THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Advances in developing multidisciplinary simulation based training of operating room teams.

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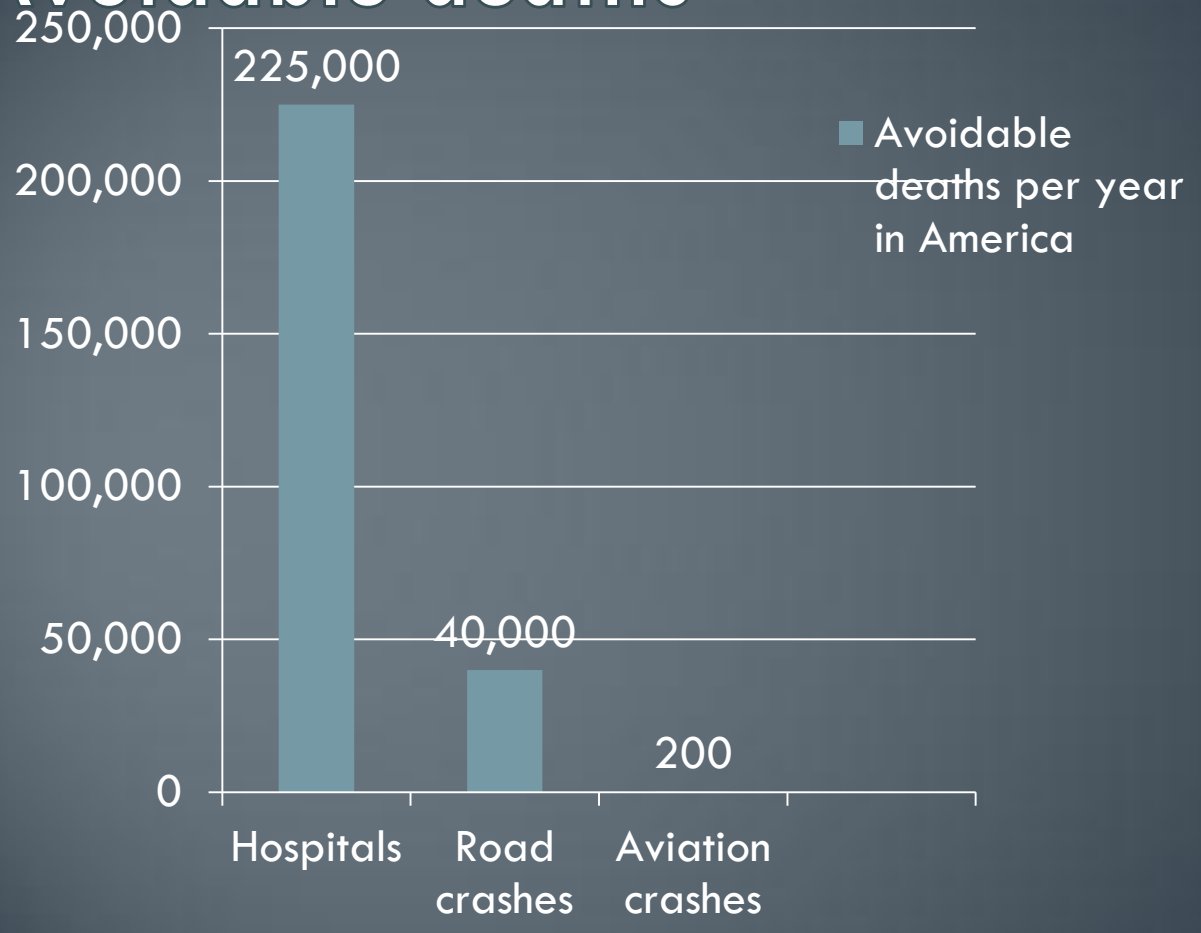
Avoidable deaths



Improving Inter-disciplinary Communication

Analyses of adverse events:

Communication and teamwork failures common contributory factors

25% of OR communications fail: inappropriate timing, inaccurate or missing content, failure to resolve issues.

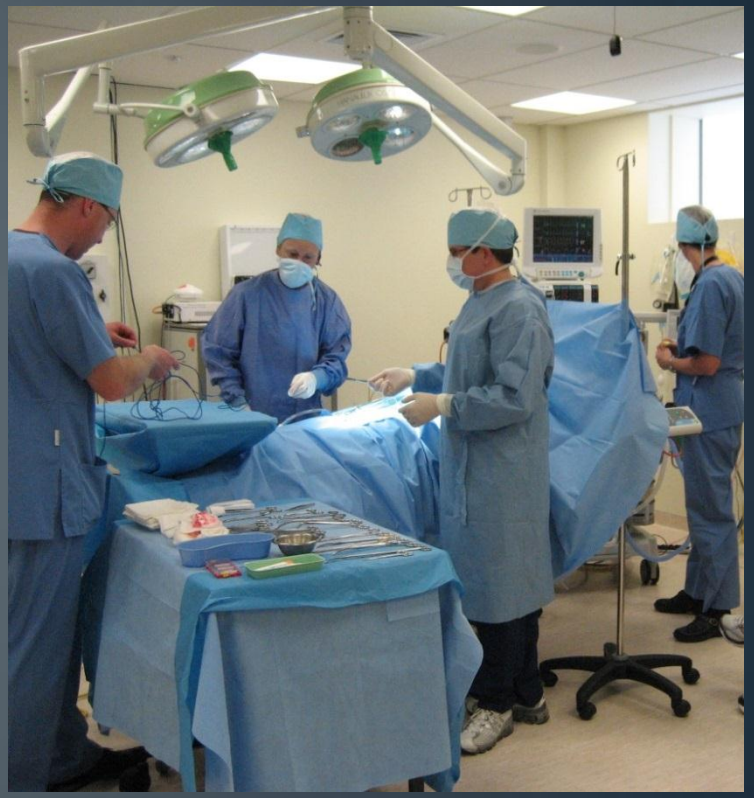
>35% have visible effects: tension in the team, inefficiency, waste of resources, delay or procedural error

The US Institute of Medicine directive:

"Teams who work together should be trained together"

Current status

OR Team training initiatives are predominantly discipline-based



Presentation overview

- What's happening with MDT simulation training in the OR
- What evidence is there of effectiveness of team training interventions
- An example: MORSIM

Centres conducting MDT OR training

Systematic Review: Cumin, Boyd, Weller SIH 2013

Centre	Training provided
South Australia	OR critical events.
Oklahoma	Balloon pump insertion, general / ortho trauma.
Basel	Crisis simulations: bleeding and pneumothorax.
Imperial College	Femoral bleed leading to cardiac arrest.
Louisiana	Lap cholecystectomy.
Newfoundland	Malignant hyperthermia
Montreal	Suspected stroke/ phaeochromocytoma.
Boston Childrens	Compromised / distressed patient
Harvard	Compromised / distressed patient

A systematic review : interventions to improve teamwork and communication in the OR

Weller, Boyd Current Anesthesiology reports 2014

Measures: Improved patient care in clinical practice.

Improved outcomes

- improved team function
- improved operating room processes
- improved patient outcomes

Effective types of interventions:

- structured approaches to information sharing between OR team – briefings, checklists
- ongoing programs of team training
- organisational changes to support team function

Only one simulation-based OR team training intervention showed an effect in the clinical OR

An educational program in crisis management for cardiac surgery teams including high realism simulation

→ improved staff perceptions of team function in clinical practice

Stevens et al Cardiothorac Surg Educ Train 2012

Insurer-Driven, Multicenter Simulation Training for Operating Room Teams.

Arriaga 2014

221 OR staff members.

Evidence of success

- Feasibility - No study dates were cancelled because of lack of attendance.
- Participant evaluation – realistic, challenging, would help them provide better care.

Outcome

- Insurers committed to reduced premiums for employees undertaking the training.

Story so far

- Limited multidisciplinary simulation-based training for OR teams
- Very limited evidence on improvements in clinical practice.

The Multidisciplinary Operating Room Simulation intervention

Educational objectives

- Develop shared understanding
- Expose assumptions
- Formulate ideas for improved communication

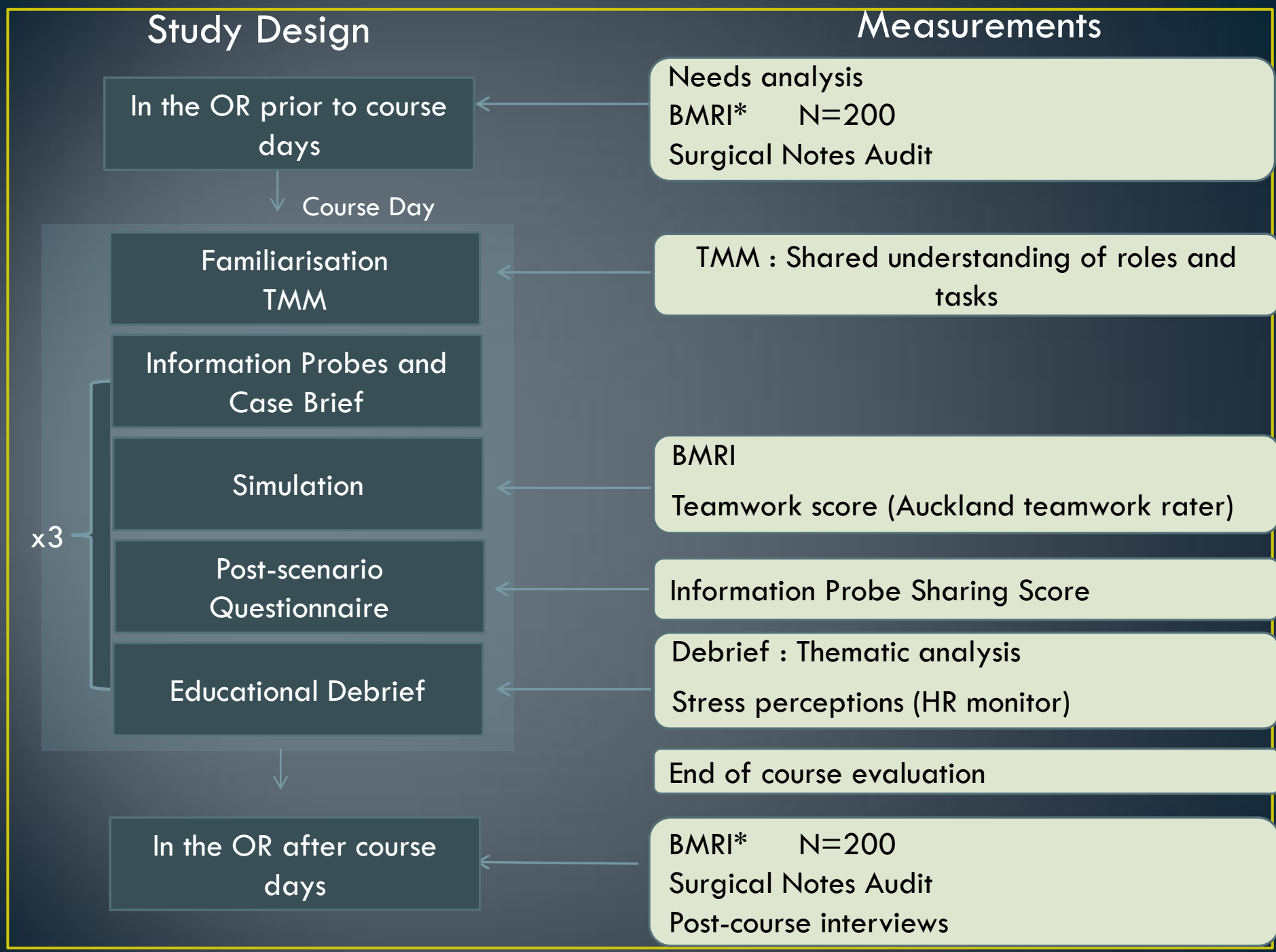
Communication tools

- Briefing
- Closed loop communication
- Recap (SNAPPI)

Simulators

Participants: Whole OR teams

- Surgeons x2
- Nurses x2
- Anaesthetist x1
- Anaesthetic Assistant x1


Study Design
Measurements
In the OR prior to course days
Needs analysis
BMRI* N=200
Surgical Notes Audit
Course Day
Familiarisation TMM
TMM : Shared understanding of roles and tasks
Information Probes and Case Brief
Simulation
BMRI
Teamwork score (Auckland teamwork rater)
x3
Post-scenario Questionnaire
Information Probe Sharing Score
Educational Debrief
Debrief : Thematic analysis
Stress perceptions (HR monitor)
End of course evaluation
In the OR after course days
BMRI* N=200
Surgical Notes Audit
Post-course interviews

Modified Behavioural Marker Risk Index (BMRI*) (In-theatre observations)

Briefing: Situation/relevant background shared; patient, procedure, site/side identified; plans are stated; questions asked; ongoing monitoring and communication encouraged

Information sharing: Information is shared; intentions are stated; mutual respect is evident; social conversations are appropriate

Inquiry: Asks for input and other relevant information

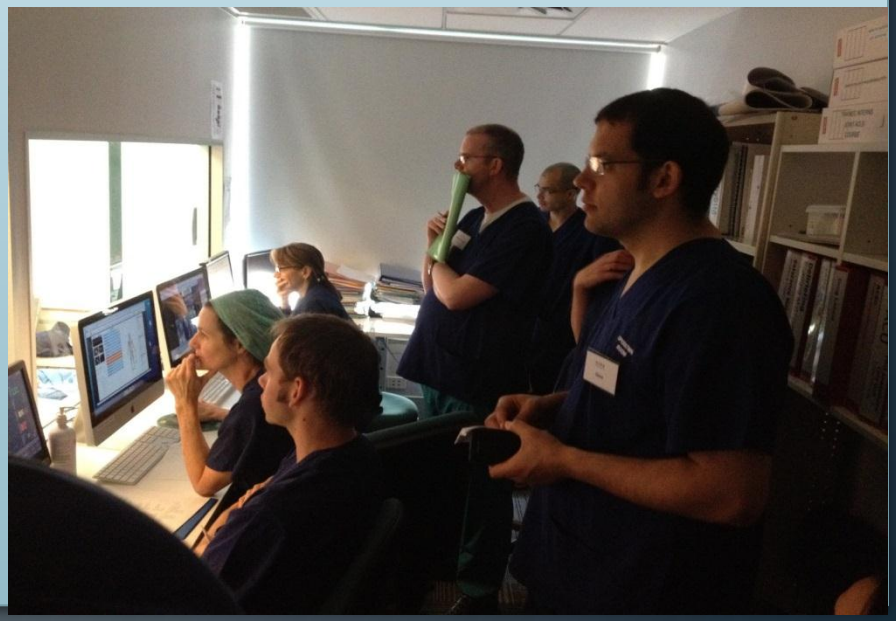
Vigilance and awareness : Tasks are prioritized; attention is focused; patient/equipment monitoring is maintained; tunnel vision is avoided; red flags are identified

***Inter-team information sharing:** Information is shared between the nursing, surgical, and anaesthetic sub-teams

Mazzocco Am J Surg 2009

Information probes

- Participants briefed with same story but each had unique pieces of additional, relevant information
- Plausible
- Allows tracking of information and measurement of sharing.



Results

20 study days,
120 participants
No cancelled

Active engagement

Discussion about blood among the team (Case III)

- The clip begins with a nurse telling the anaesthetist how much blood is in the suction

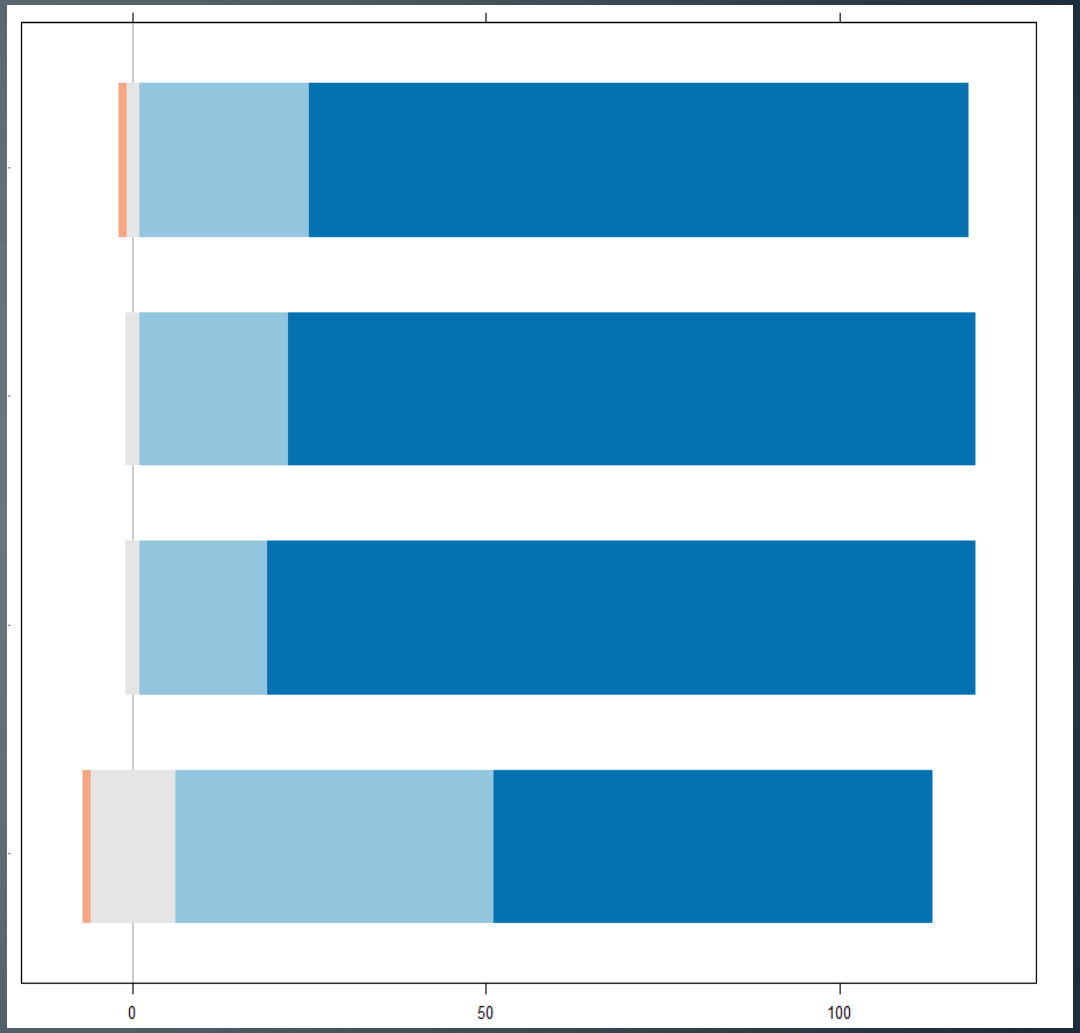
Positive participant evaluations

Overall, I found the course enjoyable

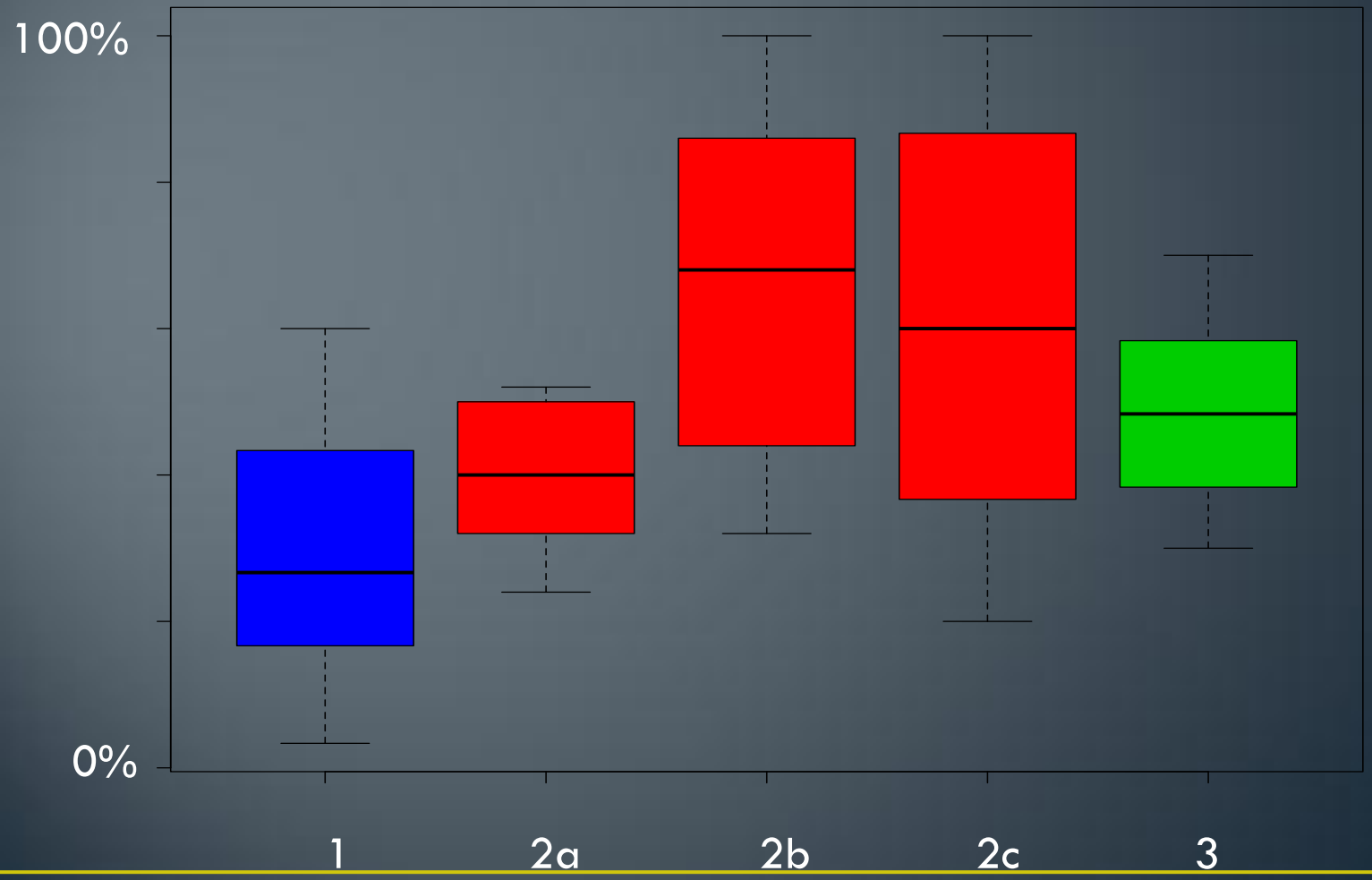
Overall, I found the course a useful learning experience

I would recommend this course to my colleagues

I am likely to change my practice as a result of this course



Information sharing by case number



Debrief themes

- Team orientation
- Information sharing
- A co-ordinated effort
- Communication efficiency

Participant Reflections - Assumptions

"It's hard for us to know how much the scrub knows about cases. Obviously it's not as much as I thought they knew. … I guess I assumed that somehow out there [the nurses] got told what was going on."

Participant reflections on information sharing

"It's important to make sure that everybody in the room not only does share what they know but is made to feel like what they know is important."

Participant Reflections - Briefings

"It would almost be better if we could .. leave as a team and talk about what we're going to do, with nothing in our hands, and then go back in. I think that would be a much more clear way of communicating"

Transfer to clinical practice

Measure	Results
BMRI*	Significant improvement in BMRI(m) scores in 200 pre and post in-theatre observations Significant effect of having a MORSIM participant in the observed team
Follow-up interviews (N=48)	Change in practice (62.5%): communication practices, assertiveness, increased awareness of others and of the environment Barriers to change encountered (81%): culture, organisational practices, limited exposure to course ideas
Notes review	TBC

Conclusions

Feasible: recruitment, costs, fidelity

Information sharing: evidence of a problem, improved over training day

Positive participant perceptions and evidence of learning, attitude change.

Evidence of change in behaviours in the workplace

Take home messages

- We can't assume that OR team members are "*on the same page*"
- Surgeons, anaesthetists and other OR staff *will* engage with realistic scenarios and gain powerful insights
- When each professional group is involved in a realistic scenario use of confederates can be kept to a minimum
- Realistic scenarios require real life situations and models that match the scenario and require action
- Involvement of a Multidisciplinary Team in planning is crucial