chapter

1

General introduction and aim

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Medical education in the Netherlands is a subject of continuous concern based on the responsibilities of the government, and includes the quality control on the basis of quality criteria.[1-8] Quality control implies the systematic and structural attention to maintain, guard, and improve the quality of education.

Quality control of education in Dutch medical schools is organized in an external (by the government) and an internal (by the faculty itself) way, and it relates to the evaluation of the 'process' as well as the 'product' of education.[6-9] By evaluating the product (output), medical schools check to what extent the educational objectives are reached. This kind of evaluation should be considered as an investigation into the extent in which students acquire the intended competence. The acquired competence is usually measured on different levels ranging from factual knowledge to professional behaviour, and is performed with different assessment procedures such as objective test methods, written cases, observation tests, and structured clinical exams.[4,10] The ultimate product is often expressed in another quantitative way: the percentage of the students who finish their study within the time specified. So, the number of students who finish their study is one criterion to measure the quality of education. However, one of the drawbacks of this criterion is that study results are not only determined by education itself, but also by many of other factors such as the circumstances under which education takes place and different capabilities of the students. It is important to get insight into these factors before making judgements about the quality of education.

Investigations with respect to the factors which may influence study results belong to the process evaluation. In this evaluation the focus lies on the processes during which education takes place. An important aspect of the process evaluation is linked to the mental processes of medical students during their learning activities. Knowledge about these mental processes has led to cognitive theories and is clearly of central relevance to the teaching and learning of medicine.[11] To investigate how medical students learn, many studies have been done recently.[12-14] Results show that under well-designed curricular conditions, medical students can adopt highly appropriate ways of learning.[15-18] For example, it was found that basic science information makes more sense

when the information is presented in a clinical context. Hence, the design of the curriculum can have effects - either positive or negative - on the efficacy and efficiency of student learning, and the learning processes that occur. Therefore, research into the way students study is important to evaluate whether the study results (product) are determined by the learning processes. Another group of variables that influence education includes among other things the organisation of education, the educational means, the educational environment, the quality of teachers and lectures, and the educational goals or objectives. These variables can be described as input variables. Evaluation of these variables is often part of studies which are set up in medical education, such as the standard internal evaluations by the Dutch faculties,[6-9] the yearly evaluation of Elsevier,[19] and the national evaluation by the visitation commission initiated by the Dutch government.[6]

In summary, the input, the process and the output of education are closely connected, and one can imagine that the quality of the output is strongly influenced by the quality of the input and the process. So, in order to achieve a high quality of education, input, process as well as output (product) should be monitored.

One crucial question with respect to quality control of education is the question to what extent the objectives or goals of education are achieved.[2,20-22] Objectives are of importance in each educational setting because they explain what learning effects medical schools aim at with their students.[1,21,22] Thus, objectives set the standard to measure the learning effects and can be used to define the quality of education.

Because medical education lacked for a long time explicit philosophy or objectives, its quality remained undefined.[23] In the eighties and nineties much research has been done to get insight into the quality of medical education, and international and national studies have shown that medical education varies in quality.[3,4,24-26] Also in the Netherlands medical education is characterized by this phenomenon: the quality not only differs between different universities, but also students within the same medical schools differ in their educational experiences. Therefore, there is an increasing demand to assess and improve medical education. Efforts to improve medical education have resulted in the well-anchored Dutch Blueprint 1994, which states the objectives for undergraduate medical doctors. All medical schools in the Netherlands have ac-

cepted the objectives of the Blueprint.[4] Moreover, in December 1997 a substantial part of the Blueprint has been legislated in the 'Law on Professions in Individual Health Care' (Wet op de Beroepen in de Individuele Gezondheidszorg, BIG).[5] By consequence, Dutch medical schools guarantee that students who pass the final examinations, meet the objectives of the national Blueprint.

The Blueprint sets objectives of medical education especially in the sense of a product or output, but also of a process. In the first place it describes the 'general objectives' in terms of knowledge, skills, and attitudes necessary to function as a good doctor. These matters pertain to medical aspects (the process of medical problem solving), scientific aspects (principles and meaning of science), personal aspects (doctor-patient relation, personal performance, the interaction of work and private life), and aspects of society and health care system (structure and function of health care, medical ethics, legal regulations, costs). Secondly, the Blueprint describes objectives as 'problems' presented by patients (e.g. fever, headache, alteration of defecation pattern) that any doctor must be able to handle. In the third place, objectives are described per medical speciality as diseases (e.g. myocardial infarction, pneumonia, gastroenteritis) and skills (e.g. auscultation of the heart, preparation and examination of urinary sediment, intravenous cannulation).

Because product and process are closely linked, the Blueprint implicitly also sets requirements for the process of education. However, as we have stated earlier, determining the quality of education is more than determining the process and product alone. Karstanje argues that an evaluation which concentrates only on the product, runs the risk to keep guard over the frontdoor without knowing which undesirable person sneaks in.[20] This means that knowledge of the input variables is also of much importance when interpreting the value of the product. When evaluating whether students meet the objectives of the national Blueprint such as acquiring knowledge and experience of specific diseases, it is a requirement that these diseases should be offered by the faculty c.q. hospital as input variables. The general aim of this thesis is to get insight into some of the input variables of the educational process under which the objectives of the Blueprint concerning the described diseases should be achieved.

The central questions in this study are:

1 Can we develop an instrument (and the instructions for its use) that registers in a reliable way the diseases that students have encountered?
2 Are the diseases which students must encounter, indeed available during the clerkship Internal Medicine?
3 If the diseases are available, to what extent do students make use of these diseases?

We tried to answer these central questions by performing:

- a study which evaluates to what extent (the theory of) the national Blueprint matches with (the practice of) the clerkships (Chapter 2)
- a pilot study with regard to the use of a prototype of an instrument (logbook) to register the diseases experienced by students and the instructions for use (Chapter 3)
- a transformation of the national Blueprint into an instrument to be used to register students' experiences with diseases during a clerkship (Chapter 4)
- a study to evaluate whether a department offers medical students sufficient diseases in order to gain experiences with the required diseases (Chapter 5)
- a study to evaluate to what extent students have experiences with the diseases present at a department (Chapter 6)
- a study to evaluate to what extent students differ in their experiences with different types of diseases in a university and in a community hospital (Chapter 7).

The above studies took place during one of the clerkships of the Faculty of Medical Sciences of the University of Groningen, more specifically: the clerkship Internal Medicine.

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