A multifaceted, clinically integrated Evidence Based Medicine curriculum improves medical students' competency as measured by the Fresno test

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Background

•Whilst most medical schools teach core EBM topics, very few require students to practice EBM in clinical encounters nor do they assess students' skills in applying EBM (1)

• A longitudinal, clinically integrated EBM theme, with assessments has been designed and implemented in the University of Buckingham Medical School since 2017

•New teaching methods have been implemented

•Blended learning approaches
•Flipped classroom methods
•Peer mentoring
•YouTube videos

Aim

The aim of this study was to assess the effectiveness of the new EBM curriculum in
• improving students' competency using the validated Fresno tool (2) and
• their self-reported attitudes

Methodology

This study was a pre-post design with no concurrent controls.

All students from the 2017 cohort were invited to participate

The Fresno test was administered before and after the EBM teaching through our virtual learning environment

Student Characteristics

Characteristic		Sample for final data (n=18)	Focus group (n=5)
Age	18-21	50% (n=9)	80% (n=4)
	22-25	50% (n=9)	20% (n=1)
Sex	Male	33% (n=6)	40% (n=2)
	Female	67% (n=12)	60% (n=3)
Undergraduate / Postgraduate	Undergraduate	44% (n=8)	80% (n=4)
	Postgraduate	56% (n=10)	20% (n=1)

Results-Fresno test

	Improvement	
	Change in average score	1 tailed p-value
Asking a clinical question	10.3	<0.001*
Sources of evidence	3.1	0.004*
Study design	1.6	0.184
Search	9	<0.001*
Relevance	1.1	0.129
Internal validity	1.9	0.174
Effect	4.1	0.006*
Sensitivity, Specificity, positive predictive value and negative predictive value, likelihood ratio	1.8	0.167
Absolute risk reduction, relative risk reduction, number needed to treat	1.9	0.030*
Confidence interval	1.6	0.002*
Best study design-diagnosis	0.4	0.082
Best study design-prognosis	1.8	0.001*
	38.7	<0.001*

Results –comparison of performance data

Distribution of all 18 students' test scores at each time point
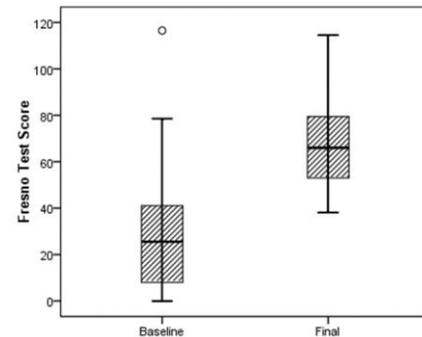
Results –Focus group discussions

"The earlier the exposure the better [to the knowledge] …. when using in practice more efficient…"

Conclusions

It is feasible to design and implement a multi-faceted, clinically integrated EBM curriculum in undergraduate medical education

Early evaluation of the curriculum using the Fresno test and focus group discussions has shown an improvement in EBM knowledge, skills and perceptions of EBM

References

1. Meats E, Heneghan C, Crilly M, Glasziou P. Evidence-based medicine teaching in UK medical schools. Med Teach. 2009 Jan;31(4):332–7
2. Ramos KD. Validation of the Fresno test of competence in evidence based medicine. BMJ. 2003 Feb 8;326(7384):319–21.

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