Critical Care Forum

Strategic Partnerships for Clinical Practice Improvement

Professor Cliff Hughes AO
Stamford Airport Plaza Hotel
Sydney
8 March 2013
Why do it alone?

Structure and Governance
Quality Indicators
Workforce and Models of Care
What can CEC deliver?

Structure and Governance 😊
Quality Indicators 😊
Workforce and Models of Care
Clinical Governance:

• "A framework through which ... organisations are accountable for continually improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish.”*

*Scally and Donaldson, 1998
Structure...

• System design
• Performance monitoring and readjustment
• Outcomes
System design?...

- Sepsis?
- Deteriorating patient?
- Handover?
- Blood wastage?
- Medication safety?
Components of Quality?

• Efficacy
• Effectiveness
• Efficiency
• Optimality
• Acceptability
• Legitimacy
• Equity*

• Safety
• Equity of Access
• Patient centered
• Appropriate
• Efficiency
• Effectiveness**

*Donabedian

**PSCQP NSW 2004
Performance monitoring?

Deteriorating Patient
Sepsis
CLABSI
Quality Systems Assessment
Sepsis in NSW!

• In NSW 9000 people can be expected to develop sepsis each year
• 18% will die
• For each hour of delay starting Antibiotics another 7% will perish
SEPSIS PATHWAY

Does your patient have risk factors, signs or symptoms of infection?

- Immunocompromised: Skin: cellulitis, wound
- Indwelling medical device: Urine: dysuria, frequency, odour
- Recent surgery/invasive procedure: Abdomen: pain, peritonism
- History of fever or rigors: Chest: cough, shortness of breath
- Red Flags in ambulance handover: Neuro: decreased mental alertness, neck stiffness, headache

AND

Does your patient have 2 or more yellow criteria?

- Respirations ≤ 10 or ≥ 25 per minute
- SpO₂ < 95%
- Systolic blood pressure ≤ 100 mmHg
- Pulse ≤ 50 OR ≥ 120 per minute
- Altered LOC or change in cognitive status
- Temp ≤ 35.5 or ≥ 38.5°C

Re-assess

Treat and re-assess simultaneously: Sepsis may still be a concern

Perform venous blood gas if available

Does your patient have any red criteria?

- SBP ≤ 90 mmHg
- Age > 65 years
- Lactate ≥ 4 mmol/L
- Immunocompromised
- Base Excess < -5.0

This patient may have SEPSIS:
- Inform the doctor-in-charge
- Monitor vital signs & fluid balance
- Obtain blood cultures x 2 sets
- Investigate source of infection: e.g. urinalysis, urine M/C/S, chest x-ray
- Obtain IV access and start IV fluids
- Administer empiric antibiotics within one hour unless another diagnosis is more likely

Refer to Therapeutic Guidelines: Antimicrobial, version 1/4
http://www.hc.com.au
- Refer / communicate with admitting team
- CONSIDER ELIGIBILITY for ARISE

This patient has SEVERE SEPSIS or SEPTIC SHOCK until proven otherwise:
- Inform the doctor-in-charge
- Expedite transfer to a resuscitation area or equivalent
- Turn over page for Resuscitation Guideline

Clinitcal Excellence Commission
SEPSIS PATHWAY: Resuscitation Guideline

Check: Does the patient have an Advance Care Directive? If Yes - what are the goals of therapy?
- Patient assessment and treatment proceeds simultaneously
- Maintain SpO2 ≥ 95%
- Monitor SpO2, respiratory rate, heart rate and rhythm, blood pressure, temp, fluid balance
- Obtain intravenous access
  - Take two sets of blood cultures, FBC including lactate or venous blood gas for lactate, EUC, LFT, coagulation & glucose (glucometer or formal)
- Fluid resuscitate
  - Give 20ml/kg of 0.9% sodium chloride STAT fluid challenge
  - If no response - repeat 20ml/kg once (unless there are signs of pulmonary oedema)
  - If no response insert IDC and commence vasopressors (as per local protocol) to achieve a MAP of ≥ 65mmHg - in consultation with Doctor-in-Charge

Give IV antibiotics WITHOUT DELAY – 60 minute target
- Do not wait for results of investigations
- Investigate source of infection – e.g. urine M/C/S, chest x-ray, sputum
- Refer / communicate with admitting team and ICU

IS YOUR PATIENT RESPONDING TO RESUSCITATION?

<table>
<thead>
<tr>
<th>Signs of improvement</th>
<th>If improving take the following action:</th>
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<tbody>
<tr>
<td>MAP ≥ 65mmHg</td>
<td>• Continue monitoring vital signs closely</td>
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<tr>
<td>Urine Output &gt; 0.5ml/kg/hr</td>
<td>• Strict monitoring of fluid balance</td>
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<tr>
<td>SpO2 ≥ 95%</td>
<td>• Investigate and treat the source of infection</td>
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<tr>
<td>Decreasing serum lactate level</td>
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<tr>
<td>Improving LOC</td>
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</table>

IF NO IMPROVEMENT, INTENSIVE CARE MANAGEMENT IS REQUIRED

1. Reassess suitability to continue resuscitation
2. Request review by ICU doctor to occur within 30 minutes
3. If you do not have an ICU at your facility, seek advice immediately from the ADULT MEDICAL RETRIEVAL SERVICE 1800 650 004, or the local Critical Care Advisory Service

Minimum requirements for patient monitoring:
- Continuous blood pressure
- Continuous urine output via IDC
- Repeat serum lactate every 4 hours

RECOGNISE • RESUSCITATE • REFER
NSW median time: Triage to administration of first IV AB

1 Jan 2011 - 23 May 2012

NSW median time: Triage to administration of first IV AB
NSW CLAB-ICU

- ‘Top down/bottom up’ project – NSW Intensive Care Coordination & Monitoring Unit and Clinical Excellence Commission
- Methodology modelled on the work of Pronovost et al.
The project promoted a standardised insertion technique including:

- Hand washing
- Full barrier precautions during insertion
- Cleaning skin with chlorhexidine
- Avoiding femoral site if possible
- Removing unnecessary catheters

Also included a retrospective review of all incidents entered into the NSW Incident monitoring system.
Guideline and checklist
Checklist Compliance:
all ICUs – July 07 – Dec 08
Data on 10,890 line insertions

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<tr>
<th>Competency assessed</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Competency assessed</td>
<td>48.3% (22.9% no, 28.8% missing)</td>
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<tr>
<td>Hat, mask, eyewear</td>
<td>79.9%</td>
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<tr>
<td>Hands washed 2 mins</td>
<td>91.6%</td>
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<tr>
<td>Sterile gown/gloves</td>
<td>95.9%</td>
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<td>Alcoholic chlorhexidine prep allowed to dry</td>
<td>95.8%</td>
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<td>Entire patient draped</td>
<td>93.4%</td>
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<td>Sterile technique maintained</td>
<td>95.6%</td>
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<td>No multiple passes</td>
<td>80.9%</td>
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<tr>
<td>Confirm position radiologically</td>
<td>74.3%</td>
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Impact of compliance

• Non compliance with the ‘clinician bundle’:
  – relative risk of CLAB was **RR 1.62** (95% CI 1.1-2.4, p=0.0178)
  – For central lines RR 1.99 (95% CI 1.2-3.2 , p=0.0037)
  – For PICC RR 5.08 (95% CI 1.03-25 , p=0.059)
  – Dialysis catheters – no difference

• If compliant with both ‘clinician bundle’ and ‘patient bundle’ then risk of CLAB was **RR 0.6** (95%CI 0.4-0.9, p=0.0103)
Progress

CLAB rate/1000 line-days by Quarterly project periods

- CLAB rate
- Lower limits
- Upper limits

Data points:
- Quarter 1: CLAB rate = 4.3, Lower limits = 3, Upper limits = 4
- Quarter 2: CLAB rate = 2.6, Lower limits = 2, Upper limits = 4
- Quarter 3: CLAB rate = 2.3, Lower limits = 1.6, Upper limits = 2.3
- Quarter 4: CLAB rate = 1.8, Lower limits = 1.3, Upper limits = 2.9
- Quarter 5: CLAB rate = 1.1, Lower limits = 0.7, Upper limits = 1.9
- Quarter 6: CLAB rate = 1.2, Lower limits = 0.5, Upper limits = 2.2

24th October 2012

C F Hughes
Quality Systems Assessment...
• **About the QSA Self-Assessment**

<table>
<thead>
<tr>
<th>Year</th>
<th>(n)*</th>
<th>Participation rate</th>
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<tbody>
<tr>
<td>2007</td>
<td>1185</td>
<td>82%</td>
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<tr>
<td>2009</td>
<td>1344</td>
<td>90%</td>
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<tr>
<td>2010</td>
<td>1297</td>
<td>93%</td>
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</tbody>
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*dept / unit level respondents

Why is this so high?
4. With regard to the statewide *Between the Flags (BTF)* program:
(dept / unit level)

- **Strong executive support is an important part of the success of BTF in our dept/unit**
  - Strongly Agree: 35%
  - Agree: 47%
  - Neutral: 15%
  - Disagree: 3%
  - Strongly Disagree: 1%

- **Our BTF clinical lead (champion) has been critical to the uptake and acceptance of the program by clinicians in our dept/unit**
  - Strongly Agree: 21%
  - Agree: 40%
  - Neutral: 29%
  - Disagree: 8%
  - Strongly Disagree: 2%

- **The training was adequate**
  - Strongly Agree: 13%
  - Agree: 47%
  - Neutral: 22%
  - Disagree: 14%
  - Strongly Disagree: 3%

- **The yellow zone on the BTF chart has assisted earlier detection and management of patients at risk of deteriorating**
  - Strongly Agree: 24%
  - Agree: 49%
  - Neutral: 21%
  - Disagree: 5%
  - Strongly Disagree: 1%

- **The red zone on the BTF chart has assisted rapid response to patients at risk of deteriorating**
  - Strongly Agree: 27%
  - Agree: 50%
  - Neutral: 17%
  - Disagree: 4%
  - Strongly Disagree: 1%

- **The BTF toolkit was comprehensive and useful for implementation of the program in our dept/unit**
  - Strongly Agree: 11%
  - Agree: 45%
  - Neutral: 31%
  - Disagree: 11%
  - Strongly Disagree: 2%

- **Overall the BTF has benefitted patient safety in our dept/unit**
  - Strongly Agree: 21%
  - Agree: 47%
  - Neutral: 25%
  - Disagree: 5%
  - Strongly Disagree: 2%
## 2010 State-wide QSA Recommendations

### 2010 Rec # 1
- **NSW**: must review their infection prevention and control (IPC) governance arrangements, to ensure they are consistent with relevant NSW Health infection control policy directive and National and Medical Research Council Australian Guidelines for Prevention and Control of Infection in Healthcare.

### 2010 Rec # 2
- **HCCs**: must engage their medical workforce in developing effective strategies to strengthen medical leadership of infection prevention and control.

### 2010 Rec # 3a
- **HCCs**: must ensure that all staff are trained in hand hygiene.
- **HCCs**: must ensure that all staff are trained in infection prevention and control policies and procedures.

### 2010 Rec # 3b
- **HCCs**: must ensure that all medical staff are trained in hand hygiene.
- **HCCs**: must ensure that all medical staff are trained in infection prevention and control policies and procedures.

### 2010 Rec # 3c
- **HCCs**: must ensure that all medical staff are trained in hand hygiene.
- **HCCs**: must ensure that all medical staff are trained in infection prevention and control policies and procedures.

### 2010 Rec # 4a
- **HCCs**: must ensure that all medical staff are trained in hand hygiene.
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### 2010 Rec # 5
- **HCCs**: must ensure that all medical staff are trained in hand hygiene.
- **HCCs**: must ensure that all medical staff are trained in infection prevention and control policies and procedures.

### 2010 Rec # 6
- **HCCs**: must ensure that all medical staff are trained in hand hygiene.
- **HCCs**: must ensure that all medical staff are trained in infection prevention and control policies and procedures.

### 2010 Rec # 7
- **HCCs**: must ensure that all medical staff are trained in hand hygiene.
- **HCCs**: must ensure that all medical staff are trained in infection prevention and control policies and procedures.

### 2010 Rec # 8
- **HCCs**: must ensure that all medical staff are trained in hand hygiene.
- **HCCs**: must ensure that all medical staff are trained in infection prevention and control policies and procedures.

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### Summary of Recommendation Implementation Progress

<table>
<thead>
<tr>
<th>% Fully Implemented Recommendations by LHD</th>
<th>9%</th>
<th>18%</th>
<th>64%</th>
<th>36%</th>
<th>30%</th>
<th>64%</th>
<th>40%</th>
<th>9%</th>
<th>10%</th>
<th>20%</th>
<th>60%</th>
<th>64%</th>
<th>9%</th>
<th>67%</th>
<th>73%</th>
<th>37%</th>
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<table>
<thead>
<tr>
<th><strong>Legend:</strong></th>
<th>Not commenced</th>
<th>In progress</th>
<th>Fully Implemented</th>
<th>N/A</th>
<th>Not applicable</th>
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<tbody>
<tr>
<td>2009</td>
<td>State-wide QSA Recommendations</td>
<td>IS</td>
<td>SCS</td>
<td>ST V</td>
<td>Child N/Work</td>
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<tr>
<td>2009 Bc 1. Medication Safety</td>
<td>All facilities should put in place a medication action plan which includes:</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>2009 Bc 1b. Medication Safety</td>
<td>All facilities should put in place a medication action plan which includes:</td>
<td>N/A</td>
<td>N/A</td>
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<td>2009 Bc 1c. Medication Safety</td>
<td>All facilities should put in place a medication action plan which includes:</td>
<td>N/A</td>
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<td>2009 Bc 1d. Medication Safety</td>
<td>All facilities should put in place a medication action plan which includes:</td>
<td>N/A</td>
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**Ambulance Service - Medication Safety** | The Ambulance Service of NSW should develop and implement formal processes related to: management of controlled or potentially hazardous medications in ambulance vehicles |

2009 Bc 2a. Clinical Handover  | The standard key principles of the NHMRC strategy for safe clinical handover should be implemented in all health services. Implementation of the strategy should focus on: quality and sufficiency of information in all forms of clinical handover |

2009 Bc 2b. Clinical Handover  | Implementation of the strategy should focus on: careful planning and strategy for clinical handovers implementation through all levels of the organisation |

2009 Bc 2c. Clinical Handover  | Implementation of the strategy should focus on: monitoring and evaluation frameworks for clinical handover |

2009 Bc 2d. Clinical Handover  | Implementation of the strategy should focus on: processes, procedures and tools to support the consistency of clinical handover across all clinical disciplines |

2009 Bc 2e. Clinical Handover  | Implementation of the strategy should focus on: dedicated time for clinical handover |

2009 Bc 2f. Clinical Handover  | Implementation of the strategy should focus on: preparation for clinical handover |

2009 Bc 2g. Clinical Handover  | Implementation of the strategy should focus on: coordination of clinical handover at the interface between acute facilities and health care in the community |

2009 Bc 3. Communication in the clinical environment  | The NSW Health Department policies regarding informal policies and procedures should be implemented by all areas and facilities, and that implementation should be monitored and evaluated |

2009 Bc 4a. Deteriorating Patient  | All health services should fully implement, support and evaluate rollout of the Between the Flag program, in particular, ensure evidence-based implementation of the five key elements of the program |

2009 Bc 4b. Deteriorating Patient  | All health services should fully implement, support and evaluate rollout of the Between the Flag program, in particular, ensure evidence-based implementation of the five key elements of the program |

**Summary of Recommendation Implementation Progress**

- Most (52-99%)
- Most (52-99%)
- Mostly (51-99%)
- All
- Most (52-99%)
- N/A
- Not Applicable
- LHD stated not applicable

**Legend:**
- Not commenced
- In progress
- Fully implemented
- N/A
- Not applicable

% Fully Implemented Recommendations by LHD:

<table>
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<tr>
<th>LHD</th>
<th>% Fully Implemented</th>
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<tbody>
<tr>
<td>most</td>
<td>62%</td>
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<td>most</td>
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- LHD stated not applicable
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<thead>
<tr>
<th>Recommendation</th>
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<th>% Fully Implemented by Recommendations</th>
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<td>2007 Rec 1: System-wide Collaboration</td>
<td>74%</td>
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**Summary of Recommendation Implementation Progress:**

- All: 100%
- Most (51-99%): 73%
- Many (31-50%): 42%
- Few (1-30%): 89%
- None (0%): 65%

**Legend:**

- Not commenced
- In progress
- Fully implemented
- N/A
- Not Applicable
QSA 2009 Self-Assessment: unit level

The QSA program is a valuable process that assists us to improve our quality and safety systems.

2009 (n=1087)
- strongly agree, 9%
- agree, 48%
- neutral, 31%
- disagree, 8%
- strongly disagree, 3%

2010 (n=1401)
- strongly agree, 11%
- agree, 45%
- neutral, 31%
- disagree, 8%
- strongly disagree, 4%
So who is the driver for our “Quality Journey”?

- **Compliance**
  - **To meet all required targets**
  - **To be better than others, locally or nationally**
  - **To be the best we can possibly be**

- **Comparison**
  - **From outside**
    - Imposed
  - **From outside**
    - Top-down
  - **From inside**
    - Internal, personal

- **Culture**
  - **Episodic**
  - **Ongoing**

---

How we define ‘good’

Source of motivation to deliver

Duration

C F Hughes
24th October 2012