



Medical and Health Professional Education  
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## BEME Spotlight 23

### The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME Guide No. 23

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#### Review citation

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#### Review website

<http://bemecollaboration.org/Published+Reviews/BEME+Guide+No+23/>

#### Keywords

case-based learning; case method; case-based approach; health professional education; systematic review

#### Headline conclusions

- We propose the following definition of case based learning (CBL): The goal of CBL is to prepare students for clinical practice, through the use of authentic clinical cases. It links theory to practice, through the application of knowledge to the cases, using inquiry-based learning methods.
- Health professional students enjoy CBL and think that it helps them learn better; whether this is reflected in assessment results is far from clear. However enjoyment can lead to increased engagement and motivation for learning -a desirable and positive effect.
- Teachers enjoy CBL. As well as potentially making better use of teaching time available, more engaged and motivated students make for a more enjoyable teaching experience.
- CBL appears to foster effective learning in small groups, possibly through the effect of more engaged learners, but also through more structured learning activities closely linked to authentic clinical practice scenarios.
- Online CBL can work well providing attention is paid to the online learning environment.

## Background and context

CBL is a long established pedagogical method used in health professional education where learning activities are commonly based on patient cases. Basic, social and clinical sciences are studied in relation to the case, integrated with clinical presentations and conditions (including health and ill-health) and student learning is therefore associated with real-life situations. While many claims are made for CBL as an effective learning and teaching method, very little evidence is quoted or generated to support these claims. We framed this review from the perspective of CBL as a type of inquiry-based learning.

## Review objectives

The objectives of this review were to

- explore, analyse, and evaluate the empirical evidence relating to the effectiveness of case-based learning as a means of achieving defined learning outcomes in health professional pre-qualification training programmes,
- use this evidence to synthesise conclusions and recommendations,
- propose a consensus definition for case-based learning.

## Review methodology

**Selection criteria.** We focused on CBL for pre-qualification health professional programmes including medicine, dentistry, veterinary science, nursing and midwifery, social care and the allied health professions (physiotherapy, occupational therapy etc.). Papers had to have outcome data on effectiveness. We excluded descriptions of educational activities and papers that focused solely on PBL as categorized by the authors.

**Search strategies.** The search covered the period from 1965 to 2010 and the following databases: ASSIA, CINAHL, EMBASE, Education Research, Medline, Web of Knowledge. Two reviewers independently reviewed the 173 abstracts retrieved from Medline and compared findings. As there was good agreement on inclusion, one went onto review the Web of Knowledge and ASSIA EndNote databases and the other the Embase, CINAHL and Education Research databases to decide on papers for coding.

**Coding and data analysis.** We modified the BEME coding sheet to fit our research questions and assessed each paper for quality. After a preliminary reliability exercise, each full paper was read and graded by one reviewer with the papers scoring 3-5 (out of 5) for strength of findings being read by a second. A summary of each completed coding form was entered into an Excel spread sheet. The type of data in the papers was not amenable to traditional meta-analysis because of the variability in interventions, information given, student numbers (and lack of) and timings. We therefore adopted a narrative synthesis method to compare, contrast, synthesise and interpret the data, working within a framework of inquiry-based learning.

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