

A transitional curriculum for preparing medical students for internship, does it work?

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Background: In a formative evaluation, we were supposed to find whether an innovative program has some merits to be continued or not. We also determined the critical points of the program. The evaluated program was a clinical pre-clerkship curriculum launched for departing to a less stressful medical clerkship. **Materials and Methods:** We analyzed the information contained in the students' logbooks. Using Dundee Ready Education Environment Measure standardized questionnaire, we also assessed the students' perception of learning environment within six clinical departments. **Results:** Totally, 64% of expected patient contacts, and teaching of more than 71% of required skills at 4 departments were carried out and students had more positive than negative perspective of their learning environments. **Conclusion:** The evaluand is a worthwhile program to be continued, though it needs some considerations for improvement.

Key words: Clinical skills, curriculum, Clinical Clerkship, transition to internship, medical education, phase of education, practical procedures, teaching and learning, undergraduate, work-based

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INTRODUCTION

Transition to clerkship is a very challenging movement,^[1] with which, many students have experienced struggles.^[2,3] The students are in challenges due to lack of preparedness^[4] for their new roles.^[5] Although numerous initiatives have attempted to mitigate these challenges^[6] and to improve clinical learning, most of them have benefited less than expected.^[7]

Few studies on preparing the students for clerkship are backed up with theories and support activities in real clinical settings. However, workplace learning has been suggested for a less stressful transition and improving clinical learning. Through participation in the physical, social, and cultural activities of a workplace, students practice more on procedural tasks, experience real-patient encounters, and more patient care practices.^[8]

According to Godfrooij *et al.*, a gradual transition should occur^[9] in preparing students for clerkship. Van Hell *et al.* say: "Time spent on activities involving direct patient contact is positively related to students' perceptions of

the quality of their learning environment."^[6] However, in almost all of transitional curricula, courses are designed for short clinical encounters.^[10] Although such transitional courses, according to O'Brien *et al.*, should include practices using clinical skills in real-patient care settings,^[8] time restriction still is a major struggle.

The students' stressful feelings at the beginning of internship were rooted in lack of sufficient practical training through real-patient encounter and procedural practices in a sufficient time period. The aim of this study is to assess the merit and worth of the mentioned transitional clinical curriculum, with courses more prolonged than what is found in similar initiatives.

Our medical curriculum

Our medical curriculum at Isfahan University of Medical Sciences consists of four major phases as follows:

The first 2 years and a half as basic sciences, one year for "Introduction to Clinical Medicine" including physiopathology courses, 2 years for clinical exposure, named as "clinical clerkship," and finally 18 months,

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known as “internship” for delegating the patient’s responsibility.

Dividing clinical clerkship phase into two parts, primary and advanced-clinical clerkship, the curriculum decision makers decided to introduce a change in the second part in order for preparing the students for a less challenging internship. In advanced clerkship, students will have more practice on clinical skills, especially in out-patient and emergency settings, mostly on real patients under close supervision. Each course is delivered in a real clinical setting and 1 month in length. Advanced-clerk students should spend a few nights on call, as spare time, to fulfill more hands on action. The first part of the clerkship (i.e., primary), in which the students should act mostly as observers, was subjected only to minor changes such as the arrangement and credit hours of the courses.

MATERIALS AND METHODS

Following the approval by education councils at both levels of school and university, the new clerkship program was launched on April 1st 2009, and Education Development office at school of medicine was assigned to conduct its formative evaluation.

Through several focus group discussions with various stakeholders (e.g., Academic staff, residents, nurses, representatives of clerkship students, and executive managers), we clarified the key points we must have initiated our efforts from.

First, we defined the competences and procedural skills on which the students should be trained. So attending at regular meetings of each clinical department, we determined What, Where, When, and by whom, major clinical competences should be taught, as well as their appropriate evaluation methods. All of the topics were included in study guide booklets and delivered at the beginning of each course. The course logbooks also were included in booklets.

After describing the course and the booklet itself, we determined expected skills achievement, as well as real-patient encounters required for students during the morning clinical rounds and night shifts. We asked students to fill out the blank forms right after facing with each case in any setting (clinical wards, out-patient clinics, operating room, and emergency department). The completed forms should have been signed and sealed by residents and attending doctors.

We gathered and analyzed logbooks from departments of Neurology, Orthopedics, Anesthesiology and Toxicology, Infectious diseases, Internal Medicine, and Pediatrics. The

analysis consisted of calculating the number of students’ patient contacts, procedural skills practiced during the day and night shifts, and residents’ commitment to contribute in educational process (according to the logbooks). We also delivered the Dundee Ready Education Environment Measure (DREEM)^[11] questionnaires at the end of each course for assessing the students’ perceptions about their learning process. Data from DREEM were analyzed according to its original guide key,^[11] in all five sub-scales including students’: Perception of learning, perception of course organizers, academic self-perception, perception of atmosphere, and social self-perception.

RESULTS

We initially assessed all of the logbooks. Two departments (Internal Medicine and Pediatrics) did not provide us with useful logbooks; however, we selected and analyzed 30 sufficiently filled logbooks for each of the remainders.

Of expected patient contacts at four departments, totally, 64% were met, with highest rate (100%) in Anesthesiology and Toxicology and lowest one (32%) in infectious diseases.

More than 71% of required skills were taught by departments. However, the departments acted differently regarding instruction of the procedural skills in day time and/or night shifts. In Neurology department, all of the required skills were taught in day time. Other departments were not in good status in the case of teaching in day time. On the other hand, in night shifts, the Neurology and Anesthesiology and Toxicology departments had taught approximately all of the planned procedural skills. Orthopedics was the lowest successful department in both day time and night shift procedural skills training.

Besides frequent meetings with advanced-clerk students revealed a feeling of futility about night shifts in almost all of the departments.

Residents in Neurology had the most commitment for contribution to training the clerkship students, whereas residents in other departments did not care enough to such roles. For example, many blank logbooks were signed and sealed; also we found a considerable number of filled logbooks without any seal or signature of residents.

Measuring the educational environment in all six departments, we found that the highest “DREEM” score (140/200) was given to Anesthesiology and Toxicology department and the lowest one (97/200) to department of Infectious Diseases. Of all five sub-scales, the fourth one (i.e., students’ perception of atmosphere) was at the

Table 1: Total and five subscales DREEM mean scores for six departments

DREEM subscales	Mean scores	Interpretations
Perception of learning	24.83/48	Teaching is viewed negatively
Perception of course organizers	27.17/44	Moving in the right direction
Academic self perception	17.17/32	Feeling more on the positive side
Perception of atmosphere	32.33/48	A more positive attitude
Social self perception	13.5/28	Not a nice place
Total	114.83/200	More positive than negative

DREEM: Dundee ready education environment measure

highest level [Table 1], with the mean score of 32.33/48, whereas “students’ social self-perception” (5th sub-scale) was at the lowest level. The mean score of this sub-scale was 13.5 out of 28. In the domain of “students’ perception of learning,” two departments (i.e., Internal Medicine and Infectious diseases) had been scored as low as 21/48 and 18/48, respectively, it means in both departments “teaching is viewed negatively.” Total mean score in this sub-scale was 24.83/48 which is interpreted the same. However, regarding the total mean score of the whole DREEM scale, (114.83) “more positive than negative” feeling was there in clinical educational environment in six evaluated departments.

DISCUSSION

We measured the number of students’ patient encounters, and procedural skills practiced during each clinical course. However, initially, we defined the learning objectives through consultation with academic staff, while in an American national survey, the researchers found that less than one-third of the internal medicine sub-internship programs had explicit goals and objectives for their students.^[12]

Since studies show that real-patient contact makes clinical knowledge more durable;^[13] according to our findings, nearly two-third of patient encounters planned for our students’ were met. So, acquisition of a longstanding knowledge is expected for our advanced-clerkship students. Nevertheless, “students’ perception of learning” yet, suggests a problem existing in delivery of the program content. Therefore, more in-depth investigation is needed in this area.

Given the fact that developing clinical skills creates confidence and motivation in students,^[13] and since more than 71% of clinical skills in the above-mentioned departments were taught, it is expected that our students are well confident and motivated; and this is confirmed by their “Academic self-perception” in the DREEM section of our study.

Although it is believed for night shifts to be an irreplaceable part of medical education, and more than half of American sub-internship students had three to nine night calls during their rotations,^[14] however, it was one of the most problematic issues found in our study. Therefore, it is highly recommended to promote the learning status of this inherently useful section of advanced-clerkship program.

The last finding in our study on logbooks was the residents’ low contribution to instructing the students. Many studies agree with the influential role of residents in teaching undergraduate medical students.^[15] Although learning experiences for sub-interns, provided by resident covered ward service (RCWS) were dramatically better than resident uncovered hospitalist service (RUHS),^[16] time constrain along with lack of support from attending doctors has been reported as the major conflicts for residents to fulfill this expectation.^[17] Nevertheless, some studies say attending doctors believe that teaching competences should be incorporated in residency programs.^[18] This is recommended after a systematic review by Post *et al.*^[19]

CONCLUSION

We can claim that the program has some merits, as some departments were successful in clinical training of the advanced-clerkship students. Our findings ensure the program decision makers to continue with the program. However, some improvements are highly needed, especially in residents’ supervision on students learning activities, the clinical teaching of attending doctors, and enriching the night shifts. It is also recommended to conduct a comparative study with other institutions utilizing traditional clerkship curriculum.

LIMITATIONS OF STUDY

Since logbooks were developed at departments, they were tremendously different in some features, and this made them difficult to be uniformly analyzed.

Lack of formal documents from similar studies on traditional curriculum made it difficult to have a rigorous judgment about improvement of clinical clerkship program. However, we can only claim that the evaluated new program does work.

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