

Presenting An Assessment System Using Mortality and Morbidity Conference Feedback

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Abstract

Background: In our practice of mortality and morbidity conference, we realized that many adverse outcomes could be prevented or stopped in earlier stages, if the medical team knew some vital and basic practical points.

Methods: Hence, we designed a new assessment plan to evaluate each clinical course in two stages. Passing the first stage “Bonn” exam is a must before entering the second stage. In the second stage, the medical trainee would be evaluated as previously. In this regard, the first stage should be updated every year, depending on mortality and morbidity report as feedback. We enrolled 37 senior medical students and 21 laboratory sciences students in the study who were able to pass “Bonn” exam successfully. The study began at the entrance to the pediatric, surgery ward, emergency room and clinical laboratory in Vali-Asr hospital affiliated to Fasa University of Medical Sciences. We compared these groups with the same groups in the last year.

Results: The rate of medical error was significantly reduced in the group that was able to pass “Bonn” exam. The score of OSCE exam was significantly higher than in the last year.

Conclusion: capability to pass “Bonn” exam as an essential tool to enter the second traditional exam can significantly help medical trainees to graduate more competently. It is our opinion that this assessment system might be able to significantly reduce the mortality and morbidity rate as well as treatment costs.

Background:

Feedback definition in Merriam-Webster dictionary is "the transmission of evaluative or corrective information about an action, event, or process to the original or controlling source". [1] The Oxford English Dictionary has defined feedback as “the modifications, adjustment, or control of a process or system (as a social situation or a biological mechanism) by a result or effect of the process, especially by a difference between a desired and on actual result; information about the result of a process, experiment etc.; a response”. [2, 3] These definitions explain the essential role of feedback on how to improve medical education. Feedback has a lengthy history, [4, 5] and its evidence can be traced back to the great Greek physician, Hippocrates [6,7, 8]. Nowadays, the importance of feedback is greatly emphasized in medical education. There are thousands of ideas published by different authors in the literature on the importance of feedback in medical education [8,9].

In our practice, the most useful and real feedback comes from the monthly Mortality and Morbidity (M&M) conferences. These conferences provide an opportunity to discuss medical errors and adverse outcomes, among physician, nurses, laboratory and other health care staff as well as with the principal hospital administrators [9,10]. This group has an effective role in discovering the pitfalls, errors, and faults. They try to find solutions on how to prevent and correct a problem in a hospital. Our team has been participating in M&M conferences for more than 15 years in Shiraz and Fasa Medical University affiliated hospitals. I am of the opinion that the most useful feedback to correct pitfalls in clinical medical

education should be based on our lessons from errors reported in M&M conferences. Based on our experience, in our medical center errors occur usually due to either misunderstanding the basics and vital approaches or misconduct by the medical trainees.

Methods:

We designed a new assessment plan to evaluate each clinical course in two steps. The students who passed the first step, allowed to enter the second step. We named first step “Bonn” exam. In the second step, the medical trainees will be evaluated, as previous traditional assessments. In this regard, the first step involves the essential questions that are necessary for each competent medical trainee to prevent medical errors. The “Bonn” exam must be designed and approved by experts and professors in the same field. It then must be updated every year, depending on Mortality and Morbidity conference as a feedback tool. It should be updated annually. The passing score on the “Bonn” exam is at least 90%.

We conducted the study on 37 of the 92 medical students and 21 of the 33 laboratory science students who successfully passed the “Bonn” exam. The study began at the entrance to the pediatric ward, surgery ward, emergency department, and clinical laboratory at Vali-e-Asr Hospital affiliated to Fasa University of Medical Sciences. We compared these groups with similar groups last year.

Results:

The average score of medical students in this group in the OSCE exam was 83, as compared with to 68 in the previous year. The number of total reported medical errors was 3 compared to 8 in previous years.

The OSCE score and the reported medical error of other classmates who could not pass the “Bonn” exam was 67 and 12, respectively. The traditional test mean score and the total errors reported in other classmates who could not be accepted the “Bonn” exam were 66 and 8, respectively. In the group of laboratory science students, the average scores of the traditional test and the reported errors were 79 and 5, respectively, compared to the same group last year, which were 70 and 8, respectively. Finally, the traditional test scores and the errors reported in other classmates who could not pass the “Bonn” exam were 66 and 8, respectively.

The difference in the mean scores of medical students in the OSCE exam among the group that was able to pass the Bon test significantly improved compared to the same group last year as well as other classmates’, based on Chi square test, p value < 0.01

Also, the difference in the mean score of the traditional exam among laboratory science students in the group that was able to pass the “Bonn” exam significantly improved compared to the same group last year and other classmates’, according to Chi square test, p value < 0.01 .

The rate of total reports of the students capable of passing the “Bonn” exam significantly decreased compared to the same group, last year as well as in other classmates’, based on Chi square test, p value $<$

Discussion:

The medical students have to study and pass many exams, and at the same time gain acceptable knowledge on disease presentation, approach, and treatment. They must memorize syndromes, cancer stages, drug dosages, normal ranges of laboratory reports, etc. However, since we can google most of these issues without the need for memorization, it is suggested that postgraduate medical trainees should become capable of managing more serious and even emergency situations. Thus, incompetency in managing these important medical situations might lead to irreversible consequences, and in serious cases, even morality.

Accordingly, we decided to design a new assessment method to solve the aforementioned problems. In this assessment, every clinical field should be assessed in a two-step evaluation system. The first one is called the “Bonn” exam, which means “the base” in Persian language. This exam consists of several questions that evaluate the required and essential knowledge as well as skills in the diagnosis and management of few diseases in each clinical course, whose mismanagement, delay, or underdiagnoses can have serious consequences. For example, in the field of cardiology, the medical trainee should be able to diagnose and manage any patient, who has myocardial infarction (MI) signs and symptoms. Therefore, the “Bonn” exam of cardiology must be able to evaluate the knowledge and ability of medical students on approaching MI and other emergency cardiology diseases. “Bon exam” consists of questions usually up to 20 questions that evaluate the compulsory and essential knowledge plus skills in diagnosis and management of several important diseases. The lowest passing score of the “Bonn” exam has to be at least 90%. Only if the trainee passes this exam, they will be allowed to participate in the second stage. In the next stage, the importance of each question is the same, similar to a routine assessment exam any medical university or teaching hospital is currently using. In the

“Bonn” assessment helps us ensure that when medical trainees graduate, they will be capable of overcoming serious and emergency medical situations, using proper decision-making. We hope that mismanagement and error rate would be minimized as much as possible.

In critical situations, such as earthquake, flood, endemic and pandemic diseases, such as COVID-19 pandemic, this method is very effective, since the medical team is ready to face and manage any emergency situation.

In any community, M&M conference can be valuable in guiding medical teachers, since they need to know what the problem is and how it can be fixed. In our opinion, M&M conferences can greatly promote medical education, as a powerful feedback for correcting the pitfalls.

Conclusion:

What is gained from Bonn assessment design should be transferred to medical trainees, patients, policymakers and insurance companies. Thus, we recommended the Bonn exam design by professors of any clinical field by considering feedback results of M&M conferences.

Abbreviations

M& M: mortality and morbidity

MI: myocardial Infarction

Covid19: Corona Virus Disease of 2019

OSCE: Objective structured clinical examination

Declarations

Ethical approval and consent to participate

Ethical approval relevant to our article is not necessary.

Consent for publication:

This item is not relevant to our study.

Availability of data and material.

The data and material are available for review.

Competing interests:

The authors declare that they have no competing interests.

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All of the authors F.K, Z B & SZ contributed to the writing of this report. However, the first idea is belonging to F.k; all authors have read and approved the manuscript”, and ensure that this is the case.

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