New Methods for Evaluating Team Training for Neonatal Resuscitation

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“Neonatal resuscitation is a common and important intervention. It is also a stressful and sometimes chaotic experience”.

Colm O’Donnell, Omar Kamlin, Peter Davis & Colin Morley

*Arch Dis Child Fetal Neonatal Ed 2008*
Teams for neonatal resuscitation

- Typically formed ad hoc
- Range of knowledge, skill levels, experience
- Usually no prior rehearsal as a team
- Emergency situations, difficult timing
- Complicated cues from baby & environment
- Lack of training in teamwork, leadership
- Documentation post hoc, often conflicting, incomplete, inaccurate
Neonatal Resuscitation Training in Queensland since 2000

- NRP full day provider & half day recert courses
- Collaboration between teaching hospitals
- Train the trainer model
- At Mater Mothers’ Hospital
  - >100 courses,
  - >2000 participants
- Continued refinement of teaching and content
- Very high participant satisfaction
BUT.....

Uncertain relevance in some common clinical scenarios
No methods of assessing
  – Retention of knowledge and skills
  – Application of skills to clinical setting
  – Effect on outcome of babies

Increasing
  – Babies
  – Trainees/new staff
  – Complexities in providing supervision
  – New evidence about neonatal resuscitation
Assessing training

Effectiveness

Learning & improvement

Transfer

Clinical Outcomes
Clinical performance
Training performance
Training
Training performance
Clinical performance
Clinical Outcomes
Theatre Neonatal Resuscitation Room
Skills? Teamwork?
3 minutes 25 seconds of resuscitation activity

**Airway manager**
- Place baby supine
- Check heart rate by palpating chest
- Dry/stimulate baby
- Ask for suction catheter
- Get laryngoscope
- Get ET tube
- Insert laryngoscope
- Insert suction catheter
- Suction airway
- Reposition head
- Insert ET tube
- Hold ET tube
- Remove laryngoscope & put down
- Check ETT tube marking at lip
- Straighten head
- Look at CO2 detector

**Leader**
- Get stethoscope
- Listen to hear rate
- Instruction to intubate
- Reach for ETT
- Remove stylet
- Assist with airway suction
- Pass ETT
- Provide cricoid pressure

**Assistant 1**
- Attach Neopuff
- Provide positive pressure breaths
- Ask for CO2 detector
- Put stethoscope in ears
- Listen to breaths & heart rate
- Provide breaths and chest compressions
- Provide breaths and listen to heart rate
- Ask for PIP increase
- Ask for FIO2 increase
- Provide breaths and compressions
- Decision to remove ET tube
- Place face mask
- Commence mask breaths
- Ask for chest compressions to recommence
- Reach for laryngoscope
- Turn off laryngoscope
- Put laryngoscope on resus cart
- Decision to take over airway management.....

**Assistant 2**
- Insert stylet in ET Tube
- Pass cord clamp, scissors & gauze
- Prepare Curosurf
- Put Curosurf syringe on warmer
- Prepare Vitamin K
- Obtain CO2 detector
- Drop package on floor & pick up
- Pass CO2 detector
- Pass Vitamin K syringe

**Leader**
- Increase PIP
- Increase FIO2 using wrong blender dial

**Assistant 1**
- Increase PIP
- Turn up oxygen
- Put down Vitamin K
- Adjust sat probe
- Reapply sat probe to right wrist
- Pick up Curosurf
- Put down Curosurf
- Get stethoscope from leader

**Assistant 2**
- Pass new ETT
Our goals

- Objectively assess training needs
  - Skills
  - Teamwork
- Debriefing - opportunities for feedback, reflection on own practice, support
- Devise training methods to address needs
- Objectively assess retention, transfer and effectiveness of training