The objectives-based logbook
Raghoebert-Krieger, Helga Maria Josette

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A comparison of the Dutch Blueprint standards (theory) with the experiences of students in clerkships in Groningen (practice)

H.M.J. Raghoebarts-Krieger, W. Bender
Centre for Medical Education, Faculty of Medical Sciences, University of Groningen, Groningen, The Netherlands

Abstract

**Background** A comparison was made between the Dutch national objectives for the education of medical doctors (in terms of clinical experiences and skills) which are stated in the Blueprint, and the extent to which the objectives were realized in six clerkships at the Faculty of Medical Sciences in Groningen.

**Method** From each clerkship, 40 complete logbooks were analyzed.

**Results** On the average the clerkships did not fully meet the national objectives, but they did offer clinical experiences and skills that are not mentioned in the formal objectives. Students varied in their clinical experiences.

**Conclusion** The design of the clerkships should be improved to make them more concordant with national goals. This relates to both cancer education and medical education in general.
Introduction

The Dutch national Blueprint for medical education was developed in response to a growing need to improve and standardize the content of undergraduate medical education in The Netherlands.\textsuperscript{1-3} The Blueprint was published in September 1994.\textsuperscript{1} This document sets forth standards, or common objectives, for undergraduate medical education. First, the Blueprint offers a general description of the attributes needed by the doctor who has just passed his or her final examinations in medical school. The final objectives are set up in three parts. The first part describes the general objectives in terms of the knowledge, skills and attitudes necessary to function as a good doctor, as they pertain to four areas: medical aspects, scientific aspects, personal aspects and aspects related to society and the health care system. The second part lists problems that any doctor must be able to handle. The third part contains objectives that are specific to 11 medical disciplines (Internal Medicine, Neurology, Gynecology/Obstetrics, Surgery, Pediatrics, Psychiatry, Dermatology, Ophthalmology, Otorhinolaryngology (ENT), General Practice, Social Medicine). These discipline-related objectives are formulated as clinical experiences and skills, in terms of both theoretical knowledge and diagnostic and therapeutic performance.

The Blueprint has been adopted by all Dutch medical schools and by the Dutch Government.\textsuperscript{1} Thus, it is to be used as a guideline for the medical curriculum, and medical schools should assess their programs and courses to determine whether they are achieving the objectives in the Blueprint, and if necessary, adjust their curricula accordingly.\textsuperscript{1}

The Faculty of Medical Sciences in Groningen has started to compare the discipline-related objectives with evaluative data collected during its clerkships. Although our research extends to medical education in general, the focus is here on cancer education. The clerkships in this pilot study were in Internal Medicine, Neurology, Gynecology/Obstetrics, Surgery, Pediatrics and Psychiatry.
Materials and methods

Data for the evaluation were collected by analyzing the logbooks that students filled in the period 1989-1993 while rotating through the inpatient and outpatient divisions of the hospital. The logbooks record the cases the students have observed as well as the clinical signs and symptoms of the patients that they have encountered. The logbooks also contain data about the medical skills the students have practiced or observed. We analyzed 40 logbooks per clerkship (a total of 240 logbooks).

The data from the logbooks (patient problems, clinical signs and symptoms, and skills that the students had had experience with during their clerkships) were compared with the discipline-related objectives of the Blueprint. The results of this comparison theoretically fall into three categories: (1) a perfect match between what is required in the Blueprint and what the student has recorded in the logbook (overlap); (2) a Blueprint requirement that is not covered by information found in the logbook (deficit); and (3) an experience recorded in the logbook, but not required by the Blueprint, at least not in the specific section that relates to the clerkships involved (surplus). This theoretical outcome can be presented as a Venn-diagram (figure 1).

![Venn diagram of the relationships between objectives of the Blueprint and the practices of the clerkships](figure1.png)

Results

The correspondences (overlaps) and differences (deficits and surpluses) between the requirements of the Blueprint and the practices of the clerkships (as reflected in the logbooks), illustrated in Figure 1, differed by discipline. Figure
2 shows the relationships between the Blueprint requirements and the clerkship practices by discipline.

The numbers of skills and clinical experiences specified in the Blueprint for the individual disciplines are presented in rank order from high to low. The overlap is that part of the specified skills and clinical experiences that is indeed found recorded in the logbooks. Figure 2 also shows the amounts of the surpluses added, in terms of numbers. Although the specified requirements were not all met, in most clerkships the sheer numbers of clinical experiences and skills mandated by the Blueprint were reached or exceeded by virtue of the surpluses. (We return to this subject in the discussion section).

**Figure 2a** Overlaps and surpluses of skills as set forth in the Blueprint and as reported by groups of 40 students

![Graph showing skills overlap and surpluses](image1)

**Figure 2b** Overlaps and surpluses of clinical experiences as set forth in the Blueprint and as reported by a group of 40 students

![Graph showing clinical experience overlap and surpluses](image2)
It is emphasized that the data in Figure 2 pertain to the groups of clerks (n=40), not to individual students' experiences. In other words, the figures represent only the range of clinical experiences and skills that the hospital offered at the time. They provide no information about individual students.

Figure 3 shows the overlap of skills and clinical experiences as reported by the group of students and per student. There was much variation between students. This was also true for those clinical experiences and skills that are part of cancer education. Not only did the students differ among themselves with respect to the types of cancer patients that they encountered, but they also encountered different numbers of cancer patients. Therefore, it can be concluded that these students, at the end of their clerkships, did not have the same level of knowledge with respect to their clinical experiences and skills. It was not unusual to find that student A had encountered 20 different types of cancer patients, while student B had seen only one type of cancer. But student B had encountered 20 patients with that particular cancer, while student A had not seen it at all. These results corroborate our earlier international study in which we demonstrated great differences between medical students’ learning experiences.4

**Figure 3a** Overlaps of skills as set forth in the Blueprint and as reported by students in a group of 40, and per student
**Figure 3b** Overlaps of clinical experiences as set forth in the Blueprint and as reported by students in a group of 40, and per student

Thus, the mismatch between the required experiences and the actual levels of the experiences has two faces. Sometimes the students' experiences exceed the requirements, and sometimes their experiences fall short. For instance, the Blueprint specifies that the skill pleural tap should be known only at a theoretical level. But most of the students (70%) reported that they had seen this skill used several times, which clearly exceeds the minimum. Similar results were found with respect to the clinical experiences: some students go through a complete diagnostic or even therapeutic process with patients in circumstances recommended by the Blueprint to be adequately covered by only theoretical knowledge. But the opposite also occured; some students missed encountering patients with relevant clinical pictures. However, it is also possible that specific skills or patient encounters missed by students in one clerkship can be substituted for by related diseases or skills in other clerkships (Figure 4).
Figure 4 Venn diagram of the relationships between objectives of the Blueprint and the practices of the clerkships where a deficit in clerkship A is substituted for by a related disease or skill in clerkship B

Discussion

The results of this study strongly suggest that the learning experiences of students during the clerkships both concord and conflict with the objectives as embodied in the Blueprint. However, they do not prove it, because the evaluation data themselves are subject to question. In the first place, the logbook was developed long before the Blueprint was published. Consequently the issue of matching the items of the logbook with the items of the Blueprint was never faced.

Second, there are not yet precise requirements with respect to which and how many cancer patients each student should encounter. Therefore, encounters with cancer patients occur partly coincidentally or as a result of individual interest, and not as the intended result of a well-designed curriculum.

In the third place, the interpretation of the data recorded in the logbooks remains tentative until we know more about the relationships between the opportunity for, capacity for, and utilization of educational experiences. It is not known in detail what opportunities for clinical experiences and training in medical skills are available in the hospital. It is also partly unknown whether the available educational opportunities are sufficient to provide all students with the relevant experiences. Moreover, even if opportunities and capacity are sufficiently available, this does not necessarily mean that all students will take advantage of them. This applies with greater force to an educational setting in which students do not know what is required.

Finally, behind the evaluation data hides a complicated relation between the terms ‘overlap’, ‘deficit’ and ‘surplus’. A deficit does not always mean that
a student lacks relevant knowledge and skills. The overall picture of the six clerkships shows that a deficit in one clerkship may be compensated for by a related clinical experience or skill in another clerkship. For instance, the Blueprint relates Hodgkin's disease to Internal Medicine. Some students however, meet patients with Hodgkin's disease in the Surgery department (surplus) and not in the department of Internal Medicine (deficit). Although it is debatable whether in this example the surplus compensates for the deficit, it demonstrates the ambiguity of some of the evaluative data.

Conclusion

With regard to both cancer education and medical education in general, the clerkships at our hospital do not completely meet the objectives of the Blueprint. To fulfill the requirements of the Blueprint, improving the design of the clerkships is a first and necessary step. This includes a better insight into the availability of clinical material and facilities, as well as a better understanding of the implications of surpluses and deficits.

References
