JKAU: Med. Sci., **Vol. 12,** pp: 43-52 (2005 A.D. / 1425-1426 A.H.)

Running OSCE for a Large Group of Students: Experience of the Surgical Department King Abdulaziz University, Faculty of Medicine

TALAL M. BAKHSH, FACHARTZ, RASHAD H. AL KASHGARI, FRCS(Glas), ABDULRAHMAN M. SIBIANY, FRCS(Ed), FAISAL M. AL MASHAT, FRCS(I)(Ed), ABDULRAHMAN A. MECCAWY, FRCS(Ed), FATMA K. AL THUBAITY, FRCS (I), and ADEL A. JOHARY, FRCS(I)
Department of Surgery, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

ABSTRACT. The objective structured clinical examination is gaining popularity for its validity, reliability, and objectivity. It requires a lot of physical and financial resources and commitment. When it is used to test a large number of students it is time-consuming and needs a lot of preparatory work on the side of the organizers. This paper outlines the steps important to consider when running such an examination for 200 or more students.

Keywords: OSCE, Assessment, Clinical, Undergraduate medical, Logistics.

Introduction

Since Harden *et al.*,[1] introduced the objective structured clinical examination (OSCE) in 1975 as a means of assessing clinical competency by direct observation, it is being used increasingly for both under- and post- graduate students[2-6]. Students are expected to perform a variety of clinical tasks within a specified time period and are judged against an objectively predefined set of criteria. It proved to be a reliable, valid, and reproducible test[4-8].

Correspondence & reprint requests to: Dr. Talal M. Bakhsh
P.O. Box 80215, Jeddah 21589 Saudi Arabia
Accepted for publication: 22 February 2005. Received: 07 December 2004.

This paper is intended to show in some detail our experience with the logistics of carrying out such an examination for a large group of students.

Material and Methods

There were 205 students (119 males + 86 females). The examination was performed over 2 days. There were 10 active (history taking, physical examination) and 10 inactive stations (data interpretation, image interpretation, *etc.*). The time allowed for each station was 5 minutes.

An organizing committee was established consisting of 6 members of the department. They are responsible for the following areas: Examiners/staff, standardized patients (SPs), male/female students, housekeeping and catering, time and record keeping.

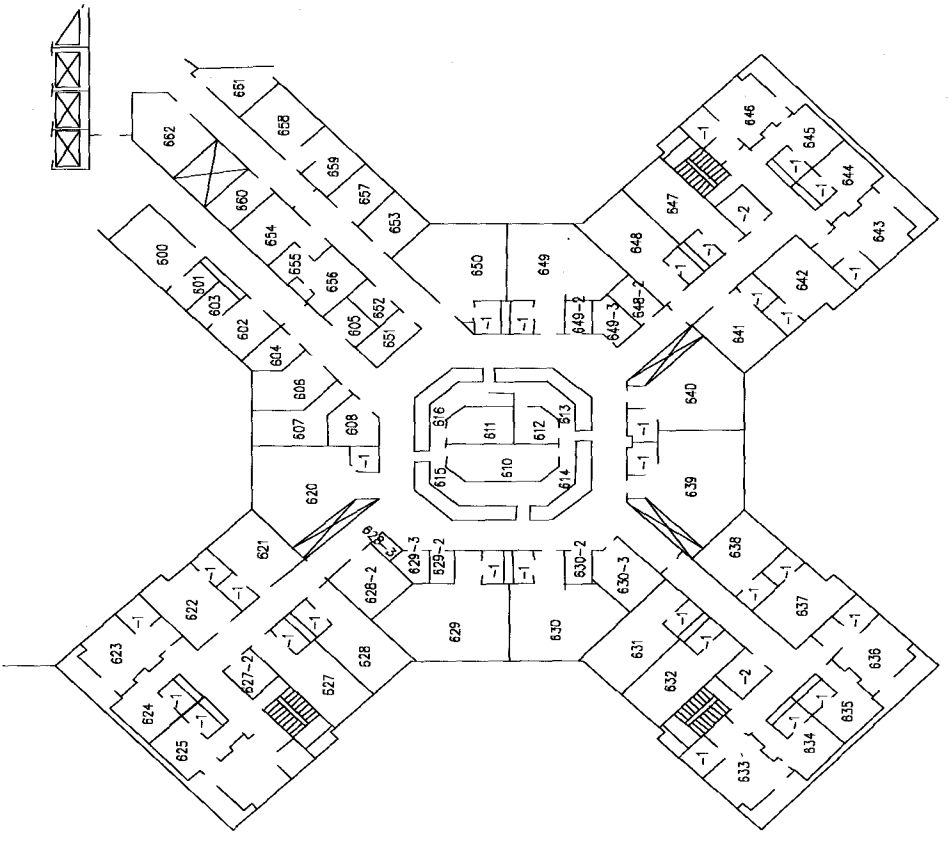

FIG. 1. Location of examination.

Once this committee was established the location for the examination (Fig. 1), and the room set up for active (Fig. 2) and inactive stations (Fig. 3) were determined. As can be seen from the floor plan (Fig. 1) there were three identical lines of rooms which allowed three simultaneous examination lines. The rooms for active stations contained a patient bed, a comfortable chair for the examiner with a table where the instruction sheet for the examiner and a stock of mark sheets are placed. On the other side a chair for the examinee is there with a small table where the instruction sheet for the student is mounted. The patient's instruction sheet is kept in the commode beside the bed. A clock is mounted on the wall. The room for an inactive station contains a chair for the student and table or desk with the instruction sheet and a stock of answer sheets and clock on the wall. On the table there is, according to the subject of this station, an X-ray viewing box or a computer, or an instrument, *etc.*

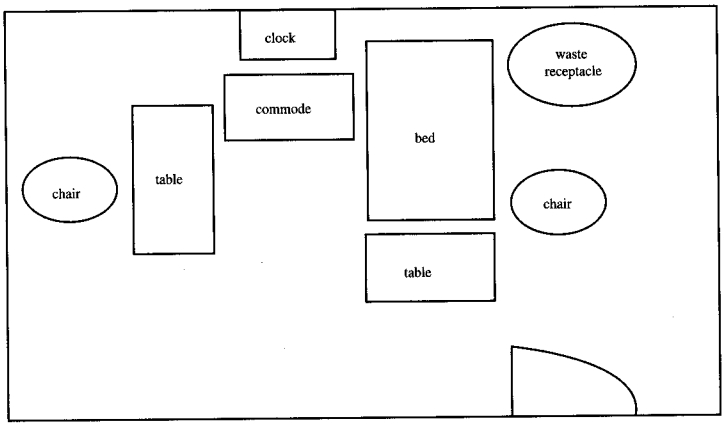

FIG. 2. Room set-up for ACTIVE station.

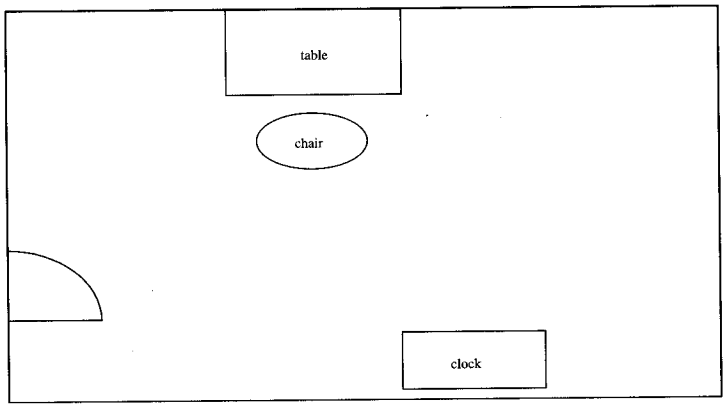

FIG. 3. Room set-up for INACTIVE station.

Letters were sent to the administration; detailing room set up for the stations, for waiting areas, secretarial areas, *etc.*, to help furnish the rooms accordingly. The deadline for completion of the area setup was 3 days before the actual examination date.

A department meeting was called. The subjects for the OSCE stations were determined and the authors for these stations agreed upon. Deadlines for submission of the stations (including instruction sheets for examiners, patients and students and mark sheets) were fixed.

As can be seen from Fig. 1, there were 3 parallel lines with 10 OSCE stations each day. This way there were 30 students in examination every hour. As there were 205 students, the whole examination lasted 7 hours daily for 2 days.

For each of the active stations, 5 examiners were made available (including the station author). Once the station writing was finalized the author met with his co-examiners to discuss the scenario and agree on a unified mark scheme. A plan for examiner's rotation was established (Table 1).

TABLE 1. Plan for examiner's rotation.

Assumption: Examination on 2 days
10 stations per day
3 lines of stations with 5 GS active stations each
All department members participate

Example of rotation of examiners in case of total of 5 examiners per station:

Time	Line I	Line II	Line III	Resting
0800 - 0850	1	2	3	4 + 5
0900 - 0950	1	4	5	2 + 3
1000 - 1050	2	4	5	1 + 3
1100 - 1150	2	1	3	4 + 5
1200 - 1250	4	1	3	2 + 5
1300 - 1350	4	2	5	1 + 3
1400 - 1450	1	3	5	2 + 4

Working hours (h) for:
Examiner 1 = 5 h
Examiner 2 = 4 h
Examiner 3 = 4 h
Examiner 4 = 4 h
Examiner 5 = 4 h

For the active stations, we used only standardized patients (SPs). Nurses and porters from within the hospital were recruited. An adequate number of SPs for each station was recruited to allow hourly rotation between work and rest. The station author was responsible for SP training.

Students were provided with an assignment card (Fig. 4) detailing the group assignment (corresponding to the time of examination) and the line and station assignment. Additionally each student was provided with 20 labels carrying name and computer number to be affixed on the mark sheets for every station. A detailed plan of the students' grouping (Table 2) and movement (Table 3) were made available so that it was known to the students and investigators. A notice for all students not to bring any books or mobile phones to the examination area was put on the notice board.

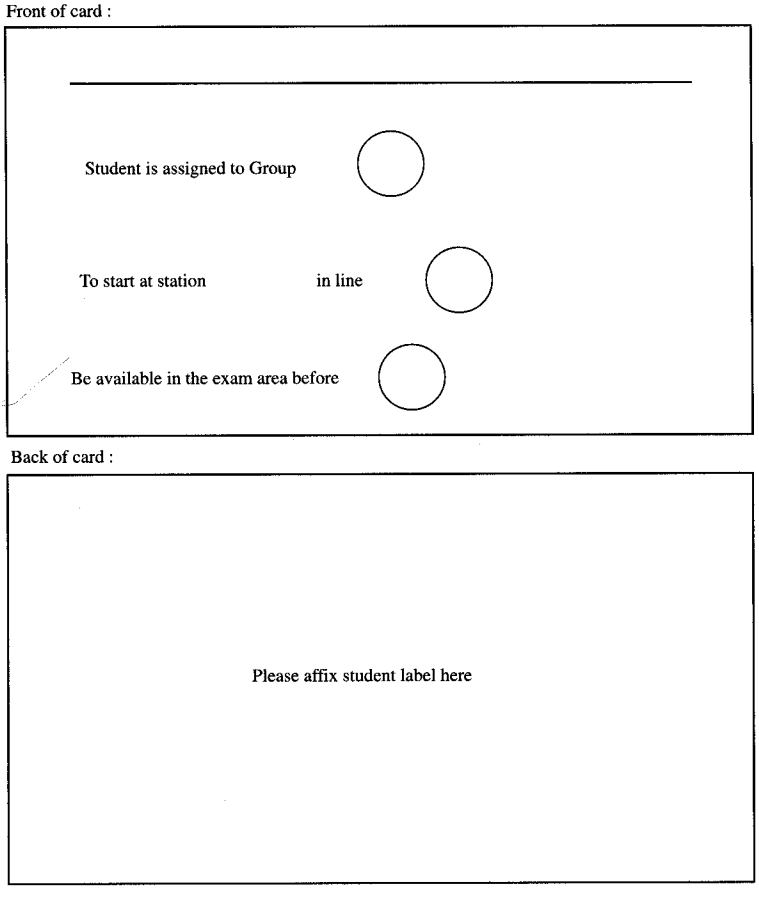

FIG. 4. Assignment card.

The day before the examination, the organizing committee went through the examination area to make sure all rooms were set up properly. Labels indicating station numbers, examination lines, waiting rooms and staff lounges were affixed.

On the day of examination, the organizing committee and department secretaries arrived an hour before the starting time to distribute instruction and mark sheets for the active stations, and the question and answer sheets for the inactive stations.

TABLE 2. Students' groups.

Group / Time	Line 1	Line 2	Line 3
Group 1 (0800 - 8050)	10 males	10 males	10 females
Group 2 (0900 - 0950)	10 males	10 males	10 females
Group 3 (1000 - 1050)	10 males	10 males	10 females
Group 4 (1100 - 1150)	10 males	10 males	10 females
Group 5 (1200 - 1250)	10 males	10 males	10 females
Group 6 (1300 - 1350)	10 males	10 males	10 females
Group 7 (1400 - 1450)	10 females	10 females	10 females

TABLE 3. Students' movements.

At 0830	Group A (20 males + 10 females) directed to any room for I.D. check + label distribution.
At 0900	They will go to the examiner.
At 0930	Groups B, C, D will arrive (60 males + 30 males). They will be directed to rooms 620 + 629 + 630 (males) and room 640 (females) for I.D. check + label distribution.
At 0950	Group A will come out of exam and will be directed to rooms 639 (males) and 650 (females) with continued supervision.
At 0955	Group B will go to the exam area.
At 1050	Group B will come out of exam and will be directed to rooms 620 (males) and 650 (females) with continued supervision.
At 1055	Group C will go to the exam area.
At 1150	Group C will go out of exam. Males will be directed to rooms 620 (line 1) and 639 (line 2) and females to room 650 with continued supervision.
At 1155	Group D will to to exam.
At 1230	Group E, F (males) and E, F, G (females) will arrive. Male students will be directed to rooms 620 (Group E) and 630 (Group F). Female students will be directed to rooms 640 (Groups E, F) and 649 (Group G).
At 1250	Group D will come out of exam and can leave the exam area with Groups A, B and C.
At 1250	Group E will to to exam and Groups F, G will be under continued supervision.
At. 1350	Group E will come out of exam. They will leave the exam area immediately.
At 1355	Group F will go to exam.
At 1450	Group F will go out of exam and will leave.
At 1455	Group G will to to the exam.

Five minutes before "start", examiners and students were guided to their rooms. The timekeeper was ready with a big bell and a stopwatch. In each line there was a time assistant with a big bell to make sure, the sound was heard in every room.

Mark sheets were collected hourly after every group of students. The secretaries started entering the marks immediately. The resting examiners were requested to mark the answer sheets of the inactive stations immediately.

Students and staff were given questionnaires to evaluate the examination.

Results

There were no problems encountered worth mentioning in the running of the examination, especially there was no delay in the timely progress of the examination. It was only noted that data entry was far more time consuming than estimated. The amount of food and beverages required for such a number of people involved was also underestimated.

Staff and students expressed high satisfaction with this type of examination (results of analysis of questionnaires will be reported separately).

Discussion

The principles of running OSCE examinations do not differ actually according to the number of students. Yet, the logistics of running such an examination for 200 or more students are extensive.

We are in the fortunate situation of having a whole patient unit available with a lot of rooms to accommodate for 3 lines of examination, for waiting areas and lounges and secretarial offices.

An examination over 7 hours daily is tiring for examiners, SPs and organizers. A high degree of discipline and enthusiasm is required. A big number of examiners and support staff (SPs, invigilators, timekeepers, secretaries, porters, and cleaners) are required. Because of the long hours, spacious waiting areas with comfortable seating and sufficient supplies of food and beverages are additional factors contributing to the success of the examination.

A very important factor leading to the success of the examination is meticulous and detailed written documentation of every aspect.

The organizing committee has to meet frequently.

Each committee member has an area of responsibility and must report on the progress of preparation to the committee, especially in case of any difficulty.

Once timetables for examiners, SPs and students are established they have to be sent to every involved person or group of persons.

For reasons of confidentiality students must be in the examination area for hours before and/or after the actual examination. They also need to be kept in spacious rooms under supervision to avoid contact between the different groups via mobile telephones. Because noise from such areas can be at times fairly high, these rooms should be away from the actual examination rooms.

Using junior house officers and nursing students as invigilators was a source of leak of information about inactive stations. This was evident from some students' comments from the questionnaire. It was decided not to utilize them in the next examinations.

Most SPs felt uncomfortable being on a bed in a history taking stations. They felt that such stations should be set up as an OPD room with a desk and two chairs for the SP and student on one side, and a chair and table for the examiner on the other side.

Because of the parallel lines of stations timekeeping is very important. If an examiner is not present at the bell sound, a member of the organizing committee jumps in immediately. A 10-minute period is usually sufficient to organize the change of students, SPs and examiners every hour.

Deadlines must be established for decisions on

- The choice of themes for all stations
- The station authors and co-examiners
- The final written structure of each station
- The readiness of the examination area

Because it was the first time to implement this examination we faced some time delay in writing the active stations. Some stations were ready just a few days before the examination. A few reserve stations would make the organizing committee more at ease. It was decided to distribute the themes of the active stations (according to the curriculum) among the staff members to write them during the coming academic year. This way, stations are ready in a bank months ahead of the examination schedule. The department will then only decide on the choice of the actual themes.

Another area for future improvement is the inactive stations. Instead of mixing active with inactive stations it is suggested to hold up this examination part in a big auditorium where a computer presentation of the inactive station can be projected on a big screen and all students would answer the questions in a booklet.

References

[1] **Harden RM, Stevenson M, Downie WW, Wilson GM.** Assessment of clinical competence using objective structured examination. *Br Med J* 1975; **1(5955)**: 447-451.

[2] **Kowlowitz V, Hoole AJ, Sloane PD.** Implementing the objective structured clinical examination in a traditional medical school. *Acad Med* 1991; **66(6)**: 345-347.

[3] **Wilkinson TJ, Newble DI, Wilson PD, Carter JM, Helms RM.** Development of a three-centre simultaneous objective structured clinical examination. *Med Educ* 2000; **34(10)**: 798-807.

[4] **Sloan DA, Donnelly MB, Schwartz RW, Felts JL, Blue AV, Strodel WE.** The use of objective structured clinical examination (OSCE) for evaluation and instruction in graduate medical education. *J Surg Res* 1996; **63(1)**: 225-230.

[5] **Duerson MC, Romrell LJ, Stevens CB.** Impacting faculty teaching and student performance: nine years' experience with the Objective Structured Clinical Examination. *Teach Learn Med* 2000; **12(4)**: 176-182.

[6] **Davis MH.** OSCE: the Dundee experience. *Med Teach* 2003; **25(3)**: 255-261.

[7] **Carraccio C, Englander R.** The objective structured clinical examination: a step in the direction of competency-based evaluation. *Arch Pediatr Adolesc Med* 2000; **154(7)**: 736-741.

[8] **Elnicki DM, Shockcor WT, Morris DK, Halbritter KA.** Creating an objective structured clinical examination for the internal medicine clerkship: pitfalls and benefits. *Am J Med Sci* 1993; **306(2)**: 94-97.

إجراء الاختبار السريري الموضوعي مقنّن الأهداف لعدد كبير من الطلبة، تجربة قسم الجراحة بكلية الطب بجامعة الملك عبد العزيز

طلال محمد بخش ، ورشاد حسن القشقري ، وعبدالرحمن محمد صبياني ، و فيصل محمد المشاط ، وعبدالرحمن أحمد مكاوي ، وفاطمة خنيفس الثبيتي ، و عادل علي جوهري

قسم الجراحة ، كلية الطب ، جامعة الملك عبد العزيز ، جـــدة – المملكة العربية السعودية

المستخلص. يحظى الاختبار السريري الموضوعي مقنن الأهداف بشعبية متزايدة ، حيث تبين أن له مصداقية وموضوعية واعتمادية عالية. يتطلب هذا النوع من الفحص الكثير من التجهيزات من ناحية المكان والدعم المادي ، إضافة إلى الالتزام والانضباط. وعند إجراء هذا الفحص لعدد كبير من الطلبة فإن التجهيز له يتطلب من المنظمين وقتًا وجهدًا كبيرين. يسلط هذا البحث الضوء على الخطوات الهامة التي يجب الانتباه إليها وأخذها في الاعتبار عند إجراء هذا النوع من الفحص لعدد من الطلبة يزيد عن ٢٠٠ طالب وطالبة.