Improving clinical decision making & patient outcomes

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- Clinical decision making
- The context of decision making
- Decision making in nursing
- What happens when we are overloaded
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HUMAN JUDGEMENT

Most cited person in Cognitive Psychology in 2016

• Information processing builds internal representations of external events
• A decision component that generates responses
• Negative events elicit causal reasoning, thought and search for a coherent explanation.
• Positive events can invoke complacency.
WHAT IS CLINICAL DECISION MAKING?

- A cognitive process that enables a clinician to assign meaning & classify cues in clinical situations by integrating observations and critical thinking (Bucknall, 1996).

- Choosing between alternatives (Dowie, 1993).
CLINICAL DECISION MAKING

- Clinical judgement - greatest attribute
- Cognitive activity - integrating complex information from many sources
- Information - imperfect or incomplete & often uncertain
- Deciding on the effectiveness of alternative clinical strategies
- Complex interaction between multiple stakeholders
BUT CHOOSING BETWEEN ALTERNATIVES CAN BE A PROBLEM...

Too much information
Too little time to review it
Interruptions & distractions
People needing quick & accurate answers
No time to wait....
The Problem in Healthcare.....

- Clinicians have excessive information to deal with and increasing work pressures
- Governments have high expectations of health services and increasing budget constraints
- Patients and families expect high quality care and a safe experience
- Patients die from preventable errors

Hospitals hit by dramatic rise in errors

34 deaths, 122 incidents reported last year

By TOM NOBLE
HEALTH EDITOR

VICTORIA’s public hospitals have reported a sharp rise in medical errors, including operations on the wrong body part or the wrong patient, overdoses of medication and surgical equipment left in patients after operations.

In one of 34 fatal cases last financial year, an elderly terminally ill woman died after she was given a 24-hour dose of morphine in 30 minutes.

She was being given pain relief through an intravenous drip, via an electronic pump, according to a report obtained by The Age. The mistake was made by a staff member unfamiliar with the type of pump.

Homicide inquiry over patient’s death

The Director of Public Prosecutions may have to decide whether a nurse in Geelong should be charged with homicide after he allegedly withdrew life support from a dying patient without authority.

Police said the experienced nurse acted without the knowledge or consent of the patient’s doctor.

“I told the family to expect the worst,” a doctor said.

A man’s whose skin cancer results were not passed on for seven months, by which time he needed radical surgery.

A man whose tonsils and adenoids were removed, when he had consented only to having his tonsils out.

An obese woman who needed surgery to recover a surgical pack left behind after an operation.

A blood transfusion patient given another patient’s blood died, distraught and developed a high temperature before the mistake was discovered and the transfusion stopped. The patient survived.

An elderly diabetic patient was given 80 units of insulin instead of eight, due to a disease writing error — an abbreviation that was missed as 80. The patient suf-
CLINICAL DECISION MAKING - NOT SO SIMPLE

- Medicine brings together facts and value judgements (Downie & MacNaughton, 2000)
- Scientific evidence on treatment not always right for the patient (Connelly et al 2000)
- Evidence is a matter of degrees, not cut and dried (Svets, 2000)
NURSES’ THINKING IS 50% OF THEIR WORKLOAD

Sources of Information

• Verbal communication 41%
• Observation 21%
• Prior knowledge 20%
• Written material 17%

(Perriam et al. 1996)

Continuous processing using:

• cues
• pattern-matching
• heuristics
• evaluation (Bucknall, 1996)
INTUITION VS ANALYTICAL THINKING

CRITICAL CARE NURSES’ DECISION MAKING

- 1 decision every 30 seconds
- Most frequent types of decisions were:
  - Assessment & evaluation decisions 51.4%
  - Communication decisions 29.5%
  - Intervention decisions 19.3%

INFLUENCES ON DECISION MAKING

➢ Decision task
➢ Decision maker
➢ Environment/Context

NURSE /DECISION MAKER

• Theoretical knowledge
• Practical knowledge
• Situational knowledge
• Values and beliefs
• Personal characteristics

(Bucknell, 1996)
ENVIRONMENTAL INFLUENCES

• Resources
  – Physical-ward layout, equipment
  – Staffing-quantity, quality

• Relationships
  – Nursing appointment levels & experiential hierarchies
  – Multi-disciplinary collaboration
  – Organizational structure & management
  – Patients
  – Significant others
  (Bucknall, 1996)
When stressed in any critical event clinicians have increased cognitive rigidity and a decline in general cognitive ability (Holsti, 1978)
INFORMATION OVERLOAD

“the volume and complexity of what we know has exceeded our individual ability to deliver its benefits correctly, safely, or reliably. Knowledge has both saved us and burdened us.‘‘— Atul Gawande
DECISION FATIGUE
AUSTRALIAN PATIENT SAFETY STANDARDS

- Standard 1 - Governance for Safety and Quality in Health Service Organisations
- Standard 2 - Partnering with Consumers
- Standard 3 - Preventing and Controlling Healthcare Associated Infections
- Standard 4 - Medication Safety
- Standard 5 - Patient Identification and Procedure Matching
- Standard 6 - Clinical Handover
- Standard 7 - Blood and Blood Products
- Standard 8 - Preventing and Managing Pressure Injuries
- Standard 9 - Recognising and Responding to Clinical Deterioration in Acute Health Care
- Standard 10 - Preventing Falls and Harm from Falls

NSQHS STANDARDS
A better way to care
Between 3-18% patients have adverse events (AEs) in hospital.

From 28 hospitals, 14,000 patients, 2353 AEs (16.6%)

- 4.9% died; 40 x risk of dying in hospital vs traffic
- 15.8% *Failure to synthesise, decide and/or act on available information*
- Diagnostic (56.8%) & treatment(40.6%) delays contributed to AEs
- 78% highly preventable; 26% permanently disabled


NHS, from 2010, 23% fatal events were caused by failure to act on or recognise deterioration

Ref: Donaldson et al, 2014,PLOS Med 11(6)
Recognising and responding to clinical deterioration

Figure1. Components of the Rapid Response System (RRS). The Afferent limb involves detection of patient deterioration and triggering of the response. The efferent limb is the MET or Rapid Response Team (RRT) or Critical Care Outreach (CCO). Other aspects of the system involve data collection and analysis, as well as a link to administrative and governance arms. Devita, M.A., et al., Findings of the first consensus conference on medical emergency teams. Crit Care Med, 2006. 34(9): p. 2463-78.
Resuscitating sick people is easier than resuscitating dead people!
Example of an escalation policy
The problem....

- Suboptimal MET activation limits efficacy.
- The high prevalence and failed MET activation rate has significant individual and organisational consequences.
- Failure to translate knowledge into practice remains a major problem.
How serious is the problem?
Example of a graphic observation chart
What are we missing and does it matter?

Background: Despite extensive work to improve early recognition of and response to abnormal vital signs, a failure or delay in response to clinical deterioration by activating a medical emergency team (MET) can affect patient safety.

Objectives: To determine incidence, management and outcomes of patients having vital signs fulfilling MET call criteria during their entire admission, and to compare baseline characteristics and outcomes of patients who fulfilled MET call criteria with patients who did not.

Design: A retrospective chart audit was conducted in a private Melbourne hospital. All patients hospitalised for > 24 hours in general wards and discharged in the 7-day study period were included. Medical records were reviewed for all patients who fulfilled MET criteria to assess escalation of care.

Results: Of the sample (N = 568), 82 patients (14%) had one or more documented vital signs fulfilling MET criteria. Hospital length of stay (LOS) for these patients was twice that of those who did not (6.6 days versus 4.3 days; P < 0.001). Medical patients were more likely to meet MET criteria than surgical patients (P = 0.03), and there were no significant differences for sex or between elective and emergency admissions. In the 79 patients not reviewed by the MET, the primary nurse escalated care for 36 patients (46%). Nurses independently initiated treatment for 23 of these patients (64%) and when unable to, they referred the patient for medical review (36%). Presence of MET criteria had resolved within 1 hour for 37 patients (45%) who fulfilled criteria.

Conclusions: Despite one in seven patients fulfilling MET criteria, MET activation occurred infrequently. The presence of MET criteria was associated with a doubling of the hospital LOS. Escalation of care in response to detection of MET criteria fulfilment was variable. Further research tracking patient management is needed to understand the decision-making process that occurs in the presence of clinical deterioration.
### Reportable Clinical review criteria

The table below describes Clinical Review, Medical Emergency and Code Blue criteria for adults (patients and visitors >18years).

<table>
<thead>
<tr>
<th>Vital Sign</th>
<th>Clinical Review Call criteria</th>
<th>MET Call criteria</th>
<th>Code Blue Call criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airway</td>
<td>Threatened</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>7 - 10 breaths/min OR 25 - 35 breaths/min</td>
<td>≤ 6 breaths/min OR ≥ 36 breaths/min</td>
<td></td>
</tr>
<tr>
<td>Oxygen Saturations (on air or oxygen)</td>
<td>91 - 93%</td>
<td>≤ 90%</td>
<td>Not breathing or absence of normal breathing</td>
</tr>
<tr>
<td>Oxygen flow rate</td>
<td>• Any oxygen flow rate of 6L/min or more</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic Blood Pressure</td>
<td>91 - 100 mmHg OR 180 - 199 mmHg</td>
<td>≤ 90 mmHg OR ≥ 200 mmHg</td>
<td></td>
</tr>
<tr>
<td>Heart Rate</td>
<td>41 - 50 beats/min OR 120 - 139 beats/min</td>
<td>≤ 40 beats/min OR ≥ 140 beats/min</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>&lt; 36.0°C OR &gt; 38.0°C</td>
<td></td>
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</tr>
<tr>
<td>Conscious state</td>
<td>• Previously alert patient now only responsive to verbal stimuli</td>
<td>• Any unexpected decrease in level of consciousness</td>
<td>• Unresponsive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fall in GCS &gt;2 points</td>
<td>• Absence of movement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Seizures (CH activate Code Blue)</td>
<td>• Seizures (CH only)</td>
</tr>
<tr>
<td>Other</td>
<td>• You are worried about the patient but they do not fit the above criteria, e.g. new or unrelenting chest pain</td>
<td>• Serious concern</td>
<td>• A Code Blue will be activated for outpatients, staff &amp; visitors requiring a Medical Emergency Response</td>
</tr>
</tbody>
</table>
Is earlier detection better for patient outcomes?
Are we treating the wrong people?
Predicting the need for medical emergency response in patients discharged from ICU

If we predict those at risk can we prevent adverse events?
Does earlier nursing intervention improve patient outcomes?
LISTEN TO ME, I REALLY AM SICK!

Understanding Patient and Family Perspectives in Triggering Responses to Medical Emergencies

Professor Tracey Bucknall, Professor Alison Hutchinson, Professor Brendan McCormack, A/Professor Daryl Jones, Dr Michael Buist, Dr Nicola Dunbar, Dr Suellen Allen, Jessica Guinane (PhD Candidate),
Focus on response to deterioration

Pre-MET focus

Despite evidence:
- Preventable adverse events (70%)
- High mortality rates in unexpected cardiac arrests (50-80%)
- Preceding deterioration (80%)

Recognition that delay leads to poor outcome > New GOC

Mandatory escalation policy

Interdisciplinary communication models

Data Linkage 2015

Patient & family activation

LOMT & EOLC

PRONTO
WHAT CAN BE DONE TO IMPROVE DECISIONS?

- Use technological aids to maximize benefits and minimize costs to individual and organizational productivity.
- Optimise communication to manage unavoidable interruptions & deliver timely information
- Acknowledge differences between professional groups and levels of expertise
- Use latest research evidence when available
- Use a multi-pronged approach to address multi-dimensional problems
TAKE HOME MESSAGE

- Our professional responsibility is to provide evidence informed practice
- Everyone wants to receive and deliver the best, most appropriate care
- Partnerships are required between patients, families, clinicians, managers and researchers if practice transformation is to occur
- Create a culture of knowledge creation, dissemination and absorption through partnership.
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