

QUESTION

Should a higher frequency of short in-situ simulation events with structured debriefing vs. a lower frequency of short in-situ simulation events with structured debriefing be used for training interprofessional healthcare providers to improve clinician behaviors during patient care and/or patient outcomes??

POPULATION:	training interprofessional healthcare providers to improve clinician behaviors during patient care and/or patient outcomes?
INTERVENTION:	a higher frequency of short in-situ simulation events with structured debriefing
COMPARISON:	a lower frequency of short in-situ simulation events with structured debriefing
MAIN OUTCOMES:	Mortality; Resource Impact; Cost Impact; Adverse Emotional Impact; Adverse Care Impact;
SETTING:	
PERSPECTIVE:	
BACKGROUND:	
CONFLICT OF INTERESTS:	

ASSESSMENT

Problem

Is the problem a priority?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ No ○ Probably no ○ Probably yes ● Yes ○ Varies ○ Don't know 		This judgement is based solely on the fact that we deemed the question important enough to look at.

Desirable Effects

How substantial are the desirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS				
<div><div>○ Trivial</div><div>○ Small</div><div>○ Moderate</div><div>● Large</div><div>○ Varies</div><div>○ Don't know</div></div>	<table><tr><th>Outcomes</th><th>Impact</th></tr><tr><td>Mortality</td><td>Note; Quasi-experimental design 220361 patients/patient events 15.2 % improvement in survival in higher dose in-situ group, p < 0.001 Odds ratio 0.62 (95% CI: 0.54–0.72); Note: high dose is 17 ISS per 100 beds per year low dose is 3.2 ISS per 100 beds /year IN-situ sim duration = 5 min Certainty should be low (upgraded based on large effect).</td></tr></table>	Outcomes	Impact	Mortality	Note; Quasi-experimental design 220361 patients/patient events 15.2 % improvement in survival in higher dose in-situ group, p < 0.001 Odds ratio 0.62 (95% CI: 0.54–0.72); Note: high dose is 17 ISS per 100 beds per year low dose is 3.2 ISS per 100 beds /year IN-situ sim duration = 5 min Certainty should be low (upgraded based on large effect).	Neurologic outcomes not assessed. Quality of Life not assessed.
Outcomes	Impact					
Mortality	Note; Quasi-experimental design 220361 patients/patient events 15.2 % improvement in survival in higher dose in-situ group, p < 0.001 Odds ratio 0.62 (95% CI: 0.54–0.72); Note: high dose is 17 ISS per 100 beds per year low dose is 3.2 ISS per 100 beds /year IN-situ sim duration = 5 min Certainty should be low (upgraded based on large effect).					

	<div> <div></div> <div>Magnitude of effect: Large</div> </div>	
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Undesirable Effects

How substantial are the undesirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<div> <div> ○ Large ○ Moderate ○ Small ○ Trivial ○ Varies ● Don't know </div> </div>	<div> <div>Effect of course on patients cared for by participants not measured. Effect of course on participant psychology not measured.</div> </div>	<div> <div>These may be future research considerations.</div> </div>

Certainty of evidence

What is the overall certainty of the evidence of effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<div> <div> ○ Very low ● Low ○ Moderate ○ High ○ No included studies </div> </div>		<div> <div>Evidence derived from data table</div> </div>

Values

Is there important uncertainty about or variability in how much people value the main outcomes?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<div> <div> ○ Important uncertainty or variability ○ Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ● No important uncertainty or variability </div> </div>		<div> <div>Only outcome is mortality, which is highly valued.</div> </div>

Balance of effects

Does the balance between desirable and undesirable effects favor the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
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<ul style="list-style-type: none"> ○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ● Probably favors the intervention ○ Favors the intervention ○ Varies ○ Don't know 		Cannot rank as clearly in favor without 1) threshold data (i.e. at what "dose" of in-situ do benefits accrue), 2) cost data, 3) resource use data, and 4) psychological data about learner effects.
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Resources required

How large are the resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ Large costs ○ Moderate costs ○ Negligible costs and savings ○ Moderate savings ○ Large savings ○ Varies ● Don't know 	programmatic and institutional resource use not measured.	Resource use will be an important consideration for further research, as these have not been estimated.

Certainty of evidence of required resources

What is the certainty of the evidence of resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ Very low ○ Low ○ Moderate ○ High ● No included studies 		

Cost effectiveness

Does the cost-effectiveness of the intervention favor the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ● Probably favors the intervention ○ Favors the intervention ○ Varies ○ No included studies 	No empiric evidence adduced. Decision reached based on participant experience.	Cost will be an important consideration for further research, as these have not been estimated.

Equity

What would be the impact on health equity?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ Reduced ○ Probably reduced ○ Probably no impact ● Probably increased ○ Increased ○ Varies ○ Don't know 	No empiric evidence adduced.	There was significant discussion regarding this area, as a number of positive and negative effects could be foreseen. Given low-cost mannequins, this type of high-frequency, short intervention has potential to reach a greater subset of patients of all types, but issues of staffing also apply. Still, in bulk, this type of intervention seems as if it could positively impact equity.

Acceptability

Is the intervention acceptable to key stakeholders?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know 	No empirical evidence from study.	This was largely based on panel experience, as most of us could foresee administrators supporting interventions such as this one.

Feasibility

Is the intervention feasible to implement?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ No ○ Probably no ○ Probably yes ○ Yes ● Varies ○ Don't know 	No empirical evidence. Highly dependent on hospital system and stakeholder attitudes.	

SUMMARY OF JUDGEMENTS

	JUDGEMENT						
PROBLEM	No	Probably no	Probably yes	Yes		Varies	Don't know
DESIRABLE EFFECTS	Trivial	Small	Moderate	Large		Varies	Don't know
UNDESIRABLE EFFECTS	Large	Moderate	Small	Trivial		Varies	Don't know
CERTAINTY OF EVIDENCE	Very low	Low	Moderate	High			No included studies
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	No important uncertainty or variability			
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	Favors the intervention	Varies	Don't know
RESOURCES REQUIRED	Large costs	Moderate costs	Negligible costs and savings	Moderate savings	Large savings	Varies	Don't know

	JUDGEMENT						
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	Very low	Low	Moderate	High			No included studies
COST EFFECTIVENESS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	Favors the intervention	Varies	No included studies
EQUITY	Reduced	Probably reduced	Probably no impact	Probably increased	Increased	Varies	Don't know
ACCEPTABILITY	No	Probably no	Probably yes	Yes		Varies	Don't know
FEASIBILITY	No	Probably no	Probably yes	Yes		Varies	Don't know

TYPE OF RECOMMENDATION

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	Conditional recommendation for the intervention	Strong recommendation for the intervention
○	○	○	●	○

CONCLUSIONS

Recommendation

For interprofessional healthcare providers we suggest more frequent participation vs less frequent participation in short skill-based in-situ simulations.

Justification

In an ecological study of a hospital system in which short, basic life support skills-based in-situ simulations were introduced for providers of patients at risk of suffering in-house cardiac arrest, those hospitals with higher per-bed numbers of in-situ simulations experienced a significant improvement (large effect size, low certainty) in survival post in-hospital cardiac arrest. While no data was provided on resource use and cost, it seems likely to the panel that the survival benefits outweigh the costs given the availability of low-cost low-tech mannequins and the short length (5 min) of the proposed intervention.

Subgroup considerations

This study focused on the basic life support skills training among patients providing care to patients at risk of suffering in-house arrest, so this population likely deserves specific attention here.

Implementation considerations

As cost and resource use was not measured in the dataset, it will be vital for institutions implementing this guideline to carefully consider these in order to assure an approach that is sustainable over time. Potential negative impact of in-situ sim on patient workflow in adjacent care areas, as well as its impact on the emotional wellbeing of providers, should also be measured over time.

Monitoring and evaluation

NA

Research priorities

Further research in this area should focus on the following questions.

1. Determining the level of exposure to short, skills-based in-situ simulation needed to enhance outcomes
2. Determining the cost of such simulations as a balancing measure.
3. Determining the resources needed to implement such simulations as a balancing measure.
4. Determining the impact of such simulations on workflow within the environment of implementation.
5. Determining the impact of such simulations on participants' psychological responses.

REFERENCES SUMMARY