Changes That Last

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Australia
What’s the problem?

- Most Quality projects work well
- An improvement often results
- The gains are often short lived
- Very limited spread beyond ward level
- Rarely sustained
Lumbar Punctures in a children’s ward

• LP is common procedure
• Increasing evidence of post LP complications in children
• Concerns about consent, parental information, technical performance
• Anxiety provoking in parents and doctors
• See 1, do 1, teach 1 no longer acceptable
Interventions

• Teaching mannequins purchased “Baby Stap”
• Introduced teaching sessions at orientation
• JMS accredited prior to beginning term
• Sticker checklist and fact sheet for parents developed
• Significant improvement
What’s the Challenge?

• What happened next??

• How do we get spread at scale?
• Whole system improvement
• Sustained improvement over long period
• Local leadership vital
• Improvement requires change (in behaviour)
Deteriorating patients

**Patients**
- Sicker
- More complex

**Staffing**
- Shortages
- Skills mix

**Staff**
- ↑ Inexperienced
- ↑ Transient

**Response systems**
- Poor Design
- Lack of Coordination

Suboptimal response to the deteriorating patient
Keeping patients safe - Between the Flags
Clinical Excellence Commission

The Clinical Excellence Commission is responsible for leading safety and quality improvement in the NSW public health system.
The Slippery Slope
(the Problem)

There’s a problem...

ALS

Source: Dr Charles Pain
What’s the problem?

• Serious adverse events are common in hospitalized patients around the world 1-4
• Documented warning signs in up to 80% 5-9
• Early recognition and intervention improves outcomes 10-13

The solution

• Medical Emergency Team (MET) concept developed by Professor Ken Hillman
  ¹
• MET and Rapid Response Systems catch on across Australia, the US and the UK
  ²-⁴

1. Lee et al, Anaesth Intensive Care 1995
2. Ball et al, BMJ 2003
4. IHI, 100,1000 lives campaign 2006
The solution?

The Slippery Slope (the Problem)

Source: Dr Charles Pain
Completion of Observations

Parameter

% Completed

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Patient Label Date and Time Frequency of Observations Observations graphed, not written Pulse Rate Blood Pressure Respiratory Rate Temperature Pain Score Bowels O2 Saturations O2 - How? How much? Weight Observations outside normal range Completed
How system fatally failed Vanessa

NSW Premier Morris Iemma today announced a Special Commission of Inquiry into the NSW health system following an inquest into the death of a girl who was hit by a golf ball in 2005.

Deputy State Coroner Carl Milovanovich was scathing of the NSW Government in his findings into the death of Sydney teenager Vanessa Anderson at Royal North Shore Hospital.

She died from respiratory arrest due to the depressant effects of opiate medication after a doctor misread her chart.

I have never seen a case such as Vanessa's in which almost every conceivable error or omission was detected and those errors continued to build one on top of the other.

The coroner said “almost every conceivable error or omission” had occurred in her treatment before her death and called for a wide-ranging inquiry into the NSW health system.

Mr Iemma stopped short of ordering a royal commission, instead announcing a statewide inquiry in the troubled health system.

“We will be establishing a special commission of inquiry to act on that recommendation of the coroner,” Mr Iemma said.

He indicated he would seek to appoint a high-profile lawyer such as Brett Walker, SC, to oversee the inquiry and has told his Health Minister, Reba Meagher, and the Director-General of Premier and Cabinet, Robyn Kruk, to finalise details within the

Final Report of the
Special Commission of Inquiry
Acute Care Services in NSW Public Hospitals

Overview

Peter Garling SC
27 November 2008

Latest related coverage
- Iemma orders special inquiry into health system
Recommendation 91

A system to be put in place in NSW for the “detection of deteriorating patients”, with the following elements:

- **early identification** of an at-risk patient;
- **escalation protocols** to manage deteriorating patients, which would include a rapid response system;
- detailed **education** and training programs, aimed at recognising and managing the deteriorating patient;
- **appropriate data** to monitor the implementation and progress of the program;
- **high level support** from management and clinicians;
- and ongoing **evaluation**.
The NSW solution

Design a system to improve:

- prevention
- recognition
- escalation
- response

A Safety Net

Between the Flags
Keeping patients safe

Introduced in January 2010
CEC approach

• Broad clinician engagement and consultation
• Keep it simple
• Standardisation across NSW
• Leadership and support centrally, BUT
• Allow facilities to customise their response
• Promote and support local clinical judgement
Striking the right balance

Clinical judgement

Rule-based approach

Source: Dr Charles Pain
The 5 Elements

- Policy & Governance Plan DCG’s
- Standard Observation Charts
- Awareness, DETECT, Rapid Responders
- Clinical Review & Rapid Response
- 2 KPIs Evaluation Collaborative QSA

Governance

- Standard Calling Criteria
- (CERS) Clinical Emergency Response Systems
- Education
- Evaluation

Source: Colette Duff
Standard Adult General Observation Chart

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Date</th>
<th>Time</th>
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</thead>
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**Red Zone**
Late warning signs

**Yellow Zone**
Early warning signs
**Standard Paediatric Observation Chart**

**Blue Zone**

- Increased vigilance
Observation Charts

- 5 Paediatric Charts
- Neonatal
- Maternity
- Emergency Dept.
Blue Zone
Increased vigilance
Blue Zone Response

IF A CHILD HAS ANY ONE BLUE ZONE OBSERVATIONS YOU MUST
1. Initiate appropriate clinical care
2. Increase the frequency of observations as indicated by your patient’s clinical condition
3. Manage anxiety, pain and review oxygenation in consultation with the NURSE IN CHARGE
4. You may call for a Clinical Review or Rapid Response at any time if worried about a patient or are unsure whether to call

Consider the following:
1. What is the usual for your patient or if there are any documented ‘ALTERATIONS TO CALLING CRITERIA’?
2. Does the abnormal observation reflect deterioration in your patient?
3. Is there an adverse trend in observations?
# Clinical Review Criteria

- Any Observation in the Yellow Zone
- Increasing oxygen requirement
- Poor peripheral circulation
- Excess or increasing blood loss
- Decrease in level of consciousness or new onset of confusion
- Low urine output <100ml over 4 hours or less than 0.5mL/kg/hr (via IDC) for 4 hours

- Polyuria, urine output >200mL/hr for 2 hours (in the absence of diuretics)
- Greater than expected fluid loss from a drain
- New, increasing or uncontrolled pain (including chest pain)
- Blood Glucose Level <4mmol/L or >20mmol/L with no decrease in Level of Consciousness
- Ketonaemia >1.5mmol/L or Ketonuria 2+ or more
- Concern by patient or family member
- Concern by any staff member

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**IF A PATIENT HAS ANY ONE (1) OR MORE CLINICAL REVIEW CRITERIA PRESENT, YOU MUST CONSULT PROMPTLY WITH THE NURSE IN CHARGE AND ASSESS WHETHER A CLINICAL REVIEW IS NEEDED AND**

1. You must initiate appropriate clinical care
2. Increase the frequency of observations as indicated by the patient’s condition, but at a minimum repeat within 30 minutes.
3. If Clinical Review is not attended within 30 minutes, escalate to Rapid Response
4. Inform the Attending Medical Officer as soon as practicable
5. Document A-G assessment, treatment, escalation process and outcome in the clinical record

To determine if a Clinical Review is required you should consider:
- Do you continue to be worried about your patient
- What is usual for the patient and whether there are altered calling criteria or an Advance Care Directive
- Whether there is an adverse trend in observations
Rapid Response Criteria

- All cardiac or respiratory arrests
- Airway obstruction or stridor
- Unresponsive
- Any observation in the Red Zone
- Deterioration not reversed within one hour of Clinical Review
- Increasing oxygen requirement to maintain oxygen saturations greater than 90%
- Patient deteriorates further before, during or after Clinical Review
- Arterial Blood Gas: $P_aO_2 < 60$ or $P_aCO_2 > 60$ or pH < 7.2 or BE < -5
- Venous Blood Gas: $P_vCO_2 > 65$ or pH < 7.2
- Only responds to Pain (P) or sudden decrease in Level of Consciousness on the GCS of 2 or more points
- Seizures
- Low urine output < 200mL over 8 hours or < 0.5mL/kg/hr (via IDC) persisting for 8 hours
- Blood Glucose level less than 4 mmol/L or >20mmol/L with a decreased level of consciousness
- Lactate ≥ 4 mmol/L
- Serious concern by any patient or family member
- Serious concern by any staff member

IF A PATIENT HAS ANY ONE (1) RAPID RESPONSE CRITERION PRESENT, CALL FOR A RAPID RESPONSE AND YOU MUST
1. Initiate appropriate clinical care
2. Inform the Nurse in Charge
3. Repeat and increase the frequency of observations as per local CERS protocol
4. Inform the Attending Medical Officer as soon as practicable
5. Document A-G assessment, treatment, escalation process and outcome in the clinical record
The past

The Slippery Slope (the Problem)

Source: Dr Charles Pain
The Safety Net (the Solution)

Patient Condition

Time

Clinical Review

Rapid Response

ALS

Death

Source: Dr Charles Pain
The future

Clinical Review

Rapid Response

ALS

Source: Dr Charles Pain
For every 1000 patients that are admitted to hospital there are (number within columns on graph) Rapid Response calls to late signs of deterioration
New South Wales - Public Health Facilities
Cardiac Arrest calls per 1000 admissions

For every 1000 patients that are admitted to hospital there are (number within columns on graph) Cardiac Arrest calls
Sydney Children's Hospital Network
Rapid Response and Cardiac Arrest Calls per 1000 admissions

- Rapid Response
- Cardiac Arrests

Number of Rapid Response Calls / 1000

Number of Cardiac Arrests / 1000

Lessons learned

• Even in large campaigns local leadership is key to success
• Build a guiding coalition of clinicians, managers and administrators
• Large scale transformation starts at the front line
• Governance framework is key
• Engage, consult, collaborate
• Standardize what you can
• Staged implementation- Start small and pilot
• Strike the right balance between clinical judgement and rules
Questions