



BEST EVIDENCE MEDICAL EDUCATION

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Predictive values of assessment measurements obtained in medical schools and future performance in medical practice: a BEME systematic review

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Key Words: prediction, assessment, medical students, practice outcomes, performance

Headline conclusions:

- Undergraduate grades and rankings were moderately correlated with internship and residency performance.
- Basic science grades and clinical grades can predict residency performance.
- Performances on similar instruments of measurements are better correlated such as NBME II scores with NBME III scores, medical school clerkship grades and supervisor rating of residents and OSCE and supervisor rating of residents when similar constructs are assessed.
- Existing tools appear to have low to moderate correlation with post-graduate training performance but little is known about their relationship to longer-term practice patterns and outcomes.
- Evidence on predictors of performance in practice beyond residency training is rare.

Background and context: Prediction is one of the major roles of assessment. Measurement of outcomes of medical education and the predictive value of these measurements in relation to on-the-job performance, i.e. postgraduate professional training and beyond, are fundamental issues in medical education that still require further study.

This systematic review was guided by a conceptual framework focused primarily on the predictive validity of scores or assessment of student performance in medical schools generated by different assessment systems and instruments used in measuring learning outcomes and future performance of the graduates and its ultimate impact on health.

Review objective: To assess the value of measurements obtained in medical schools in predicting future performance in medical practice.

Review methodology:

Search Strategy: We searched the English literature from 1955 to 2004 using MEDLINE, Embase, Cochrane's EPOC (Effective Practice and Organisation of Care Group), Controlled Trial databases, ERIC, British Education Index, Psych Info, Timelit, Web of Science and hand searching of medical education journals.

Inclusion & Exclusions: Selected studies included students assessed or followed up to internship, residency and/or practice after postgraduate training. Assessment systems and instruments studied (Predictors) were the National Board Medical Examinations (NBME) I and II, pre-clinical and clerkship grade-point average, Observed Standardized Clinical Examination scores and Undergraduate Dean's rankings and honors society. Outcome measures were residency supervisor ratings, NBME III, residency in-training examinations, American Specialty Board examination scores, and on the job practice performance.

Data Extraction: Data extraction by using a modification of the BEME data extraction form study objectives, design, sample variables, statistical analysis and results.

Data Analysis and Synthesis: Quantitative meta-analysis and qualitative approaches were used for data analysis and synthesis including the methodological quality of the included studies

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