Continued Surgical Review Meetings: a Multidisciplinary Clinical Model for Quality Control and Surgical Mentoring

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Introduction
Mortality rates are considered a limited indicator of quality in congenital cardiac surgery. Smooth generational changes among surgeons often necessitate prolonged mentoring.

We aim at introducing a new review model to improve quality and learn from adverse events, by using a continuously updated database and implementing changes in the practice when appropriate. The method will show how to develop surgical skill through improved feedback. This model will be used to monitor the mentoring system in use at UHS.

Methods
All surgical procedures performed by three surgeons between Jan 2010 and June 2011 were reviewed every fortnight at scheduled MDT Meetings. Complications and adverse events (AEs) were discussed for each event. Procedures were categorized as "mentored", when performed by a junior consultant, and “non-mentored” when performed by senior surgeons.

The junior surgeon was mentored through an increasingly difficult range of operations during the three semesters (Fig 2).

Risk category 1
- Mortality 2.4%
  - Includes surgery in newborns
  - Includes atrial septal defect repair
  - Includes ductus arteriosus surgery at age >30 d

Risk category 2
- Mortality 3.8%
  - Includes surgery in neonates
  - Includes atrial septal defect surgery (including atrial septal defect stenosis)
  - Includes patent ductus arteriosus surgery at age >30 d

Risk category 3
- Mortality 6.3%
  - Includes surgery in infants
  - Includes venosus atrial septal defect, patent ductus arteriosus surgery
  - Includes atrial septal defect surgery (including atrial septal defect stenosis)

Risk category 4
- Mortality 10.4%
  - Includes surgery in children
  - Includes atrial septal defect repair
  - Includes transection

Mentoring was exercised in case-selection, surgical assistance or both. The average numbers of AEs/Operation classified by group (mentored vs non-mentored) were compared in each semester with ANOVA analysis and post-hoc Game-Howell test.

Results
In the 18 months period 38 meetings were held and a total of 729 CCAD-eligible consecutive congenital cardiac operations and related interventions were reviewed.

Overall mortality rates were 1%, 2.8% and 2.3% in semester 1, 2 and 3, respectively.

Overall incidence of near misses were 0.05/Op, 0.06/Op and 0.06/Op, respectively.

The mentored activity had a lower number of AEs in semester 1 and 2, but a high number in semester 3 when more difficult cases were undertaken. The incidence of AEs in the non-mentored activity remained higher but constant, even when the junior surgeon performed most of his operations independently (semester 3) (Fig 3 and 4).

Conclusions
• This multi-themed quality improvement activity provides training and development initiatives.
  • It is multi-dimensional, providing immediate interventions when required, owned and managed by clinicians ("those doing the work").
  • It provides a highly transparent prospective process.
  • It is backed up with peer-reviewed (i.e. M&M meeting) and systematically collected evidence.
  • A successful integration of surgeons still in a learning curve is achievable with constant monitor.