

# Effectiveness of Case-Based Learning in Medical Microbiology among Undergraduate Preclinical Medical Students

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## Introduction

Case-based learning (CBL) is a well-established pedagogical method used in medical education. It promotes self-directed learning, clinical reasoning, clinical problem-solving and decision making. In the Medical Microbiology course, medical students are supposed to learn the context of bacteria, viruses, fungi and parasites and their infections, however; It has been challenging to help them relate their basic knowledge to clinical infectious diseases. Therefore, CBL is introduced to the Medical Microbiology course to link the basic knowledge to the patient scenarios.

## Objectives

The aim of this study was to assess the effectiveness of CBL on the topic of infectious disease by comparing formative test scores of the previous year students being taught by a conventional lecture and the current year students being taught by CBL.

## Methods

Teaching in the topic of "infectious diseases" was taught by two different methods in two consecutive years. In the class of 2018, 48 third-year medical students was taught by a conventional lecture and in the class of 2019, 48 third-year medical students was taught by CBL. CBL comprised of 5 case scenarios in infectious diseases. The same formative assessment tests were performed after class. The formative assessment scores were compared by using Mann-Whitney U Test.

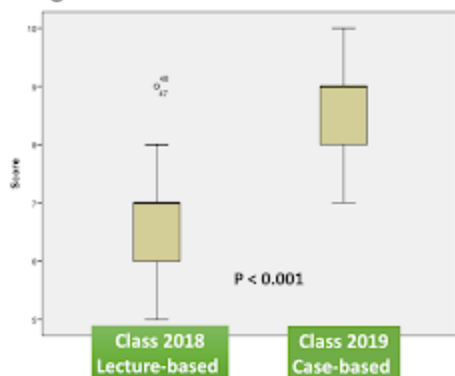
### Example of case scenario:

A 15-year old student presented with sore throat for 1 day. He started having sore throat along with high fever. He had no cough. Physical examination revealed a temperature of 39 °c and there was white patches on bilateral tonsils as demonstrated in the picture. Bilateral cervical lymphadenopathy 1.5 x 1.5 cm was also noted.



## Results and conclusions

Median scores of the class of 2018 and 2019 were 7 (range 5-9) and 9 (7-10), consecutively. Median scores of the class 2019 using CBL was significantly higher than those of the class of 2018 using lecture-based learning ( $P < 0.001$ ). CBL session in infectious diseases is a guided enquiry method in which students encounter case scenarios. The students learn how to think, ask questions and solve problems. This process enhances students' ability to synthesize, evaluate and apply information and concepts, thus leads to a better performance on the test. Other advantages of CBL are that it promotes self-directed learning, improves decision making and problem solving attitudes.



### References:

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