Managing the Deteriorating Patient (Remotely)

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Greater Western AHS
Not another Telehealth Project!

• Well, sort of...
  • It involves multiple electronic transmission systems
  • It involves technology to bridge distances
  • It involves real time audio and video transmission

• BUT
  • It DOES NOT have anything to do with Videoconferencing systems as you know them
  • It is not funded or managed by the normal NSW Health Telehealth processes
The Elements

- Greater Western Critical Care Advisory Service (CCAS)
  - 1800 GW CCAS
  - 7 x 12 hrs at present (0800 - 2000), with AMRS fall back
  - First Response is the Patient Flow Unit (PFU) Nursing Staff
  - Local Critical Care Specialists provide advice
  - Supplemented by recorded multi-line teleconferencing system (Black Box), 1800 GW CCAF fax line and email

- Greater Western Clinical Outreach Project (COP)
  - Enhancement of above service
  - One way video, two way audio into EVERY site in GWAHS
What it does NOT do

- Recognise the deteriorating patient
  - Unless we already know about the patient and happen to be watching them as they deteriorate

- Substitute for clinicians in the remote sites
  - the one way nature of the video goes a long way to guarantee this - if anything it is an incentive to recruit and retain remote clinicians

- Substitute for actually being there, touching the patient

- Paediatrics - left to NETS

- Solve all our problems - but it does help a lot!
Adult Critical Care Patient? Need Help?

Call the GWAHS Critical Care Advisory Service!
(Think of it as NETS for ADULTS!)

1800 GW CCAS
(1800 49 2227)

Operating Hours
8 am – 8 pm
7 days per week

Fax supplementary clinical information to 1800 GW CCAF
(1800 49 2223)

Email supplementary clinical information to CCAS@gwahs.health.nsw.gov.au

This service is staffed by LOCAL, SENIOR medical staff practicing in Adult Critical Care

For administrative enquiries call Patient Flow Unit (02) 6885 8673, or email the service on ccas.admin@gwahs.health.nsw.gov.au

This sign is prominently displayed in every Greater Western ED

It was individually sent to all VMO GPs and Health Service Managers with a cover letter describing the service in more detail

It is part of our FLECC training processes (and soon “Between The Flags”)

Use of the service is reinforced by the Patient Flow Unit staff
This label is stuck to phones in every Greater Western ED

Ugly signs required by legislation
Primary CCAS Services

- **Clinical Support and Advice**
  - Real time, from senior critical care staff
  - Telephone based
    - supplementary information by fax/email
  - Available to any Greater Western clinician
    - GPs when available, but RNs encouraged also, especially in sites with no GP
  - Deliberately generous call criterion - “critically ill” patient
    - Over triaging handled well by PFU staff

- **Bed Finding**
  - Within GWAHS if possible, Metro as second line option
Clinical Benefits Seen

- Early institution of relatively advanced therapy
  - Often sites do not realise they can do more

- Reduction in acuity of patient
  - Positive impact on transfer requirements

- Support of remote clinician to palliate

- Remote clinician can get back to the patient whilst CCAS specialist arranges bed/transport etc.

- Collegiate Support and Professional Development
Other CCAS Services

- Follow-up and feedback
  - Project Officer follows up each patient and ensures remote clinicians receive feedback about patients that they have referred to the CCAS

- Continued Audit
  - Through above process, the project officer obtains feedback about the remote clinician experience of each CCAS case
  - All cases are tracked and reported to the CCAS management group on a monthly basis
  - The CCAS and PFU processes are tightly integrated
Clinical Outreach Project

- An extension to the Critical Care Advisory Service
- Funded by Clever Networks Strategy (Commonwealth)
- Three main elements
  - Network upgrades - minimum 2 Mbps at copper only sites, 4 Mbps at fibre-optic sites
  - Cameras in every 24 x 7 ED
  - Web Site
    - access, integration, secure relay, bandwidth management
What does COP Add?

- Simply, the ability for an advising clinician to see and hear what is going on at the remote bedside, and also to speak to the bedside environment
  - The return audio feed is not designed for a conversation, more for the occasional comment, warning or advice
  - Currently the return audio requires software to be installed on the computer (and of course a microphone)

- The advanced knowledge to operate the system rests entirely with the advising specialist
  - The only knowledge required by the remote site is “where is the ON/OFF button?”
What about VC systems?

- We are also involved in the NSW Health Connecting Critical Care Telehealth project
- We were also aware of VisICU, VICCU, eICU initiatives
- Our experience of VC based systems taught us
  - Expensive to install and run
  - Complex, hard to train
  - High maintenance
  - Low resolution
  - Only available to specific workstations / locations
  - Often “invasive”
Key Features of Design
What did we REALLY want?

- Almost no remote site training required
- No imposition on clinicians at remote site
- "Handyman" or local electrician installation skills
- High reliability - and can be constantly tested
- Zero maintenance
- Almost DVD quality image
- Access by multiple users at once with no special h/ware
- Cheap enough to put in 44 sites!
Proof of Concept (Oct 2005)
Designing Solutions (Early 2008)
First Production Prototype (May 2008)
First Installed Site (Blayney)  
February 2009
Current Generation (Nov 2009)
Accessing the System

- URL - “CCAS”
- Intranet
- Secure
- Password
Accessing the System

- Additional Site Specific information
- Important to note that the IP Camera is only one element of the system

<table>
<thead>
<tr>
<th>Site Name: Blayney</th>
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<tbody>
<tr>
<td>Medical Officers Living in town with admitting rights. 2 FTE - GP</td>
</tr>
<tr>
<td>Routine surgery and anesthesia performed at site. no</td>
</tr>
<tr>
<td>Usual Medical Officer cover (include cover provided by locums) e.g. 24 x 7, 8 x 5 etc.</td>
</tr>
<tr>
<td>On site Radiology? (Plain film vs Ultrasound vs CT)</td>
</tr>
<tr>
<td>Plain Film, Monday morning, Thursday from 1100 - 17400 (when list for day finished) one RN X-ray credentialled (part time only)</td>
</tr>
<tr>
<td>On site Pathology? (and list tests available on site 24 x 7)</td>
</tr>
<tr>
<td>No on site pathology except for i-Stat, U&amp;F, Trop 1, Blood gas</td>
</tr>
<tr>
<td>Off site, in town Radiology? (Plain film vs Ultrasound vs CT) Nil</td>
</tr>
<tr>
<td>Off site, in town Pathology? Barrett &amp; Smith, collection agency only</td>
</tr>
<tr>
<td>Ventilator: (list type(s), include NIV and CPAP) Nil</td>
</tr>
<tr>
<td>POC testing? (list types of device e.g. iStat) i-Stat as above</td>
</tr>
<tr>
<td>Blood Supplies kept on site Nil</td>
</tr>
<tr>
<td>GP’s emergency education credentials? Dr Naval: Registrar Blacktown ED CMO Blacktown ED 2 years ACLS 2007 Dr Vijayakumar: ACLS 2007 Dr Vij enrolled for Emergency Course Sydney June 2009</td>
</tr>
<tr>
<td>ED Beds 4</td>
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<tr>
<td>Total Acute Beds/Bays/Trolleys 8 (7 only until October 2009 die to HealthOne development)</td>
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<tr>
<td>Staff who are FLEC trained 60% plus two ACLS (NZ)</td>
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Demonstration
Real World Examples
Real World Examples
Real World Examples
Next Steps

- Finish Installing all the cameras!
- Document & Publish Outcomes
- Improve Access
  - Secure Internet Access (not IntrAnet)
  - Relay Server to handle bandwidth
- Integrated Real Time Documentation Tool
  - Web “Mashup”
  - Temporary Logins
For further information, contact

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or

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An information sheet (example on left) is in your satchel