Multidisciplinary simulation training for Australian perioperative teams: A qualitative descriptive exploratory study

Supplement 1: Flyer seeking study participants

Volunteers are needed to study the effects of multidisciplinary simulation training for Australian perioperative teams

The perioperative environment is a high-risk and dynamic area staffed with multidisciplinary health care teams (Gillespie and Davies, 2016; Ozawa and Mahboobi, 2020). However, the multidisciplinary nature of perioperative teams can present barriers to safe patient care in the form of disciplinary 'silos', hierarchies and professional rivalries which reduce effective communication, teamwork and/or collaboration (Jowsey et al., 2019; Weller et al., 2020). Multidisciplinary simulation training can be used to improve teamwork, communication and collaboration between the multiple disciplines within the perioperative team (Kim and Yoo, 2020; Myatra et al., 2017). This study is part of a Bachelor of Nursing with Honours degree undertaken at the University of Tasmania and aims to examine the effect of multidisciplinary simulation training for Australian perioperative teams within Australian hospitals.

You may qualify if:

- you are currently employed within an Australian hospital
- you are an anaesthetist
- you are a surgeon
- you are a nurse
- you are currently registered with AHPRA
- you have undertaken simulation training within the last five years.

What is required:

Participants will be required to take part in a semi-structured interview via video conferencing.

Potential benefits:

This study will provide greater insight into the potential benefits and/or disadvantages of multidisciplinary simulation training undertaken by Australian perioperative teams.

If you would like to participate in this research study, please contact Michelle Hibberson on 04XX XXX 592 or by email mh25@utas.edu.au.

Supplement 2: Participant recruitment questionnaire

Are you currently registered with AHPRA?

Yes ☐ No ☐

Are you an anaesthetist, surgeon or nurse?

Yes ☐ No ☐

Have you participated in simulation training in the last five years?

Yes ☐ No ☐

Are you currently working within an Australian perioperative unit?

Yes ☐ No ☐

Multidisciplinary simulation training for Australian perioperative teams: A qualitative descriptive exploratory study

Supplement 3: Interview guide

Housekeeping

Thank you for participating

Brief overview of research

Check consent

Withdraw at any stage and support is available

The interview will be recorded

May take notes at times

Questions before we start

Demographic information

What profession are you from?

How long have you been a nurse, surgeon or an anaesthetist?

Have you always worked in your role?

What made you choose that particular speciality?

What sort of simulation training have you participated in?

Understanding of multidisciplinary simulation training

What is your understanding of multidisciplinary simulation training?

Who is involved?

What is involved?

Where is it held?

What is its purpose?

Frequency of simulation training

How often is multidisciplinary simulation training run/offered in your workplace?

Do you think this is enough?

Why/why not?

Barriers/enablers

What do you think are the barriers or enablers to running multidisciplinary simulation training in your perioperative unit?

How do you think these barriers can be reduced?

How can the enablers be improved/implemented?

Types of scenarios

What are some of the scenarios which have been covered in the simulation training you have participated in?

What do you think are the important scenarios to include?

Why do you think these scenarios should be included?

Confidence

Can you describe how confident you felt before undertaking multidisciplinary simulation training?

Did your confidence change once you were experiencing multidisciplinary simulation training? If so, how did you feel then?

Can you describe your confidence level after completing simulation training?

Simulation fidelity

Did the simulation feel realistic and if so what, in particular, made it feel that way?

What props were used?

Were people or mannequins used? And which were more believable?

Can you describe why simulation fidelity during scenarios is important to you?

Did scenario fidelity help or hinder learning?

Teamwork

Can you describe the effect multidisciplinary simulation training has on teamwork within your perioperative unit?

Was teamwork improved or did it remain the same?

Were there barriers to making changes within the team? Why?

Do any changes in relation to teamwork only extend as far as the people who attended the simulation training or are there wider effects within the perioperative unit?

Communication

Can you describe the communication between the team members before and after simulation training?

Is it improved? If so, how?

If it didn't change, why do you think this occurred?

Is communication focused on during simulation training? If so, how?

Are communication tools used or taught during simulation training?

Has communication improved among the perioperative unit as a whole? How?

Increasing patient safety

Can you describe if there have been any patient safety improvements following multidisciplinary simulation training?

How has simulation training improved patient safety?

How have you measured improvements in patient safety?

Have the improvements been long term or short term?

Debriefing

Do you undertake a debriefing following simulation training and can you describe the effect this had on yourself and the team?

Helpful?

Who participated?

Were you comfortable/uncomfortable?

Were you able to openly discuss things that happened during the simulation training?

Did you use debriefing to identify clinical/practice changes?

Is there anything further you would like to add or any point you feel you need to clarify?

Multidisciplinary simulation training for Australian perioperative teams: A qualitative descriptive exploratory study

Supplement 4: Tables of combined code iterations

Combined codes iteration one	P1	P2	P3	P4	P5	P6	P7	P8
Emergency scenarios	***	***	********	******	***	*********	***	**********
Practise skills and knowledge	*	*	**	******		*	*	*
Training for novice/inexperienced staff	***	**		****	*	**	*	*****
Mandatory competencies		*	***			**	*	
Staff availability	***	**	****	**			***	********
Staff are enablers	***		*	*				
Staff attitudes	***	*		***		*	*	
Staff fear simulation	*		**		*	*	**	*
Available facilities	*	**	**	*	*			****
Running simulation training dependent on lists/theatres running	*	*	***	**			**	
Competing priorities	***		**					
Fear of looking incompetent	****				*	**		
Simulation is team building	***		***	*******	*****	**		****
Simulation increases confidence	**	**	*			*		*
Simulation facilitated by educators	*							
Simulation is time consuming			**				***	
Simulation is educational	*	***	*******			*	*	***
Simulation is positive	*		**	*				
Simulation should be a safe space	*		*	***	***		***	*
Simulation should not be punitive	*			**		*	*	*
Simulation can be harmful			***		*		*	
Anaesthetist lead simulation training	*	**	*	**	**	*	***	****
Reluctance to participate		*	**			****		
Frequency	****	*	**	**	****	**	***	***
Protected time essential			*	*			*	
Limited time		*	**	*		*		
Limited facilitator time			**					
Pre-briefing important			*	*	***	*		*
Equipment increases fidelity	*		***					
Patient safety	*		***	*	**	**	*****	
Participants should not be embarrassed			**					
Role awareness	**			*		**		****
Multidisciplinary		*	**	*			***	****
Management is an enabler				**			*	
Facilitators	*			**	**	****	*****	***
Management and administration can be a barrier					*			
Debrief		*	***	***	*******	******	******	**
Lack of resources							*****	
Surgeon Involvement		*	*		*	*		
Fidelity	*	*	*	***	**	***	****	***

Combined codes iteration two	P1	P2	P3	P4	P5	P6	P7	P8
Emergency scenarios	***	***	********	******	***	*********	***	**********
Practise skills and knowledge	*	*	**	******		*	*	*
Training for novice/inexperienced staff	***	**		****	*	**	*	*****
Mandatory competencies		*	***			**	*	
Simulation is educational	*	***	*******			*	*	***
Staff availability	******	**	*******	***			****	********
Staff attitudes	***	**	**	***		****	*	
Staff fear simulation	*		**		*	*	**	*
Available facilities	**	***	*****	***	*		**	****
Safe space	******		****	*****	*****	***	*****	**
Simulation is team building	*****		***	********	*****	****		********
Simulation increases confidence	**	**	*			*		*
Anaesthetist lead simulation training	*	**	*	**	**	*	***	****
Frequency	****	*	**	**	****	**	***	***
Pre-briefing important			*	*	***	*		*
Equipment increases fidelity	*		***					
Patient safety	*		***	*	**	**	*****	
Participants should not be embarrassed			**					
Multidisciplinary		**	***	*	*	*	***	****
Facilitators	*			**	**	****	*****	***
Debrief		*	***	***	*******	******	******	**
Fidelity	*	*	*	***	**	***	****	***

Combined codes iteration three	P1	P2	P3	P4	P5	P6	P7	P8
Emergency scenarios	***	****	********	******	***	*********	***	**********
Simulation is team building	*****		***	********	*****	****		********
Safe space	******		******	*****	*****	***	*****	**
Staff availability	******	**	*******	***			****	********
Debrief		*	***	***	******	******	******	**
Frequency	****	*	**	**	****	**	***	***
Staff attitudes	***	**	**	***		****	*	
Available facilities	**	***	*****	***	*		**	****
Fidelity	**	*	****	***	**	***	****	***
Facilitators	*			**	**	****	*****	***
Anaesthetist lead simulation training	*	**	*	**	**	*	***	****
Practise skills and knowledge	*	*	**	******		*	*	*
Training for novice/inexperienced staff	***	**		****	*	**	*	*****
Mandatory competencies		*	***			**	*	
Multidisciplinary		**	***	*	*	*	***	****
Patient safety	*		***	*	**	**	*****	
Simulation is educational	*	***	*******			*	*	***
Staff fear simulation	*		**		*	*	**	*
Simulation increases confidence	**	**	*			*		*
Pre-briefing important			*	*	***	*		*

Multidisciplinary simulation training for Australian perioperative teams: A qualitative descriptive exploratory study

Supplement 5: Table of tentative themes, subthemes and associated codes

Themes	Teamwork	Safe space	Debriefing and pre-briefing	Frequency	Fidelity	Facilitators	Anaesthetist lead	Simulation training is educational	Emergency scenarios	Multidisciplinary	Patient safety
Subthemes		Staff fear simulation training		Staff availability				Practise skills and knowledge			
		Staff attitudes		Facilities				Training novice /inexperienced staff			
								Mandatory competencies			
Codes	Simulation is team building	Takes time to establish trust in the process	Debriefing properly requires training	Frequency once a month is enough	High fidelity simulation	Need to be non-judgemental	Anaesthetist heavily involved in simulation	Practise skills and knowledge	Emergency scenarios	Multidisciplinary nature increases fidelity	Evidence of changes to practice and set up
	Positive team discussion	Trust needed to manage awkward conversations and give non-judgemental feedback	Different scenarios require different debriefing	Set and regular access to simulation centre	High fidelity can be confronting	Giving the right feedback can be difficult	Anaesthetist heavily involved in in-situ simulation	Practising technical skills	Anaesthetic scenarios	Surgeons not often involved	Changes in logistics and equipment
	Focus on team training	Simulation must be a supportive environment	Focus on the positives during debriefing	Frequency varies	The scenario matters more than the fidelity	Improperly trained facilitators create fear of simulation which becomes a barrier	Lack of anaesthetists cancels training	Simulation allows staff to practise technical skills	Scenarios based on real events	Nurses involved in simulation	Patient safety improvements unclear
	Simulation part of team training program	Staff need to feel comfortable during simulation	Focus on debriefing	Regular sessions needed	Simulation fidelity achieved by having the same set up as the ward	Facilitators need to be trained	Anaesthetist driven	Training novice/ inexperienced staff	Simulation can be used to debrief real situations	Anaesthetic team and scrub/scout team different	Changes to equipment made post simulation
	Multidisciplinary approach in simulation is team building	Uncomfortable about being judged by colleagues	Debriefing is simulation dependent	More frequent simulation needed to retain knowledge	Fidelity is important	Trained facilitators to conduct debrief is important	Anaesthetist key to running simulation	Learning the basics	Simulation used to debrief real scenarios	Multidisciplinary teams split	Patient safety improvements from simulation
	After hours teamwork improved	Fear of looking incompetent in front of colleagues	Debriefing requires trust	Shorter frequency ideal	Multidisciplinary nature makes simulation more realistic	Supportive facilitators are important	Simulation is anaesthetist lead	Simulation is for learning new skills	Anaesthetic complications a focus of simulation	Split in multidisciplinary team	Patient safety changes
	Team get to know each other through simulation	Have to be aware of staff feelings, do not want to humiliate staff during simulation	Debriefing is important for learning	High frequency	High fidelity increases confidence	Good facilitators important during debriefing	Anaesthetists facilitate simulation	Training before after-hours shifts	Simulation developed from real experiences	Surgeons involved if training for new procedures	Processes and practices changed checklists
	Simulation builds team trust	Feedback needs to be done correctly	Debriefing is a key aspect of simulation	Regular frequency and time	Fidelity achieved through taking on normal roles	Important to have encouraging and supportive educators	Strong buy-in from anaesthetists	Mandatory competencies	Scenarios developed from crisis resource management (CRM)	Surgeons involved	Feedback from staff and managers
	Simulation builds a cohesive team	Debrief needs to be done respectfully	Learning can be identified in debrief	Quarterly frequency ideal	Simulation is high fidelity and staff become fully immersed	Staff need to be able to trust facilitators	Anaesthetic staff involved in running simulation	Mandatory training	Simulation used to debrief real situations	Lack of surgeon participation	Unclear if there are patient safety improvements
	Simulation enables good teamwork	Staff fear simulation	Debriefs identify potential changes	Monthly education days	Fidelity important for the transfer of correct knowledge and skills	Facilitators need to put people at ease		Simulation is educational	Emergency equipment training	Private sector surgeons invested in simulation and respectful of other professions	Hard to measure patient safety improvements

Themes	Teamwork	Safe space	Debriefing and pre-briefing	Frequency	Fidelity	Facilitators	Anaesthetist lead	Simulation training is educational	Emergency scenarios	Multidisciplinary	Patient safety
Codes (continued)	Teamwork improves	Fear of being belittled	Debriefing is scenario and staff dependent	More frequent simulation needed	Real scenarios increase fidelity	Facilitators need to manage people		Simulation increases skill	Surgical emergencies		Anecdotal improvements to patient safety
	Positive team discussion	Participation reduces reluctance and fear	Structured debrief is important	Greater frequency for training novice staff	Opening items is important	Facilitators need to be good communicators		Purpose of simulation is educational			Patient safety improvements not documented
	Positivity in team	Fear of Simulation	Debriefing must be a supportive environment	Simulation ad hoc	High fidelity at conferences	Facilitators need to manage the room		Simulation should be a learning exercise			Patient safety improvements anecdotal
	Simulation creates confidence in colleagues	Fear of simulation	Debriefing a large/important part of simulation	Frequency varies	Low fidelity did not matter	Educators and facilitators have to gain the trust of the staff to run simulation		Simulation revises knowledge			Anecdotal changes to patient safety
	Role awareness	Trepidation going into simulation	Always debrief post simulation	Staff availability	Fidelity doesn't matter	Facilitators are an important part of simulation		Simulation increases knowledge			Assumption that patient safety improves with practise
	Role clarification	Fear of looking incompetent	Debriefing is an important part of simulation	Scheduling simulation is an enabler	Participant enthusiasm, high fidelity not so important	Good facilitator important during debriefing		Practise skills			
		Uncomfortable making mistakes in front of colleagues	Facilitators run debriefs	Timing of simulation a barrier	Using equipment increases fidelity	Trust is important for simulation					
		Not wanting to look incompetent in front of colleagues	Debriefs allowed for the expression of feelings	Training built into rosters	Mannequins increase fidelity						
		Participants should not be embarrassed	Everyone's contribution valued in debrief	Morning simulation difficult to roster for							
		Feedback needs to be done correctly	Debriefing properly requires training	Any staffing issues, training is the first to be cancelled							
		Simulation should not be punitive	Debriefing needs to be non-judgemental	Staff attend outside of rostered days							
		Simulation can be harmful	Debriefing used to allay fears	Staff attend on professional development days							
		Simulation needs to be positive	Pre-briefing important	Lack of participation cancels sessions							
		Staff attitudes		Difficult to coordinate the involvement of some staff							
		Culture within the workplace affects participation		Staff time variable							
		Negative attitudes		Participation variable when voluntary							
		Simulations not real		Opportunistic recruitment of participants							
		Staff attitudes affect participation		Time reduces availability							
		Staff attitudes can be a barrier		Staffing can be a barrier							

Themes	Teamwork	Safe space	Debriefing and pre-briefing	Frequency	Fidelity	Facilitators	Anaesthetist lead	Simulation training is educational	Emergency scenarios	Multidisciplinary	Patient safety
Codes (continued)		Staff culture and attitudes are barriers and enablers		Simulation is work dependent							
		Simulation hesitancy		Staff availability affects simulation participation							
		Staff reluctance/ hesitancy		Protected time essential							
		Simulation hesitancy		Competing priorities							
		Participants nervous initially		Rostering affects access							
		Dislike of simulation		Available facilities							
				Time and facilities can be a barrier or enable for simulation							
				Simulation is work dependent							
				In-situ simulation							
				In-situ simulation dependent on lists theatres running							
				Competing for resources							
				Limited facilities							
				Facility availability							
				Lack of facilities							
				Purpose built simulation							
				Simulation run at other times but for other departments							
				Simulation run in the morning							
				Running simulation dependent on lists/theatres running							
				Late start enables simulation to be run							
				Booking sessions is an enabler							
				Facility availability							