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EDUCATIONAL NEWS

Examination of final-year medical students in general practice

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Abstract
With general practice recognized as one of three major subjects in the Tromsø medical school curriculum, a matching examination counterpart was needed. The aim was to develop and implement an examination in an authentic general practice setting for final-year medical students. In a general practice surgery, observed by two examiners and one fellow student, the student performs a consultation with a consenting patient who would otherwise have consulted his/her general practitioner (GP). An oral examination follows. It deals with the consultation process, the observed communication between "doctor" and patient, and with clinical problem-solving, taking today's patient as a starting point. The session is closed by discussion of a public-health-related question. Since 2004 the model has been evaluated through questionnaires to students, examiners, and patients, and through a series of review meetings among examiners and students. Examination in general practice using unselected, consenting patients mimics real life to a high degree. It constitutes one important element in a comprehensive assessment process. This is considered to be an acceptable and appropriate way of testing the students before graduation.

Key Words: *Examination of medical student, family practice, general practice, real-life situation, real patient*

The first school of medicine in North Norway started in Tromsø in 1973, with an organ-based teaching model integrating general practice and public health with specialist medicine [1,2]. Gradually, with general practice recognized as one of three major subjects in the curriculum, the time was ripe for a matching examination counterpart. A guiding principle in our discussions was to design an examination that would reflect real practice situations, similar to what the students had experienced during their clerkship, and would have to deal with as future GP interns and residents. A pilot project where 24 final-year students were voluntarily examined based on real patient encounters in authentic general practice settings was evaluated positively [3]. This led to the introduction of a new examination based on real-life consultations. The model includes a major clinical part and a minor public health part, corresponding to the dual learning objectives of the general practice clerkship period [4]. Previously a report has been published in Norwegian, based on first-year experiences [5]. In this report we present the permanent examination model for final-year students in general practice in Tromsø and discuss our experiences after three years.

A model for examining final-year students in authentic general practice using consenting patients is described.

- The examination mimics real life to a high degree.
- The examination is helpful to direct learning and teaching towards what is essential to become a competent medical professional after graduation.

Outline of the model

An outline of the examination, as it has been performed with minor adjustments since 2004, is given in Table I. The examinations take place in general practice surgeries in the city and suburbs of

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Table I. Outline of real-life examination in general practice in Tromsø.

Stage	Duration[1]	Description
1. Introduction	Maximum 15 minutes	GP introduces student to the surgery, clarifies practical questions, and presents a short summary of the patient's medical record
2. Consultation	Maximum 30 minutes	Student in the role as stand-in for the GP, observed by two examiners and one fellow student, performs a consultation including history, physical examination, plan for further investigation, treatment, and follow-up If time exceeds 25 minutes, notice is given
3. Reflection	Maximum 15 minutes	Student writes a record note using the "SOAP" model, and prepares for oral examination GP leaves the room with the patient, completes any unfinished tasks and make necessary appointments
4. Examination	Maximum 60 minutes	The examination starts with the student referring her/his consultation notes The first 25 minutes focus on the consultation process, the communication, and the clinical problem-solving: "What did you, as a doctor, do well?"; "Anything you would have done in a different manner?" The scope is then widened to other cases and issues of family medicine The last 15–20 minutes are used for examination on public health topics

[1]The standard duration of examination in major clinical topics is two hours. Since students' timing and priorities are elements to be assessed, it can be appropriate to deviate from the maximal time, especially for the consultation part.

Tromsø, less than 15 minutes' drive from the university.

The patients are recruited from the general practitioners' lists of the day. If not seen by the student, they would normally have consulted their GP on that same day, for either a planned consultation or an acute problem. The patients might present all kinds of challenges relevant in general practice, anything from acute or chronic health problems to pregnancy control, request for sick-leave certification, preventive or health education matters.

The GPs are responsible for the care of the patient. They recruit patients, obtain their informed consent to participate, make practical arrangements for follow-up and sign relevant forms and prescriptions immediately after the student exam consultation. The patient leaves the surgery accompanied by the GP when the consultation is finished (see Table I). The GP also has the role of an external examiner, during the subsequent oral examination.

The internal examiners are academically appointed GPs from the Department of Community Medicine at the University of Tromsø. They have the liability to ensure that the examination is run according to national legislation and local regulations. The examiner conducts the oral examination and has prepared clinical scenarios that the student is asked to consider after having finished reflecting on today's consultation.

The students are informed about the examination through a seminar early in their final year. The seminar has gradually been developed to include group demonstrations of the examination with a real or simulated patient in front of 1–2 examiners and 6–8 fellow final-year students followed by a discussion. During the subsequent teaching period the students are offered additional sessions of supervised consultation training and feedback in local surgeries, clinical lectures about general-practice-oriented topics, and a second trial examination.

Assessment process

The examination in general practice is included as one part of a comprehensive assessment process for final-year medical students in Tromsø. The overall assessment is based on the students' entire knowledge and performance in a series of one written and four clinical examinations. The clinical examinations consist of two out of three "major" subjects (general practice; internal medicine; and surgery) and two out of seven "minor" subjects (dermatology; gynaecology; neurology; ear, nose and throat; ophthalmology; paediatrics; and psychiatry). The assessment in general practice is based on prevailing principles in other oral examinations, where the following elements are considered: contact with the patient, history-taking, physical examination, problem definition, supplementary tests, diagnostic reasoning, treatment, information to patient/family, complementary topics, and plans for follow-up. All examinations create the basis for a preliminary conclusion of "passed", "doubtful", or "not passed" in each case. Candidates judged "doubtful" or "not passed" in either general practice or in any other final examinations are further assessed by a chief exam committee, which has overall responsibility for all the exams. Every examiner must be ready to be called upon to explain his/her judgment, when the chief exam committee makes its final decision concerning passed or failed in the light of the student's results in all examinations. Based on this

comprehensive assessment process, altogether 228 students passed and 19 students failed their final medical graduating exam in the period 2004–2006. None of the final "not passed" conclusions were based solely on a negative result of student performance in general practice or in any other single subject.

Experiences and evaluation

During the first three years experiences have been evaluated through systematic written comments, questionnaires, and regular post-examination meetings to identify examiners', students', and patients' perspectives.

Examiner and student perspectives

The realistic approach to a general practice setting, with all necessary equipment, patient records, and documents available, has been emphasized as one particular advantage. Another positive observation is that patients are given appropriate medical help, such as specific advice, prescriptions, treatment, and referrals. In some cases the general practitioners see the patient problem in a new perspective, after having observed the student consultation. Although the students' feedback has mainly been favourable, a negative aspect has been a feeling of uncertainty approaching an examination where the candidate must handle open-ended problems, often with no definite right answers. They feel it is less stressful in the other specialities where a rather straightforward diagnostic conclusion is expected. Related to this, examiners have observed insecurity and indecisiveness among a number of students confronted with the problem of creating follow-up plans in agreement with the patients. This has led to a strengthened focus on how to cope with medical insecurity and to reach trustworthy follow-up plans in the consultation training during the students' final year.

Patient perspectives

It was our impression in the first year (2004) that the examination was well accepted among the patients. This was more closely explored in 2005 through an anonymous questionnaire, where the patients were asked to compare their experience with previous visits to their doctor. A great majority of 34 patients (74% response) answered that the degree of stress and the possibility to say what they wanted during the consultation with the student was "as usual" or "a bit more difficult", and that they got more time than "as usual". Only one patient found the examination much more stressful than a normal visit to their doctor.

Discussion

External validity

Recent concerns as to whether medical students are prepared for key competences in their clerkship years [6] may question the validity of medical teaching and exams related to real life. Our model may be seen as a response to a new developing culture of assessment, putting more emphasis on testing clinical skills and performance in the workplace [7,8]. Students' learning in their final year tends to be more directed towards what they expect to meet in the examinations than what they will meet later, in real-life situations as professionals. It is our intention that turning the examination itself into a real-life situation will help the students to be more motivated to acquire the knowledge and skills that they will need as professionals. As mentioned, the examination has led to helpful experiences to adjust the final-year teaching to support and strengthen such a motivation.

Internal validity and reliability

Although the external validity may be supportive of the model, assessment based on one single case in general would be considered inappropriate due to lack of internal validity and reliability. Approaches like objective structured clinical examination (OSCE) [9] or minimal clinical evaluation exercise (mini-CEX) [10] might be seen as alternatives to overcome this. With regard to OSCE, this would not fit with our shift of focus of testing from education to work, and a mini-CEX, involving a series of GP encounters, was impracticable because we had to implement the new examination in the prevailing system. We consider the use of a chief exam committee to make the final assessments of the candidates to be a reasonable approach to counteract doubtful conclusions due to single-case examinations and disagreements between examiners. We also think the internal validity problem of single-case testing is partially addressed during the general practice examination itself through a standardized approach to check the student's responses to alternative clinical scenarios related not only to the observed patient but also to other cases.

Conclusion

All clinical examinations should mimic real life. Our conclusion is that examination in authentic general practices, outside the university campus, on

unselected, consenting patients achieves this goal to a relatively high degree. As one element of a comprehensive assessment process it is considered to be acceptable and important for testing the students before graduation.

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