MEDICAL EDUCATION

Assessment of Birmingham Medical Students*

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Summary: At Birmingham University since 1966 the major medical examinations began to be replaced by a process of continuous assessment. This is based on fairly frequent tests, usually at the end of each course, including short essay questions, multiple-choice questions, and tests of ability in wards and laboratory. At the end of the first final-year course 96 students underwent assessment. Of these 77 passed; 19 were referred for re-examination, of whom a further 12 passed subsequently. The scheme was found suitable by both teachers and external examiners.

Introduction

Until recently Birmingham Medical School adhered to a traditional examination system. The first test of any consequence which students admitted to the second year of a six-year course (only a very few are admitted to the first year) had to endure was the 2nd M.B., held at the end of the third year. This was followed in the fifth year by the Final M.B. Part I—in pathology, pharmacology, and social medicine—and at the end of the sixth year by Part II—in medicine, surgery, paediatrics, and obstetrics including gynaecology. Psychiatry was not examined separately but as part of medicine.

In the final M.B. Part II medicine and paediatrics were linked; also surgery and obstetrics. Thus a student who failed one of a pair of subjects had to re-sit both six months later, but if his grades were satisfactory in the other pair he was exempted from re-examination in those subjects. If he failed one subject in each pair he might have to re-sit all four, though he was sometimes excused from re-examination in any subject in which he had at the same time done particularly well. All examinations were of a fairly conventional type, with one or more three-hour, four-or-so essay question papers, one or more orals, and, in the case of the clinical subjects, a clinical examination also. Indeed, when I came to Birmingham in 1962 the examinations taken by medical students were virtually identical with those which I had had to take in Cambridge over a quarter of a century before. Similar systems of examination are still widely in use throughout the British Isles, and in some parts of the Commonwealth also.

Winds of Change

In a few medical schools elsewhere, however, the winds of change were beginning to be felt even as long as 20 years ago. By then final examinations in Harvard, for example, had been abolished altogether. It was explained that this was made possible by the fact that the competition for entry into Harvard was so great that only students of the highest calibre were admitted.

About five years ago the medical curriculum in Birmingham started to undergo considerable modification. For example, in the preclinical period, time given to the teaching of topographical anatomy was reduced. Both anatomy and physiology, while retaining something of their traditional teaching pattern, became slanted by increasing interest in cell biology. In the clinical years the time given to obstetrics and

gynaecology was reduced, as it was recognized that obstetrics was tending to become more and more a subject for postgraduates. Psychiatry, which hitherto had been an optional subject and occupied a relatively small place in the curriculum, was greatly expanded and became compulsory. Opportunities for elective studies were introduced. In the earlier years time was allowed for academic studies, which could, if a student so chose, be devoted to approved subjects quite unconnected with medicine—for example, study of a foreign language. During the clinical years a two-month period immediately preceding the final year was set aside in order that a student could study some aspect of medicine in greater depth or perhaps undertake a modest piece of research. Not all students undertake elective studies. These are not compulsory, and weaker students may choose to use this available time to catch up with work in which they have fallen behind.

Continuous Assessment

In view of all these curricular changes it became clear that the traditional examination system was becoming outmoded and no longer appropriate. It was decided therefore to substitute a process of continuous assessment.

There are several principles underlying continuous assessment. The first is that the method used should be such as to act as a filter, whereby those students in whose case the selection procedure has failed are identified as soon as possible and excluded. Provided, of course, the grounds are sound, early exclusion not only benefits the school but may benefit the unsuccessful student also, in that he may be given an early opportunity to change to some other, less demanding course of study in which he may have a much better chance of success. Ideally, satisfactory selection should exclude from admission all those who are not really good enough. But selection procedures can obviously never be perfect. Nor, probably, will they ever exclude from entry some of those who, for a variety of reasons, suffer later from an unexpected loss of motivation. This, indeed, is probably the most important single reason for failure.

The second principle is that major examination hurdles should be abolished—that is, the major hurdles of the 2nd M.B. and Parts I and II of the Final M.B. These kinds of ordeal, while they suit some, particularly those who are able to cram at the last minute, are disadvantageous in that as the time of examination approaches students tend to desert the dissecting-room, the laboratory, and the bedside for the library, where they engage themselves not in reading up material relevant to the experiments they have been doing, nor that pertaining to the patients they have been studying, but in memorizing lists of those sorts of facts a knowledge of which they fully believe will be demanded of them by their examiners. Once the examination is over these tend to be forgotten. Indeed, this kind of examination is inclined to foster the delusion under which so many students labour—that their examiners are out to fail them at all costs. Examiners on the other hand, unless of course they delude themselves also, always insist that they pass all students unless their performance is so bad that it is quite impossible to do so.

Continuous assessment implies, therefore, a whole series of more frequently held but very much less formidable tests. It should be noted, however, that this method of assessment is certainly no less arduous for the student than are traditional

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examination procedures. Some students, last-minute swotters again, and those who are cyclothymic and prefer to work in fits and starts rather than regularly, tend to find continuous assessment hard going. Some of our students have indeed already said they would prefer to revert to traditional examinations. Though they might indignantly deny it, however, medical students are on the whole a conservative lot and often more reactionary than some of their teachers.

Nevertheless, continuous assessment does serve other, more important purposes than merely keeping students from stuffing their heads with useless knowledge only for the purpose of passing examinations. It acts not only as a stimulus to sustained work, but, by virtue of improving feedback, guides the student's efforts and allows him as well as his teachers to assess his progress more accurately and more often.

Under the pre-existing system the work of the failing student might well continue to deteriorate unobserved for far too long, becoming apparent only when abject failure in a major examination occurred. Continuous assessment, on the other hand, highlights deterioration in performance much sooner, thus allowing appropriate remedial measures to be applied earlier and to better effect.

Examination and Assessment System

A brief description of some of the main details of the examination and assessment system follows.

In the preclinical course tests are given fairly often, usually at the end or soon after the completion of each course or an appropriate part of it. These tests take various forms and include fairly short essay questions requiring 10 to 35 minutes to complete, objective questions requiring very short answers, multiple-choice and true/false questions, and examinations or practical assessments involving manipulative skills in the laboratory. Extended essays or an assessment by tutors of course work are included. The use of a wide variety of different kinds of assessment is important, as there is little doubt that while some methods of assessment are applicable to several subjects there are others which are better examined by special methods.

In the clinical part of the course much the same methods are used, though again with some variations from subject to subject. As a whole, however, somewhat greater emphasis is given to assessment of the student's work by the various clinical teachers and tutors to whom he is at one time or another attached. The criteria for these assessments include ability to take a medical case history and to elicit physical signs; the capacity to present findings coherently, both orally and in writing; attitude and behaviour towards patients; and general responsibility, diligence, and regularity of attendance.

There is some danger of unevenness here because of the relatively large number of teachers involved and their varying interest and ability to assess students. Some teachers may overassess a student's ability; other may underrate it. Some students are a little cynical about this, choosing to believe that to feed a teacher's self-esteem is the surest way to a good assessment. But many teachers are perhaps not so naive as some students think they are. The best way to avoid unevenness, however, is to see that a final assessment is arrived at by consideration of as many individual judgements as are available and combining these, and, where other forms of examination—for example, clinical examinations—are carried out, by arranging for one group of students to be examined by those who teach another group.

As in many other schools multiple-choice exams seem to be becoming more popular. Though tedious to prepare, once a satisfactory bank of questions has been accumulated they may be used repeatedly with only relatively minor modifications. Their main virtue is ease and objectivity of marking, together with abolition of the tedium of reading over and over again a series of the same essay questions in all sorts of varieties of

often not too legible handwriting. Multiple-choice questions also have the further advantage that if a consistent system is used the discriminatory power of the questions selected may be analysed by computer.

Objections to System

Objections have been and often are raised on several grounds. One is that certain subjects are not amenable to examination by this method. The truth of this is in doubt. Indeed those who put forward this objection have usually not tried the method. Possibly more important, is the objection that while a multiple-choice examination may well test a student's knowledge of facts it does not test his knowledge of how to formulate these facts into a coherent whole, nor does it test his skill in essay writing. Many teachers, however, are now fairly well convinced that a combination of multiple-choice questions together with an oral examination is as satisfactory as most procedures if not more so, and certainly is less tedious for both student and examiner. A single extended essay to be done in the student's own time can be added if needed or case histories be submitted.

Another objection, less often raised, is that some students are temperamentally unsuited to multiple-choice examinations, particularly those who are somewhat obsessional and to whom finally making up one's mind is an ordeal. In answer to this it can be said that there are some students who by temperament find other forms of examination equally trying. A final objection is that multiple-choice examinations test little more than the ability to undertake multiple-choice examinations; however, in view of the high degree of correlation which can be shown between multiple-choice results and results of other, more laborious conventional examination procedures undertaken separately, this objection cannot be seriously sustained.

Performance of Students

The marks of individual tests are not published, but students are given their grades. In the preclinical course four grades are used; E, excellent (70% or over); G, good (60-69%); S, satisfactory (50-59%); and U, unsatisfactory (49% or less). In the clinical course the procedure differs slightly. Here there are five grades: A, excellent (60-65%); B, good pass (55-59%); C, bare pass (50-54%); D, bare fail (45-49%); and E, fail (under 45%). (The percentages given actually pertain to psychiatry but are adopted more or less consistently by other clinical disciplines also.)

Students whose performance is satisfactory during the junior year of the preclinical course—that is, the second year—are permitted to proceed to the next year without further examination. Those whose final cumulative mark is unsatisfactory are required to present themselves, after a three-month interval, for a supplementary examination of conventional type in which external examiners take part. Failure at this point may cause a student to be required to withdraw. The procedure is similar at the end of the third year, though with the addition of special oral examinations in the presence of external examiners for selected students who may be thought to merit distinction in particular subjects or to provide them with an opportunity to gain points which may lead to final qualification with honours.

Progressive assessment continues during the first part of the clinical course under very similar conditions, except that unsatisfactory students are required to present themselves for oral examination before a decision is reached on whether or not they should be referred for a supplementary conventional examination in pathology, pharmacology, and social medicine after a two-month interval.

The final clinical year at present comprises five 10-week clinical clerkships, three of which—obstetrics, paediatrics, and psychiatry—end with separate assessments not associated with

the earlier stages of the course and not interrelated, though quite a substantial amount of psychiatry is taught earlier on. In the other two—medicine and surgery—earlier assessments are also taken into account in arriving at a final grade. Students who obtain a pass mark (grade C or better) in each of the five subjects are not further examined, except for the purpose of distinction, and are considered to have qualified. Those who obtain D or E grades in any one or more of the five final-year subjects are re-examined in the subjects in which they have failed at the end of the year in the presence of external examiners who also see those selected for examination for distinction. Those who fail to satisfy the examiners at the end-of-year examination may be referred in one or more subjects for a further six months. The main disadvantage of this method is that poor students tend to collect more and more failures as time goes on and get progressively into deeper water.

Birmingham Assessment System

With some trepidation, not without some difficulty, and a degree of "paranoia" among the "guinea-pig" group of students, the school completed the first of its new final-year course assessments in June 1970. While admitting that further experience of the system should certainly improve it, it appeared to be a greater success than either staff or students (who were at one juncture gloomily convinced that failure was

inevitable for all) ever believed it would be. Of 96 students in the final year under the new regulations 77 passed in each of the five final-year subjects and were not re-examined for the purpose of passing, and of 19 who were referred for re-examination in one or more subjects 12 passed in the presence of external examiners. Seven did not satisfy the examiners in one or more subjects at re-examination. These were referred again until November next for a further examination in those subjects in which they failed—in two instances in psychiatry, two in obstetrics and gynaecology, two in surgery, three in medicine, and six in paediatrics. As this number of failures is quite large the standard may have been a little too severe, though perhaps erring on the right side. Of the 77 students who were deemed to have graduated without a further pass examination in June, 25 were thought good enough to be considered for a distinction in one or more subjects and were specially examined for this purpose in the presence of the external examiners. Ten of these gained 13 distinctions between them; two finally qualifying with honours, their overall progress throughout the course having also been taken into account.

Though there were some mildly dissenting voices among the teachers (some indeed are almost as capricious in their opinions as are students), most seemed reasonably happy with the way things turned out, especially with the abolition, in large part, of the Final M.B. ritual. More important still, the external examiners appear to have been well satisfied also.

ONE HUNDRED YEARS AGO

Extract from a Report in the British Medical Journal, 15 October 1870

A SURGICAL VISIT TO THE SEAT OF WAR SEPTEMBER 1870.

I had to wait for a midnight train; the aspect of things outside the huts was singularly picturesque and characteristic. The store-waggons of the Johanniter were drawn up in a row, and the "red cross" attendants were getting a rough evening meal before they turned in to sleep in the waggons. Some peasants had set up stalls in the open air for the sale of bread, eggs, and beer outside the station: they were lighted by flaring torches; and the Belgian and Prussian soldiers, with many waggoners, and a crowd of marauding idlers were gathered round them drinking hard beer and poisonous "schnaps." I was hungry enough to make a good meal off black bread and eggs. I had given away three or four hundred cigars and a few pounds of chocolate among the slightly wounded in the carts, and I now walked down among them to have a chat. They had been waiting for hours in the carts, and were just being told off into the railway trains which were waiting for them, and where they would probably have to sleep all night; for some hours would probably pass before they could be got off. They were cold, stiff, hungry, and were in some doubt whether they would not have to sleep all night in the open carts where they lay; and yet not one of them murmured. The Anglican accent in which I got through my talk with them soon betrayed itself, and one or two of them spoke to me in very good English. There were two Englishmen among them; one was a young man of good family, speaking fluently English, French, and German; he was slightly wounded in the foot. They were all anxious to be cured as quickly as possible, in order to get back to their regi-

ments; and the Englishmen were as thoroughly Prussianised as their comrades. Presently they were told off to their railway waggons. These were not elaborately arranged, as were some that I subsequently saw, for the reception of the wounded, but were just large covered baggage-waggons, into each of which from fifteen to twenty men were packed lying on the straw, which was littered on the floor. Each man got a hunk of black bread, and a couple of bottles of wine were handed in to be shared among them. Then the doors were slid to, and they lay there in the dark. It was impossible not to be struck with pity for the poor fellows, who endured so much suffering and bad accommodation with imperturbable patience and resignation. They accepted all that was done courteously and thankfully, and amid all the hubbub and confusion at the crowded station, through all their sufferings and discomforts they alone never forgot their discipline or their manhood. I may observe, here, that although the carbolic oil dressings were generally applied at Libramont, they were not used after a fashion of which Mr. Lister would approve: charpie soaked into the oil was applied, and no other precautions were taken. Open wire splints were largely used, and we were asked for more, but were unable to supply them. Further on, we found plaster of Paris splints very largely and most usefully applied, but here I did not see any. Presently I started for Arlon, and, arriving there, I met Mr. Berkeley Hill and Mr. Attwood, a former student at St. Mary's Hospital, to whose hospitality I was indebted for a sofa on which to pass the night.

ERNEST HART.