Cost and value in medical education: how to achieve ROI

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BMJ Learning
Cost and value in medical education

- Background
- Task
- Case studies – e-learning, simulation
- Way forward
- Conclusions
Truth 1

• Medical education is expensive
• Cost of medical education internationally - ?
• No one knows how much more
• Getting more expensive
• Especially expensive in the West - ?
Truth 2 – medical education of the past is going out to pasture

“A first year medical student recently commented to me that in every lecture he attended he fell asleep after 45 minutes or so. Of course, with my years of experience of medical education I reassured him that with time and some effort he would be able to achieve this in as little as ten minutes or less.”

Eugene Milne
Truth 2 – progress in working out “what works” in medical education

<table>
<thead>
<tr>
<th>The past</th>
<th>Now</th>
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<tbody>
<tr>
<td>Passive</td>
<td>Active</td>
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<tr>
<td>Different agendas</td>
<td>Evidence based</td>
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<tr>
<td>Learning things you don’t need to know</td>
<td>Curriculum driven</td>
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<td>Not learning things you need to know</td>
<td>Needs based</td>
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<td>One size fits all</td>
<td>Learner centric</td>
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<td>Points driven</td>
<td>Tailored</td>
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<td>Just clinical</td>
<td>Communication, team</td>
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Truth 2 – progress in working out “what works” in medical education

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<tr>
<td>Practise on patients</td>
<td>Simulation</td>
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<tr>
<td>Using the same formats</td>
<td>Blended learning</td>
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<tr>
<td>Not knowing</td>
<td>Feedback driven</td>
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<tr>
<td>Take it or leave it</td>
<td>Evaluated</td>
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<tr>
<td>Academic</td>
<td>Quality improvement and patient safety</td>
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Truth 3 - we don’t know what constitutes value for a given cost

<table>
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Truth 4 . . . because we don’t really know what the costs are and we don’t have cost analyses tools and we haven’t really tried
Ground rules

- Cost = financial cost
- Cost = cost . . . not institutional acceptance/ our way of doing things
- Evidence-based > emotional arguments
- Not a cost cutting guide OR an argument for investment
Task

- Think of a medical education activity you are involved in
Task

- Think of a medical education activity you are involved in
- What are the costs?
Task

• Think of a medical education activity you are involved in
• What are the costs?
• How might you work out value for a given cost?
Case studies

• E-learning
• Simulation
E-learning

• Does it work?
• What are the costs?
• How can we ensure more value for a given cost?
E-learning – does it work?

- Probably
- Many different forms already
- As well as face to face learning
- Attractiveness is not that it is better than face to face
E-learning - what are the costs?

• Provider costs
• Learner costs
• Out of the frame
E-learning - provider costs

- Website build
- Content – from text to virtual worlds
- Hosting

Encouraging asthma self care, with Dr Hilary Pinnock

Dr Hilary Pinnock
Senior Clinical Research Fellow, Allergy and Respiratory Research Group, Centre for Population Health Sciences, GP Section, University of Edinburgh
E-learning - learner costs
E-learning - learner costs

- Hardware
- Software
- Depreciation
- Internet connection
- Electricity, lighting . . .
- Wages
E-learning - out of the frame

- Trainer accommodation
- Trainer travel and subsistence
- Learner accommodation
- Learner travel and subsistence
- Classrooms
- Equipment
- Off-the-job time
- Print costs
E-learning - how can we ensure more value for a given cost?

- Scale up content
- Scale up usage
- Map the content format to the outcome
- Interactive cases
- Just in time
- Podcast
- Multimedia
- Don’t be seduced by technology
- Share
- Needs assessment
- Make it interprofessional
Simulation

- Does it work?
- What are the costs?
- How can we ensure more value for a given cost?
Simulation - does it work?

- Anyone here scared of flying?
- Flight 401?
Simulation - does it work?

- Integrated skills – clinical and communication
- Practise and rehearse
- Safe for patient and learner
- Patient expectations
- Patient safety
- Interprofessional
- Rare but important events
- Assessment
Simulation - what are the costs?
Simulation - what are the costs?

- Hardware
- Software
- Trainers
- Learners
- Patients

- TCO
Simulation – how can we ensure more value for a given cost?

- Don’t be seduced by fidelity
- Don’t be seduced by technology
- Don’t confuse fidelity with technology
- Use the correct simulation for the task
- Use the simulation to max capacity
- Mobile simulation
- Share
- Scale up usage
Gathering costs – ingredients approach
Gathering costs – ingredients approach

• Personnel
  • Facilities
  • Equipment and consumables
  • Learner inputs and
  • Others
Cost analysis tools: Cost-

• Effectiveness
• Benefit
• Utility
• Feasibility
Cost effectiveness

- The evaluation of two or more alternative approaches or interventions according to their costs and their effects in producing a certain outcome
- Imply a comparison
- Easy to understand
- Guide decision making
- Cannot be used to compare interventions with different intended outcomes
- Cannot be used to compare interventions that do not have a “common measure of effectiveness that can be used to assess them”
- Causality – non-equivalence of groups, attrition, maturation, the effects of testing, and regression to the mean
Cost benefit

• “The evaluation of alternatives according to their costs and benefits when each is measured in monetary terms”
• Enable us to discover if any particular intervention on its own has benefits that exceed its costs
• Enable us to compare the costs and benefits of interventions with different outcomes
• Enable us to compare the costs and benefits of widely differing types of interventions in completely different areas
• Rely entirely on our ability to measure costs and benefits in monetary terms
• Causality
Cost utility

- Examination of two or more alternatives according to their cost and their utility
- Utility means the satisfaction among individuals as a result of one or more outcomes or the perceived value of the expected outcomes to a particular constituency
- Cost utility analysis is closely related to cost effectiveness analysis – however, cost effectiveness analysis must use a single measure of effectiveness whereas cost utility analysis enables researchers to amalgamate many different measures of effectiveness into a single measure of utility
Cost utility

- Educators and learners may value one outcome above another
- One way to capture this is to assign different weights to different interventions
- Allow multiple outcomes to be taken account of in the evaluation
- Force the stakeholders to reflect on the relative merits of different outcomes and to articulate the results of their reflections and record them
- A number of different methods may be used to assign “weightings”
- Subjective assessment
- Causality
Cost feasibility

- Measuring the cost of a proposed intervention in order to decide whether it is feasible (that is, whether it can or cannot be considered)
- Simple and quick to implement
- A concrete method to estimate costs
- Cannot help us decide between alternative approaches
- Nor can it help us decide if an approach is worthwhile as it doesn’t look at the effectiveness or utility of an intervention or the benefits that may be associated with it
Cost analyses can guide decision making but they should not necessarily make the decisions for us.
Task

• The medical education activity you are involved in
• What are the costs?
• How might you work out value for a given cost?
Why is this important?
Why is this important?

• Payer
• Individual
• Institution
• Government
Or maybe it’s not important at all

- Spend your budget
- “Complexity payments”
- Primary purpose of a medical school: learning, research
- Primary purpose of postgraduate training course: learning, clinical care
- The cost disease
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Strategy

- Individual studies - modest - realistic and achievable - tactical
- A series of systematic reviews
- Programmes to further the methodology
- Centres of excellence of cost and value in medical education
- Research programmes involving collaborations
The frontier


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