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)

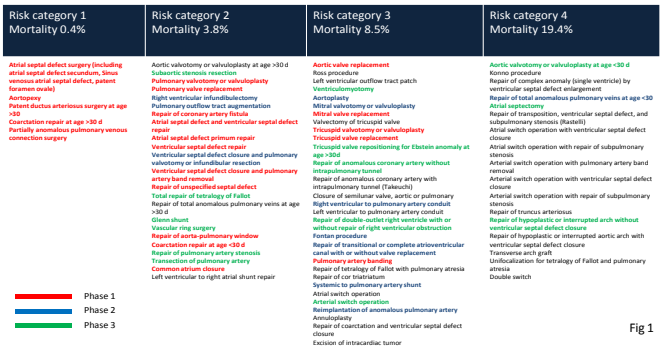

Fig 1

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.

	Research	Audit	Clinical Review
Object	Adverse Events	Specific Aspect of Practice	Adverse Events Complications
Method	Scientific Analysis	Measure against SoC	Self Assessment
Players	Researchers	Clinicians/Nurses	Clinicians
Costs	High	Moderate	Low
Time costs	High	High	Moderate
Circulation	"Top to Bottom" Widespread	Horizontal Trust / Widespread	"Bottom to Top" Widespread
Clinical Effect	Unclear	High	High
Education Effect	Only by reading	Circulation/Reading	Participation
Timing of effect	Delayed	Delayed Contemporary	Contemporary

Fig 2

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).

Non Mentored	2010-I	2010-II	2011-I
Procedures	125	137	192
Failures (all)	96 (0.76/Op)	45 (0.32/Op)	52 (0.27%)
Near Misses	7 (0.056/Op)	8 (0.058/Op)	n/a

Mentored*	2010-1	2010-II	2011-I
Procedures	86	99	12
Failures (all)	34 (0.39/Op)	25 (0.25/Op)	15 (1.15/Op)
Near Misses	5 (0.058/Op)	7 (0.070/Op)	n/a

Fig 3

Fig 4

Mentored activity - AEs

Mentored			
2010-I	34 (0.39/Op)	2010-I	34 (0.39/Op)
2010-II	25 (0.25/Op)	2011-I	15 (1.15/Op)
	n.s.		*p 0.001*

Non-Mentored activity - AEs

Non Mentored			
2010-I	96 (0.76/Op)	2010-I	96 (0.76/Op)
2010-II	45 (0.32/Op)	2011-I	52 (0.27/Op)
	p 0.001		*p 0.001*

Mentored vs Non-Mentored - AEs

	Non Mentored	Mentored	
I Semester 2010	96 (0.76/Op)	34 (0.39/Op)	*p 0.001*
II Semester 2010	45 (0.32/Op)	25 (0.25/Op)	*n.s*
I Semester 2011	52 (0.27/Op)	15 (1.15/Op)	*p 0.001*

Fig 1 RACHS-1 based distribution of surgeries by increasing complexity.
Fig 2 Comparison between surgical review meeting and other quality control method
Fig 3 Number of all AEs, grouped per semester in the mentored and non-mentored activity
Fig 4 Comparison of number of AEs per operation between the mentored and non-mentored activity and between the beginning and the end of the study period

Conclusions

- **This multi-themed quality improvement activity provides training and development initiatives.**
- **It is multi-dimensional, promoting 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**

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