AED Simulation Curriculum
June-December 2013
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Here to learn

Leave your ego at the door
Objectives

With the use of high quality simulation, in a safe learning environment, we aim to:

1. Improve patient care in Auckland City Hospital Adult Emergency Department, in EDs in the region, and throughout ACH
2. Improve skills and knowledge of “students”/participants
3. Improve skills and knowledge of “teachers”/facilitators
4. Improve the functioning of the department
5. Improve interdepartmental relationships and functioning
Stakeholders

1. Students/participants include:
   1.1. AED Medical
      1.1.1. Registrars
      1.1.2. MOSSs
      1.1.3. House surgeons
      1.1.4. Consultants
      1.1.5. Medical students/TIs
      1.1.6. Others
         1.1.6.1. From outside AED
            1.1.6.1.1. DCCM regs
            1.1.6.1.2. DCCM consultants
            1.1.6.1.3. Surg regs
            1.1.6.1.4. Medical regs
            1.1.6.1.5. Cardiology regs
            1.1.6.1.6. O&G regs, consultants
   1.2. AED Nursing
      1.2.1. Charge
      1.2.2. Resus
      1.2.3. Other
   1.3. Other
      1.3.1. Pre-hospital personnel
      1.3.2. Orderlies
      1.3.3. Midwives

2. Teachers/facilitators include
   2.1. AED Medical
      2.1.1. Consultants
      2.1.2. Fellows
      2.1.3. Registrars
      2.1.4. MOSSs
      2.1.5. Others
         2.1.5.1. From outside AED
   2.2. Nursing

3. Others
   3.1. We must involve those from outside our department. For example:
      3.1.1. DEMTs
         3.1.1.1. from our dept
         3.1.1.2. from the Auckland region DHBs
3.1.2. others interested in simulation in our hospital

3.1.2.1. There may (soon) be an Advisory Group set up to oversee simulation and clinical skills training at ADHB

3.1.3. ACEM
3.1.4. University of Auckland
3.1.5. HEMS
3.1.6. St John
**Subjects to cover**

1. Human factors
   1.1. Crisis Resource Management (CRM) skills
   1.2. Concept of the importance and interdependence of the individual, team and system

2. Resus topics (in no particular order)
   2.1. Shock
   2.2. CVS / cardiac arrest
   2.3. Resp
   2.4. Trauma
   2.5. Sepsis
   2.6. Toxicology
   2.7. Airway
   2.8. Obstetrics
   2.9. Neonatal resus
   2.10. Other...

3. Communication
   3.1. Breaking bad news
   3.2. Interdisciplinary
   3.3. Graded assertiveness

4. Other topics suitable for simulation
   4.1. Ocular foreign body removal
   4.2. Obstetrics/normal delivery
   4.3. Other...

5. Procedures
   5.1. See table
Table of procedures:

Survey 18 March 2013 (survey monkey)
“Which of these do you consider the highest priority for YOU to learn, eg you may have inserted 100 chest drains but never applied a femoral splint.”
Prioritise 1-5 (5=highest priority). 19-21 respondents.

cricothyrotomy .......................................................... 3.76
suprapubic catheter insertion ........................................ 3.45
central venous access .................................................. 3.4
RUSH ultrasound exam ............................................... 3.33
pericardiocentesis ....................................................... 3.26
femoral splint application ......................................... 3.24
cardiac pacing .............................................................. 3.21
pelvic binder application .......................................... 3.19
DC cardioversion (synchronised/unsynchronised) ........... 3.15
ED thoracotomy ......................................................... 3.14
chest drain insertion .................................................. 3.1
intraarterial line zeroing and blood draw ....................... 3.05
limb tourniquet application ....................................... 2.9
intraosseous access (multiple sites) ............................ 2.8
needle decompression of tension pneumothorax .......... 2.6
intraarterial line insertion ......................................... 2.37
priming a line for fluid administration ........................ 2.19
use of skin stapler ....................................................... 2.15

Other procedures not listed:
1. Intubation
2. Failed airway
3. ED peri-mortem caesarian section
4. Ocular foreign body removal
5. **Procedural sedation**
6. Others....
For students

Two broad types of skills need to be learned:
1. Crisis resource management skills
2. Procedural skills
For Teachers

Skills required
1. In situ simulation
   1.1. Debriefing
   1.2. Running manikin
   1.3. Scenario development
2. Procedural skills
   2.1. Ability
   2.2. Teaching
How will we achieve our objectives?

1. For students...we need promote active participation by ensuring high quality, relevant, safe simulation. We need to encourage those from outside the AED to attend. So far we have been successful with the O&G department, as well as one attendance by a CVICU consultant. Our approaches over the last year to DCCM have not resulted in any attendance by them. 
   1.1. Using in situ simulation
   1.2. Using procedure skills instruction
   1.3. Didactic
   1.4. Self directed reading/learning

2. For teachers ... the larger the pool of teachers the more simulation we can do. However, we need to ensure that the quality of our simulation is up to scratch (eg those running the manikin know how to do it), so some training is needed for all teachers.
   2.1. Using in situ simulation
      2.1.1. Training on the job
   2.2. Using procedure skills instruction
   2.3. Attending courses
      2.3.1. Eg Boston Children’s Hospital Instructors course
      2.3.2. Auckland University CLINED 705 (simulation)
   2.4. Attending conferences
      2.4.1. Eg Society for Simulation in Healthcare’s International Meeting on Simulation in Healthcare (Jan 25-29 2014, San Francisco)
   2.5. Reading literature around simulation
      2.5.1. Eg access to Simulation in Healthcare, journal of SSH
      2.5.2. Use of web based resources eg SAEM
      2.5.3. Use of improvingedcare.org
When will we do all this?

There are five (perhaps six) main times available for simulation.
1. CME programme
2. Quiksim sessions
3. Additional sessions,
   3.1. eg “Simple airway course”
4. Own time
   4.1. For SMOs this includes Wednesdays in level 8 anaesthetics dept
   4.2. Students/teachers to refer to internet/other resources
5. On the floor
6. Or... could this be a part of intermediate teaching? Allocated time slot is 10-1200, Tuesdays, not sure of details.
For CME time slot:

There are 7 slots in CME programme for simulation in the next 6 months.
Time is Tuesdays, 1400-1600.

Perhaps the best way of covering these topics is to have a similar format to each session. That format could consist of:

1. Pre-reading/pre-viewing/pre-doing
   1.1. Sourced by participants on the cloud
   1.2. Training room set up so that procedures can be practiced prior to the session

2. Didactic session, short
   2.1. CRM
   2.2. Safety
   2.3. Clinical

3. “Doing stuff”
   3.1. In-situ simulation
      3.1.1. Scenarios x2 (or 3?)
      3.1.2. Debrief
   3.2. Procedures

4. Summary
Quiksim sessions

We have been running these sessions on Tuesday mornings, 3rd Tuesday of the month, from 0730-0815ish.

Perhaps we could
1. run these from 0800-0900
2. Tuesdays
   2.1. 2nd Tuesday of the month
   2.2.Could involve those from outside ACH eg regs from other DHBs attending part 2 teaching
3. have a structured approach
   3.1. didactic...short
       3.1.1. reminder of CRM ideas
       3.1.2. “safety” blurb
       3.1.3. clinical stuff
   3.2. in situ scenario
   3.3. debrief
   3.4. summary
4. cover
   4.1. topics not covered in the CME
   4.2. topics which arise during recent clinical work
   4.3. M&M topics
Additional sessions

These include

1. **Airway 101 course**
   1.1. At least one course every 6 months, perhaps two?
   1.2. Involve
      1.2.1. AED
         1.2.1.1. Medical
         1.2.1.1.1. Reg
         1.2.1.1.2. House surgeon
         1.2.1.1.3. MOSS
         1.2.1.1.4. Consultant
      1.2.1.2. Nursing
   1.2.2. Non-AED
      1.2.2.1. ED regs from outside ACH
      1.2.2.2. Non-ED regs eg DCCM regs
      1.2.2.3. others

2. Ideally a trauma course, interdisciplinary
   2.1. This has been a goal for the last 8 months or so, but hasn’t happened as yet.....

3. **Procedures course (for credentialing in procedures)**
   3.1. For example, Central line insertion. Would be ideal to have a training program which involved
      3.1.1. Pre-reading
      3.1.2. Workshop, consisting of didactic, practical sessions on manikins
      3.1.3. Deliberate practice in participants own time
      3.1.4. Evaluation on
         3.1.4.1. Manikin
         3.1.4.2. “stable” patient (in theatre)
         3.1.4.3. emergency patient, in ED

4. **Procedural sedation course**
   4.1. Simulation would be IDEAL for this
   4.2. Perhaps we could credential docs/nurses for procedural sedation?
   4.3. A log book with a certain number of sedations as well as pre-reading and attendance at a procedure course
   4.4. Would make a great research project/for presentation
   4.5. Would be creditable regionaly?
4.6. What about with ACEM?

5. Encourage attendance on
   5.1. CORE course
   5.2. ATLS
   5.3. ACME

6. Aim to send an Auckland team to SimWars in Adelaide Annual Scientific Meeting (24-29 November)?
Own Time

improvingedcare.org will become a very useful resource for our department thanks to the skill and dedication of Scott Orman. We need to become familiar and skilled with it’s use and use it and encourage it’s use whenever possible. We should use this as the resource “hub” for simulation.

SMOs must be seen as good role models by being skilled in CRM skills and procedure skills. One way is to make use of our opportunities, such as using the Wednesday airway slot on level 8.

Procedural skills training requires frequent deliberate practice. While having a session(s) dedicated to numerous procedures may be useful, participants need the opportunity to practice frequently and at their own pace. Ideally they would be provided with a space/opportunity to practice skills such as central line placement, chest drain insertion, intubation, etc. Perhaps we should explore “credentialing” for procedures? This is a hospital/regional/college level issue.
On the Floor

It isn’t common to have time when the floor is quiet enough to do much in the way of simulation, however it is not impossible some of the time.

If we have an efficient means of accomplishing something during any quiet period, and the desire to make use of this means, then we may be able to use any quiet time to achieve our objectives.

Ideas for this could be placed on improvingedcare.org.

Ideas include:
1. Airway run through
   1.1. On arrival on the shift the resus reg and nurse and ideally SMO are identified and would run through the airway checklist/algorithm. (Thanks Sam Bendall). There may be several approaches to this, but a suggested approach is:
   1.1.1. “walk” through the checklist, slowly, discussing items along the way as needed, including “failed” airway algorithm, drugs used etc, eventually intubating an airway manikin
   1.1.2. then run through the checklist in “real” time, intubating a manikin
2. Treasure hunt
   2.1. Knowledge of one’s environment is important, and frequent (every few weeks) re-orientation to the resus environment makes sense. Using a treasure hunt, participants can re-orientate themselves frequently and without much effort on any facilitator’s part. This may also be a useful quality activity. Thanks to Owen Doran.
3. Ultrasound placement of a line
   3.1. The trickiest part of central line placement is getting the needle into the vessel. Practice with phantoms may help and needn’t be time consuming if we have it easily accessible to participants. Thanks to Owen Doran for sacrificing his CME money for the benefit of all!
4. Placing items upon medical students, eg
   4.1. Pelvic binder
   4.2. Femoral splint
   4.3. Ultrasounding them (RUSH exam)
   4.4. ? other
5. There must be others...
   5.1. Running an actual scenario is an attractive activity but there are significant obstacles to running these eg
   5.1.1. requires several personnel,
   5.1.2. requires significant time,
## Timetable

As of May 6 2013.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Type</th>
<th>Event Type Details</th>
</tr>
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<tbody>
<tr>
<td>11/06/13</td>
<td>CME</td>
<td>Airway</td>
</tr>
<tr>
<td>25/06/13</td>
<td>CME</td>
<td>CRM</td>
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<tr>
<td>30/07/13</td>
<td>CME</td>
<td>Procedures</td>
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<td>27/08/13</td>
<td>CME</td>
<td>Shock</td>
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<td>24/09/13</td>
<td>CME</td>
<td>Trauma</td>
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<td>29/10/13</td>
<td>CME</td>
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<td>CME</td>
<td>Obstetric</td>
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<td>11/06/13</td>
<td>QuikSim</td>
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<td>9/07/13</td>
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<tr>
<td>12/11/13</td>
<td>QuikSim</td>
<td>burns</td>
</tr>
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Resources required
1. Survey monkey (or similar)
   1.1. Need to ensure our department has easy access to excellent software for feedback
2. Web resources
   2.1. Eg. improvingedcare.org
   2.2. Links to other sites
3. Manikins
   3.1. Hi fi manikin
       3.1.1. Current access is adequate, but could be improved if our department had it’s own simman 3G
   3.2. Phantoms
       3.2.1. We have two ultrasoundable manikins
       3.2.2. We have 3 intubating heads/manikins
       3.2.3. Others...
4. Personnel
   4.1. Support staff
   4.2. Teachers
   4.3. Students
5. Locations for simulation
   5.1. In situ
       5.1.1. Resus 4
   5.2. Training room
6. Debrief tools
   6.1. Video... we are currently exploring updating our ability to video simulations so that observers can watch from outside the scenario area.
   6.1.1. Recording
   6.1.2. Playback
How will the effectiveness of the curriculum be assessed?

Simulation is expensive in terms of time and physical resources. It also comes at the expense of other methods of learning, e.g. reading a textbook/practicing exam questions etc. We need to ensure that our students (and teachers) are benefiting from all of this effort. Also, we must aim to continually improve our programme by providing an opportunity for all stakeholders to feedback any ideas or concerns they have.

1. Feedback
   1.1. From stakeholders
      1.1.1. Students
      1.1.2. Teachers
      1.1.3. Others
   1.2. Feedback form
      1.2.1. Perhaps after each session a feedback form is to be filled out by all students and teachers
      1.2.2. Perhaps use of survey monkey?

2. Audit

3. “Simulation of the year” award (SOTYA)?
   3.1. An award for the simulation of the year to be awarded to the participant and facilitator who did something extraordinary??
And research?

Simulation seems like a good idea (as did the use of leeches for bad humours in Elizabethan times, steroids for spinal cord injury etc, etc), but there is not a lot of high quality empirical evidence of the benefits of simulation. Ideally we would contribute by encouraging/conducting research projects.

1. MORSim
2. Others?
Where to from here?

- Allocate leaders for CME sessions
- Assess/encourage teacher/student/other stakeholder resources
- Sort out improvingedcare.org
- Others...
  - Other courses
    - Airway
    - Trauma
  - Procedure practice
- May 21