare?

Reliability = frequency with which actions produce intended results

• $10^{-4}$ means that 1 to 9 times out of 10 the intended actions or results fail or are defective.
  • Eg: 80% compliance with giving appropriate DVT prophylaxis (2 omissions in every 10 patients)
• $10^{-2}$ means that 1 to 9 times out of 100 the intended action or results fail or are defective.
  • Eg: 96% compliance with giving appropriate DVT prophylaxis (4 omissions in every 100 patients)
• How do we measure up?
How (un)Reliable are Health Care Processes?

<table>
<thead>
<tr>
<th>(Un)Reliability</th>
<th>Outcome/Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>10^-1</td>
<td>Beta blockers &amp; ASA in Acute MI</td>
</tr>
<tr>
<td></td>
<td>HbA1c tested at least 3 times every 2 yrs</td>
</tr>
<tr>
<td></td>
<td>Mammograms, Immunisations, DVT proph</td>
</tr>
<tr>
<td>10^-2</td>
<td>Serious adverse events in hospital</td>
</tr>
<tr>
<td></td>
<td>Deaths in high risk surgery</td>
</tr>
<tr>
<td>10^-3</td>
<td>Neonatal mortality</td>
</tr>
<tr>
<td></td>
<td>General surgery deaths</td>
</tr>
<tr>
<td>10^-4</td>
<td>Deaths in routine anesthesia</td>
</tr>
<tr>
<td>10^-5</td>
<td>Blood Banks</td>
</tr>
<tr>
<td>10^-6</td>
<td>Aviation industry (civilian, not military)</td>
</tr>
</tbody>
</table>


Surviving Sepsis Campaign

Do we do what we should do?

Implementing best practice

Surviving Sepsis Campaign (SSC) guidelines for management of severe sepsis and septic shock


Crit Care Med 2004;32:858-873

Intensive Care Med 2004;30:536-555

available online at:

www.survivingsepsis.org

www.ESICM.org

www.sccm.org

www.sepsisforum.com

(Sepsis) Care Bundles

1. Synergism between effective treatments
2. Build teamwork and accomplish more than individual elements alone
3. Improves human factors and creates high reliability
4. Components must be achievable in clinically relevant time and location
5. Components not currently being implemented effectively

Sepsis Resuscitation Bundle

(Start immediately, complete within 6 hours)

- Serum lactate measured.
- Blood cultures obtained before antibiotic administration.
- From the time of presentation, broad-spectrum antibiotics administered within 3 hours for ED admissions and 1 hour for non-ED ICU admissions.
- In the event of hypotension:
  - Initial minimum of 20 ml/kg of crystalloid (or colloid equivalent).
  - Vasopressors for hypotension not responding to initial fluid resuscitation to maintain mean arterial pressure (MAP) > 65 mm Hg.
- If persistent arterial hypotension despite volume resuscitation (septic shock) and/or initial lactate > 4 mmol/L (36 mg/dl):
  - Achieve a central venous pressure (CVP) of ≥ 8 mm Hg.
  - Achieve central venous oxygen saturation (ScvO2) of ≥ 70%.

* Achieving a mixed venous oxygen saturation (SvO2) of ≥ 60% is an acceptable alternative.

Sepsis Management Bundle

(To be started immediately and completed within 24 hours)

- Steroids administered for persistent septic shock.
- Drotrecogin alfa (aPC) administration in accordance with hospital guidelines.
- Glucose control maintained > lower limit of normal, but < 140 mg/dl.
- For mechanically ventilated patients, plateau pressures maintained < 30 cm H2O.
ARDSNet Low Tidal Volume Study: Mortality Prior to Discharge

Publication of Study Results Has No Effect on Practice

SSC Campaign Initial Results: Reporting the Gap Between Perception and Practice

Adhere to “Best Practice?”

Supportive and adjunctive therapies Results of the German “Prevalence” Study
Opportunity for error
Complexity & process control

Quality & safety: which do you control?
The right resources used to deliver the
Right care to the
Right patients at the
Right time to achieve the
Right outcomes at an
Appropriate social cost

Interpreting outcome data requires an understanding of care processes
Processes of care are easier to measure and easier to improve
Process audit of safety & quality is more empowering than outcome audit but is it more efficient?

Summary
• Standardising process can improve safety and improve efficiency
• Process control throughout the patient journey is a necessary precondition for safety improvements
• Auditing process is time consuming
  ➢ Necessary during implementation
  ➢ Thereafter focus on outcome unless it changes
  ➢ Intermittent process checks
• Creating a learning organisation
  ➢ Role of blame free near miss reporting