

Proefschrift

In-training assessment, in a work-based postgraduate medical education context

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This thesis builds around the theme in-training assessment (ITA) as it applies to a work-based postgraduate medical education context, in this case anaesthesiology. By the introduction of a broad and practice-based concept of competence, traditional strategies of assessment in postgraduate education come short. In order to ensure structured development of the trainees into competent individual practitioners, there is a need for a new approach in medical education using assessment as an on-going part of the learning process, and ITA strategies seem to be a means to meet that end. The special conditions for postgraduate education being based in a busy working context offers some unique challenges in compiling a programme that sufficiently covers the content and at the same time is feasible in practice without bureaucratic overloading of the users. Finally, the programme should aim at avoiding a blame and shame culture while serving its summative purpose of ensuring performance standards and quality of care and patient safety.

The overall research question was: How do theory on education and previous research outcomes inform the design and content of ITA in a work-based postgraduate medical education context and how does that apply to a specific programme in actual practice?

The first study deals with the internal rational validation process and how the theory on education and previous research outcomes informed the design and content of ITA. The main results were that ITA should be compiled in a programme sequentially dispersed over the training and appreciating trainees' professional development. Further, task specific checklists might be preferred over global rating forms in the clinical setting. Finally tailoring content, format, and programming of ITA to specialty characteristics was important.

A specific ITA programme for first year residents in anaesthesiology was elaborated. The programme addressed a broad aspect of competence and included twenty-one individual

elements. In the ITA programme standards of performance were defined in task specific competence cards that included a checklist and some theoretical questions applying to the procedure.

The second study describes the content validity of the outline of the ITA programme. This was obtained by surveying consultants' opinion of the programme in terms of the representativeness of the aspects assessed, the perceived suitability of the programme as a basis for pass/fail decisions, and the relevance and sufficiency of the content of the different assessment instruments. Two hundred and fifty one consultants (66%) responded to the survey questionnaire. More than 75% of these agreed that the ITA programme offered adequate coverage of the curriculum for first-year trainees and was appropriate for making overall pass/fail decisions.

The third study evaluated the feasibility of task specific checklists vs. global rating forms addressing general aspects of competence for the purpose of assessing trainees' clinical performance in postgraduate education. A representative sample of 32 clinicians participated in an experimental study. The participants were randomised into two groups, each of which used one of the scoring formats to assess a resident's performance in four simulated clinical scenarios on videotape. The clinicians rated the appropriateness of checklist format significantly higher compared with the global rating form (mean 4.6 SD 0.5 vs. mean 3.5 SD 1.4, $p < 0.001$). The inter-rater agreement regarding pass/fail decisions was poor irrespective of the scoring form used. This was explained by clinicians' leniency as assessors and non-compliance with the assessment protocol rather than by lack of vigilance in the observations or disagreements on standards for good performance.

The fourth study deals with the feasibility of the ITA programme and reports the results of a survey of the implementation nation-wide. Responses were obtained from 25 (96%) of the clinical departments who reported that in total 83 out of 100 possible candidates had been enrolled in the programme. The vast majority of the 21 elements of the programme were implemented. In general the programme was well accepted by both trainees and trainers. The positive aspects of the programme included making goals and objectives clear, being of help in structuring training, teaching, and learning, and in documenting and monitoring trainees' progress. Barriers to implementation were time

constraints and resistance among some of the senior colleagues to take on the task of being assessor.

The fifth study reports on how the programme works in actual practice and how that affects the perceived educational impact. Information on these issues was obtained from three clinical departments by semi-structured interviews of programme directors, supervisors, and trainees. Three inter-related factors appeared to influence the perceived value of ITA: the link to patient safety and individual practice using assessment as a licence to practice un-supervised rather than end of training assessment. Secondly, the benefit to educators and learners in the educational process rather than mere documentation of competence, and finally the attitude and rigour of assessment practice.

The final study was a nation-wide survey of junior doctors' clinical confidence before and two years after the introduction of ITA. The results demonstrated that confidence within a broad spectrum of clinical competence did not change as a result of introducing ITA. This is contradictory to the results of the previous studies indicating that ITA fostered learning. Lack of timely application of assessments according to the trainees' individual practice seems to be a plausible explanation of the results. Future studies on the effect of ITA on trainees' actual competence are needed.

In conclusion theory on education and previous research outcomes inform that design and content of composite ITA programmes must appreciate specialty characteristics and be tailored to trainees' levels of experience in order to support the development of competence. The conclusion on the specific ITA programme for first year trainees in anaesthesiology and studies of this programme in actual practice is that the programme proved feasible as to the implementation and the users appreciated the structure in the programme. Despite evidence that instruments using global scoring of competence are more efficient to develop and administer, clinicians prefer instruments that are sufficiently specific to serve as a tool for learning and be of help to the trainers in providing feedback and monitoring progress. The perceived value of ITA in a work-based context was linked to timeliness of assessments. The programme had no effect on trainees' level of clinical confidence measured before and two years after introduction of ITA. The impact of ITA on actual competence remains to be studied in the future.