

# Team-based learning versus small group discussions for delivering an evidence-based medicine course to undergraduate medical students

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<b>Registration date</b> 30/12/2021	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 23/08/2022	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

The teaching of evidence-based medicine (EBM) in the new undergraduate medical curriculum at the Faculty of Medicine of the American University of Beirut (AUB) is designed to start in the first year and continue vertically until graduation from medical school. Current methods of EBM instruction at AUB include Team-Based Learning (TBL), lecturing and medium-sized group discussions, whereas the classical format of teaching EBM is small group discussions. We do not know however whether TBL is more, less or as effective as small group discussions in increasing students' EBM knowledge and skills since there has been no head-to-head comparison of the two instructional methods. The aim of this study is to investigate which of the two methods is more effective at improving students' EBM knowledge and skills.

### Who can participate?

Medical students of the 2021 graduating class

### What does the study involve?

Participants will be randomly allocated to receive EBM instruction during the second year either in TBL or in a small group discussion format. EBM knowledge of the two groups will be compared using a validated EBM questionnaire at the end of the second year. EBM skills will be compared at the end of the final clinical year.

### What are the possible benefits and risks of participating?

The findings from this project will provide much-needed evidence about the effectiveness of TBL in teaching EBM to large classes. Since this was an Educational Quality Improvement project, there were no anticipated risks and no benefits to the students as they were being taught a course that was a curricular requirement.

### Where is the study run from?

American University of Beirut (Lebanon)

When is the study starting and how long is it expected to run for?  
February 2017 to May 2019

Who is funding the study?  
American University of Beirut (Lebanon)

Who is the main contact?  
Dr Mona Nabulsi  
mn04@aub.edu.lb

## Contact information

**Type(s)**  
Principal Investigator

**Contact name**  
Dr Mona Nabulsi

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## Additional identifiers

**EudraCT/CTIS number**  
Nil known

**IRAS number**

**ClinicalTrials.gov number**  
Nil known

**Secondary identifying numbers**  
PED.MN.QI2

## Study information

**Scientific Title**  
Team-based learning versus small group discussions for delivering an evidence-based medicine course to undergraduate medical students: an educational quality improvement project

**Study objectives**

Team-based learning is more effective than group discussions in teaching evidence-based medicine (EBM) critical appraisal to preclinical medical students.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Approved 30/06/2017, Curriculum Committee of the Faculty of Medicine (American University of Beirut, Bliss Street, Beirut, Lebanon; no telephone number provided; badr@aub.edu.lb), ref: none provided

### **Study design**

Interventional randomized controlled trial

### **Primary study design**

Interventional

### **Secondary study design**

Randomised parallel trial

### **Study setting(s)**

Other

### **Study type(s)**

Other

### **Participant information sheet**

### **Health condition(s) or problem(s) studied**

Teaching medical students

### **Interventions**

First-year medical students are randomly divided into two groups by an independent statistician using a computer-generated permuted block randomization of variable block sizes (1:1 ratio). One group receives instruction in critical appraisal using Team-Based Learning (TBL) as the instructional method, whereas the other group used Group Discussions (GD) as the instructional method. The generated random sequence is kept with the statistician to conceal allocation from students and instructors until the first day of the course. The two groups have a total of five critical appraisal (CA) sessions spread over one academic year.

### **Team-based learning:**

This group conducts a typical TBL session with a 10-minute individual readiness assurance test (IRAT) at the start of the CA session. Then students are divided into smaller subgroups of 6-8 students and are administered the same 10-minute test which they would answer as a group after reaching consensus using scratch-off cards (group readiness assurance test [GRAT]). Following the GRAT, there is an active discussion between the students and the instructor on controversial questions. Once all student queries are addressed, the students in each subgroup work together on an application exercise consisting of CA of a published paper. The time allotted for the application exercise is 60 minutes, after which the instructor facilitates a discussion of CA elements among subgroups, clarifying controversial issues.

### Group discussions:

Students in this arm are further divided into smaller subgroups of 8-13 students with each subgroup assigned to one instructor. Each subgroup starts the session with the same 10-minute test administered to the TBL group. However, there is no GRAT test later or teamwork on an application exercise. Instead, students in the GD arm discuss the same paper assigned to students in the TBL arm as a small group discussion, with the EBM instructor facilitating the discussion and interfering only when the subgroups need redirection of the ongoing discussion, or further clarification of a controversial issue that the students are unable to resolve.

### Outcomes:

The primary outcome is students' knowledge in EBM as measured by their performance on the mandatory final exam administered at the end of the second year of medical school. The Berlin Questionnaire-Set B was used as the EBM final examination.

### Intervention Type

Behavioural

### Primary outcome measure

Student's EBM knowledge measured by the student's performance on the validated Berlin Questionnaire at end of the second year of medical school

### Secondary outcome measures

1. Student's EBP behavior assessed by faculty during EBM rounds in the third and fourth year clinical rotations
2. Student's self-efficacy in EBM assessed by the validated Self-efficacy in EBM scale at end of the fourth year of medical school
3. Student's self-assessed EBP implementation assessed by the validated EBP implementation at the end of the fourth year of medical school

### Overall study start date

01/02/2017

### Completion date

31/05/2019

## Eligibility

### Key inclusion criteria

All first year medical students at the Faculty of Medicine of the American University of Beirut who graduate in June 2021

### Participant type(s)

Other

### Age group

Adult

### Sex

Both

**Target number of participants**

108

**Total final enrolment**

107

**Key exclusion criteria**

Does not meet inclusion criteria

**Date of first enrolment**

01/04/2018

**Date of final enrolment**

01/04/2018

## **Locations**

**Countries of recruitment**

Lebanon

**Study participating centre****American University of Beirut**

Riyadh El Solh 1107 2020

Beirut

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## **Sponsor information**

**Organisation**

American University of Beirut

**Sponsor details**

Center for Teaching and Learning

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**Sponsor type**

University/education

**Website**

<http://website.aub.edu.lb/nyo/Pages/index.aspx>

**ROR**

<https://ror.org/04pznsd21>

## Funder(s)

**Funder type**

University/education

**Funder Name**

American University of Beirut

**Alternative Name(s)**

The American University of Beirut, American university in Beirut, , AUB

**Funding Body Type**

Private sector organisation

**Funding Body Subtype**

Universities (academic only)

**Location**

Lebanon

## Results and Publications

**Publication and dissemination plan**

Planned publication in a high-impact peer-reviewed medical education journal.

**Intention to publish date**

01/03/2022

**Individual participant data (IPD) sharing plan**

The datasets generated and analysed during the current study will be available upon request from Dr Mona Nabulsi (mn04@aub.edu.lb) as anonymized raw data after securing approval from the Associate Dean for Medical Education, American University of Beirut, Beirut, Lebanon.

**IPD sharing plan summary**

Available on request

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		04/02/2022	07/02/2022	Yes	No
<a href="#">Protocol file</a>			23/08/2022	No	No