

- 6 exposing students to new experiences, and
- 7 inspiring students.

The rank ordering of this list by students and faculty brought several mismatches to light. The correlation between student and faculty ratings was only moderate ($r = 0.49$). Although both groups rated skill building as the most important objective, students found being exposed to new experiences as important as skill building, whereas faculty considered this far less important. Furthermore, faculty ranked 'awareness and understanding of health disparities' much lower than students did. Instead, they gave more weight to more general objectives, such as 'strengthen confidence and self-efficacy'. Students, by contrast, found the latter the least important of all objectives. As a result of this self-study process, several programme changes have been made, including the provision of more clinical experiences for students. In conclusion, as the programme continues to evolve, students and faculty members may reach more closely matched expectations, espouse congruent goals, and collaborate to create an environment in which learning experience can be refined.

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An online learning objectives database to map a curriculum

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Context and setting Although studies have shown variant results concerning the effectiveness of learning objectives in increasing learning success and extended memory, all agree that the defining of learning objectives is important for effective teaching and learning.

During the last 5 years, fundamental curriculum reform has been realised at the medical school at the University of Munich. Course content has been reorganised and the integration of 'new' teaching methods, such as problem-oriented learning and e-learning, has been increased. However, despite these efforts, learning objectives for the complete curriculum have not been defined consistently.

Why the idea was necessary Some departments publish a catalogue of learning objectives for their courses (e.g. as a pdf file) for the use of students. However, these separate and multiform catalogues are often overly

extensive and arcane, and do not allow those in charge of the curriculum to reach conclusions about its overall consistency. This lack of consistency makes it difficult to answer the following questions.

- Are all relevant learning objectives covered? Which are missing?
- How is a learning objective incorporated into the curriculum?
- Do redundancies exist? If so, are they useful or do they represent planning errors?
- What are the priorities of the curriculum?

What was done In order to answer these questions, an online tool for developing a curriculum map based on specific learning objectives and standard catalogues (e.g. the Swiss Catalogue of Learning Objectives) was developed. It provides the following functions:

- teachers can enter their course and examination data including metadata, specific learning objectives and requirements; the learning objectives and requirements have to be connected to 1 or more catalogue entries and assigned to courses using connection parameters, such as context, time and quantification;
- a prefix ('the learner should be able to...') and a list of 20 measurable verbs is pre-set within the software in order to enable a minimum standardisation for defining learning objectives;
- learners can access the database and obtain information about their curriculum, and
- curriculum planners can analyse the mapped curriculum and deduce inconsistencies and improvements.

Currently, the deducible inconsistencies include:

- learning objectives which are not covered;
- learning objectives which are covered but are not relevant;
- learning objectives which are covered multiple times;
- inconsistencies in timing (such as when a prerequisite is taught before the course for which it is required), and
- whether the learning objectives match examination content.

Evaluation of results and impact The medical curriculum in surgery and internal medicine at the University of Munich is currently mapped using this new planning device.

A pilot study was implemented in occupational as well as environmental medicine. Both curricula were mapped and evaluated during the winter term of 2006–07 and the results analysed. The results of the study will be considered when planning subsequent terms.

The evaluation of the mapping and analysing process highlights the following aspects of the exercise:

- agreement on the catalogues used as standard;
- quality of the learning objectives;
- the review process;
- thorough consideration of all learning materials, including e-learning, and
- motivating teachers to participate.

Further studies will determine how useful the tool is for comparing curricula and developing learning catalogues in content domains without standard catalogues.

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Teaching pre-clerkship clinical skills via clinical exposure

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Context and setting Clinical skills development has increasingly become a leading objective of pre-clerkship medical education. Authentic patient care experiences foster desired clinical competencies, generate enthusiasm about learning, and facilitate passage into clerkships. At our institution, an integrated, problem-orientated curriculum includes doctoring and clinical skills ‘threads’ woven across the first 2 years. Within this context, we describe 2 innovative paediatrics clinical skills workshops designed to expose Year 1 and 2 medical students to clinical education objectives in a practice-based environment.

Why the idea was necessary Pre-clerkship education offers medical students limited opportunities to observe or practise patient care in a clinical environment. However, students need to be situated in a clinical context to comprehend the complexity of competencies applied in patient care. The workshops in paediatric clinical care were designed to

overcome the limitations of pre-clinical education and explicitly address clinical education objectives.

What was done The workshops introduced students to essential skills of paediatric clinical care and provided opportunities for:

- observing and participating in a complete paediatric history taking and physical examination;
- synthesising medical knowledge;
- evaluating patients and using evidence to improve knowledge and practice;
- becoming effective communicators;
- practising culturally competent care, and
- understanding paediatrics in the context of the global health care system.

In the Year 1 workshop, 150 medical students were divided into teams of 10. Each team rotated through multiple, case-based stations, obtaining a paediatric history and an adolescent history. The teams observed demonstrated introductions to approaching the paediatric physical examination, the newborn infant examination, and the surveying of developmental milestones. Paediatric and newborn physical examinations, and family communication were modelled by residents and faculty. The Year 2 workshop was a patient-based exercise intended to supplement its Year 1 counterpart, which emphasised the clinical bedside setting as the arena for learning key interviewing skills, information-gathering skills, basic physical examination techniques, and basic developmental assessment.

As a formative assessment, students completed a team assignment summarising their assessment of the patient, management and plan (if known). They identified and answered a clinical question using evidence-based medicine. A faculty member or resident facilitator reviewed each team’s process, findings and conclusions on paediatric clinical care skills based on the core competency requirements for resident education. Information on vital signs as compared with normal values, growth and body mass index curves, and paediatric pain assessment was elicited. The principles of using literature-based evidence to augment clinical care were probed. Direct and indirect costs of this patient’s health care, the need for a comprehensive review of the patient’s family’s global history and belief system, the basics of cultural sensitivity and competency, any identified barriers or challenges in patient care, and an assessment of communication with the patient and family were discussed.

Evaluation of results and impact Both paediatric care clinical skills workshops were evaluated on a Likert