Cost-effectiveness in Paediatric Basic Life Support

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Improving survival

Bystander resuscitation attempts increases survival two fold

Only initiated in 50% of cardiac arrests

Training increases the likelihood of bystander resuscitation attempts

Training of time-sensitive life-saving first aid skills

Paediatric Basic Life Support (PBLS)  Foreign Body Airway Obstruction Management (FBAOM)
Identifying the right training solution depends on costs and effectiveness.

Effective training

Optimal use of resources
Current instructor-led training

• Small groups for 2-3 hours
• Learning depends on hands-on practice

Training is effective, but…
• Little flexibility
• Is expensive
• Skills decay in 3-12 months
Dyad training
No instructors needed → low costs
Effectiveness of training

Randomisation

For the randomisation, 100% of participants were randomised into either

Dyad training
PBLS n=149
FBAOM n=142

or

Instructor-led training
PBLS n=175
FBAOM n=164

In total, 100% of participants were able to pass the hands-on test.

PBLS: 46%
FBAOM: 54%
Both tests: 30%

Dyad training: PBLS 74%
FBAOM: 79%
Both tests: 60%

Significant difference: \( P < 0.001 \)
Estimating costs

• Costs included
  • Time usage by participants
  • Utilities
  • Instructor salary

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<thead>
<tr>
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<th>Dyad training</th>
<th>Instructor-led</th>
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<tbody>
<tr>
<td>Cost per participant</td>
<td>43</td>
<td>93</td>
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<tr>
<td>(US Dollars)</td>
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Cost-effectiveness

\[ ICER = \frac{\Delta \text{cost}}{\Delta \text{effect}} = \frac{\text{Mean cost of dyad training} - \text{Mean cost of instructor-led training}}{\text{Dyads passing both tests} \% - \text{Instructor-led passing both tests} \%} = 1.68 (1.22 - 2.66) \]

ICER = Incremental Cost-Effectiveness Ratio.
Positive ICER indicates cost-effectiveness should be further investigated as a trade-off between cost and effect is made.
## Trained laypeople per 10,000 USD

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<tr>
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<th>Dyad training</th>
<th>Instructor-led training</th>
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<tbody>
<tr>
<td>Trained participants</td>
<td>233</td>
<td>109</td>
</tr>
<tr>
<td>Competent after training</td>
<td>71</td>
<td>65</td>
</tr>
<tr>
<td>(pass both tests)</td>
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Conclusion

Dyad training was less effective but were more cost-effective than instructor-led training.

Including costs in the outcome measures can have pivotal consequences on optimal training solutions.

When the aim is to train for quantity rather than quality, the more cost-effective dyad training approach should be the preferred choice of training method.