Clinical question.
What is the effectiveness of using simulation in First Aid Training?
In First Aid Training (P), does the use of simulation (I) when compared with not using simulation (C) improve the participant effectiveness (O)?

Is this question addressing an intervention/therapy, prognosis or diagnosis? Intervention
State if this is a proposed new topic or revision of existing worksheet: New Topic

Conflict of interest specific to this question
Do any of the authors listed above have conflict of interest disclosures relevant to this worksheet? No

Search strategy (including electronic databases searched).

PubMed: MeSH search: (simulation and first aid (MeSH)) or (simulation and cardiopulmonary resuscitation (MeSH)) (5/16)

Cochrane Library
Search with the same keywords (1/16)

Ovid MEDLINE
Search with the same keywords (1/61)

Hand search
6

Hand search of references

State inclusion and exclusion criteria
Articles published in the last 10 years: clinical trials, meta-analysis, randomized controlled trial, and peer review in English.

Number of articles/sources meeting criteria for further review:
13
# Summary of evidence

**Evidence Supporting Clinical Question**

What is the effectiveness of using simulation in First Aid Training?

<table>
<thead>
<tr>
<th>Good</th>
<th>Domuracki 2009, 346</th>
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<tr>
<td>Fair</td>
<td>Wik 2001, 167</td>
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<td></td>
<td>Wayne 2005, 210</td>
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<td></td>
<td>Steadman 2006, 151</td>
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<td>Wang 2008, 1651</td>
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<td>Dayal 2009, 155</td>
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<td>Schneider 1995, 129</td>
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<td>Manderino 1986, 107</td>
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<td>Farah 2007, 529</td>
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<td>Poor</td>
<td>Perkins 2005, 103</td>
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<td></td>
<td>Toback 2006, 415</td>
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</table>

1 2 3 4 5

**Level of evidence**

A = Return of spontaneous circulation  
B = Survival of event  
C = Survival to hospital discharge  
D = Intact neurological survival  
E = Other endpoint  
Italics = Animal studies
# Evidence Neutral to Clinical question

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<td>Adler 2009, 935</td>
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**Level of evidence**

A = Return of spontaneous circulation  
B = Survival of event  
C = Survival to hospital discharge  
D = Intact neurological survival  
E = Other endpoint  
*Italics = Animal studies*

# Evidence Opposing Clinical Question

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<td>Schwartz 2007, 130</td>
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</table>

**Level of evidence**

A = Return of spontaneous circulation  
B = Survival of event  
C = Survival to hospital discharge  
D = Intact neurological survival  
E = Other endpoint  
*Italics = Animal studies*
By and large, the evidence showing the effectiveness of using simulation in First Aid Training must be interpreted from medical education research. There are a variety of simulation devices and schemata used in medical education: human patient simulation, standardized patients, task trainers, virtual reality, web-based, and more. Simulation allows users to experience medical scenarios that can be paused, reviewed, and repeated—unlike contact with live patients in real time. Simulation has been employed for purposes of education, research, evaluation, practice, and in the light of patient safety.

Evidence of increased skills/performance (Domuracki et al 2009, 346 LOE 2; Perkins et al 2005 LOE 3; Schneider et al 1995, 129) and retention (Wayne et al 2005, 210; Farah et al 2007, 529 LOE 5) after simulation experiences can be found in the literature. The addition of simulation training after traditional medical education programs increases participant skill as well (Wang et al 2008, 1651 LOE 2; Dayal et al 2009, 155 LOE 2). Simulation drills designed to increase emergency preparedness improve participant confidence and decrease anxiety (Toback et al 2006, 425 LOE 4).

Teaching methods that accompany simulation appear to play an important role in its success. A study examining the addition of simulation to a case-based learning program found no significant difference in outcomes of student performance (Schwartz et al 2007, 130). Simulation-based training was found to be superior to problem-based learning for the acquisition of critical assessment and management skills (Steadman et al 2006, 151). It is believed that student-centered instruction accompanying simulation may provide improvements in learning.

### Citation List


