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Development and piloting of a blended learning training programme for physicians and medical students to enhance competences in evidence-based decision-making

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Declaration of interest

The authors declare that they have no financial conflicts of interest.

They are members of the *German Network for Evidence-based Medicine*.

Background

Evidence-based practice is a prerequisite for high-quality healthcare and best patient outcomes.

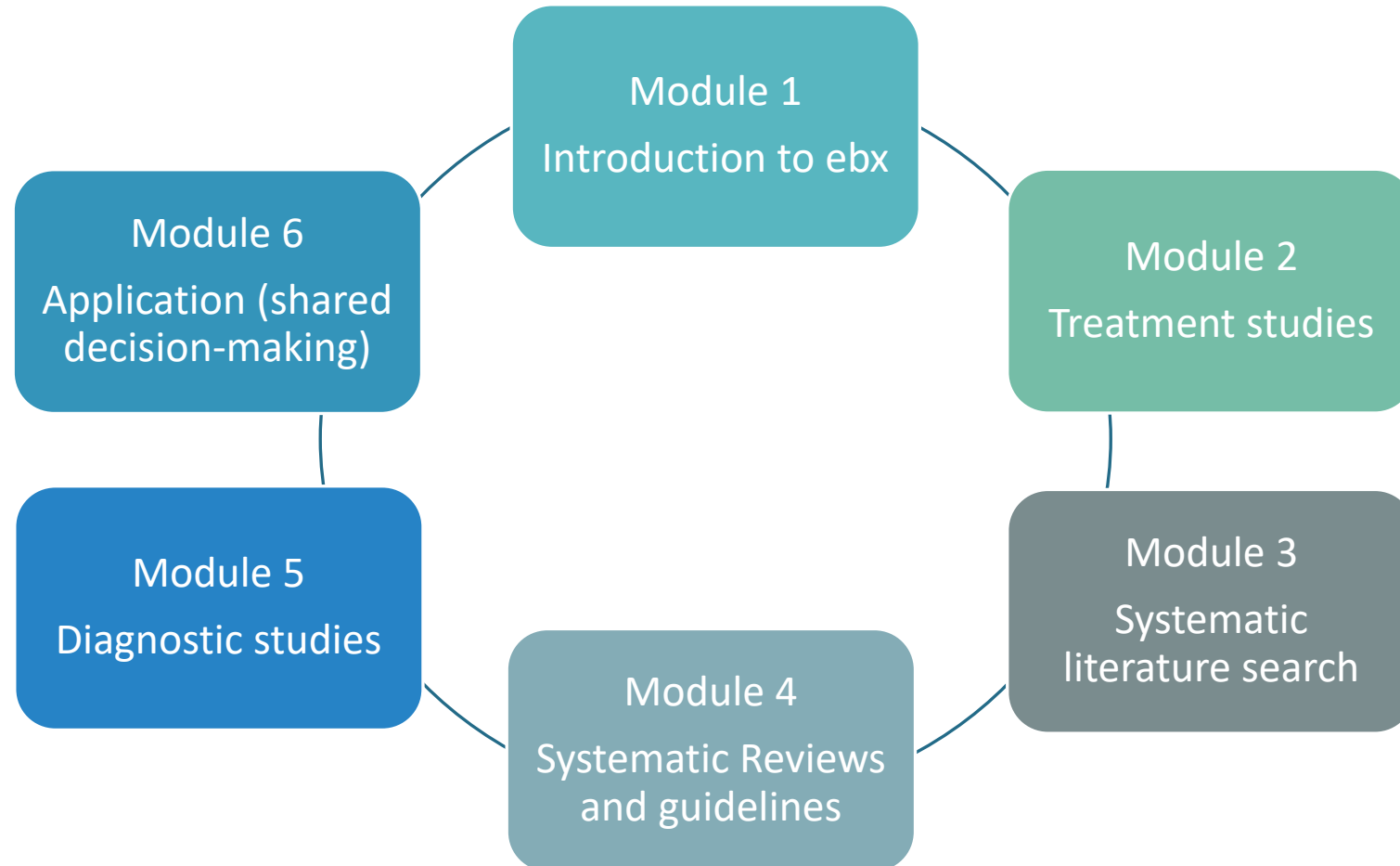
Clinical decisions should be supported by accurate, timely, and up-to-date clinical information, and should reflect the best available evidence. [\[Institute of Medicine 2009\]](#)

Despite some efforts, training in evidence-based medicine is still no inherent part of medical training. [\[Weberschock 2013\]](#)

The risk literacy of physicians is low. [\[Wegwarth 2018\]](#)

In 2016, the German Network for Evidence-based Medicine developed a basic curriculum for competences in evidence-based decision-making. [\[Steckelberg 2017\]](#)

Curriculum evidence-based decision-making



Aims

Our aims were ...

... to develop a blended learning training programme for physicians and medical students.

... to test the training programme for acceptance and feasibility.

... to generate hypotheses concerning its influence on critical health literacy.

Methods

We followed the UK Medical Research Council's guidance for the development and evaluation of complex interventions. The study protocol is available online.

Development

- The training was conceptualised as a blended learning programme.
- We chose a problem-based scenario and set up a case example about smoking cessation.

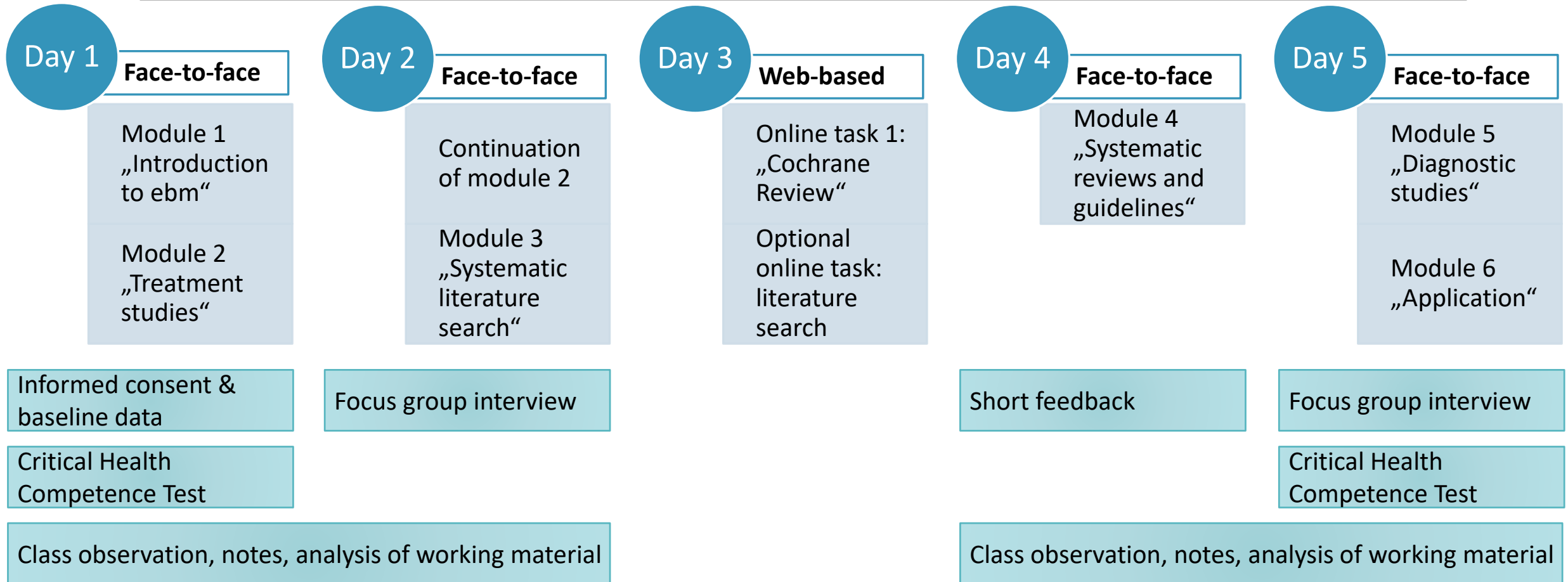
Qualitative pilot study

- Feasibility and acceptability were investigated from the perspective of learners and teachers.
- Interview transcripts and documentations were analysed using qualitative content analysis of Mayring. [\[Mayring 2014\]](#)

Critical health literacy

- Assessed by using the Critical Health Competence test (CHC test).
- Mean person parameters with a range from 0 to 1,000 were calculated. [\[Steckelberg 2009\]](#)

Blended learning training programme



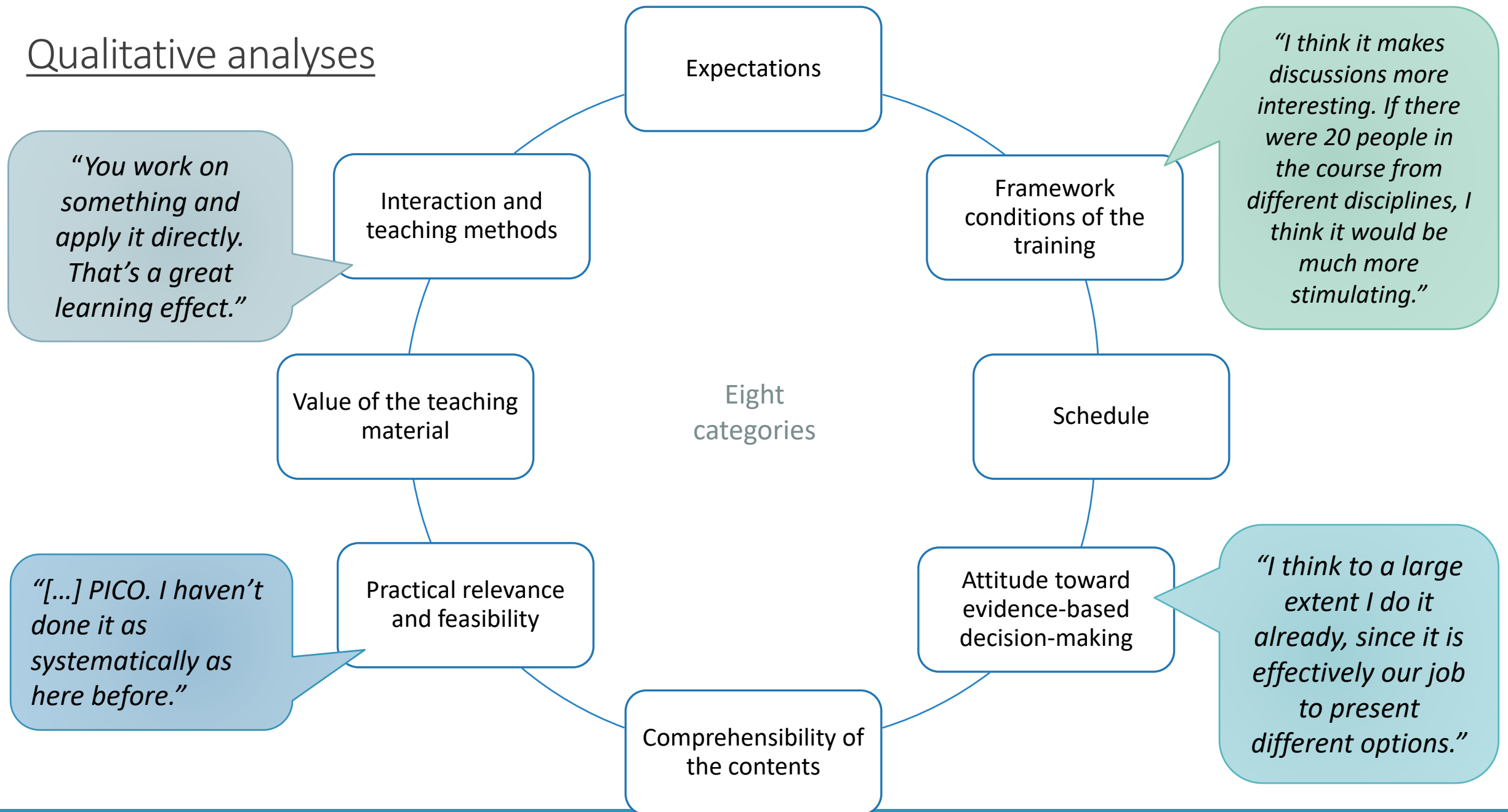
Results

We performed two trainings:

- January 2019, Berlin Chamber of Physicians (Ärztekammer Berlin), Berlin, Germany
- March 2019, Halle School of Health Care (HSHC), Halle (Saale), Germany

| Baseline characteristics (n=29) | | |
|-------------------------------------|---------------------|------|
| Sex | Female | 18 |
| Age | Mean | 44.4 |
| Occupation | Research scientist | 5 |
| | Assistant physician | 6 |
| | Medical specialist | 11 |
| | Senior physician | 1 |
| | Other | 6 |
| Continuing medical education in ebm | Yes | 11 |
| | No | 18 |
| Ebm knowledge (n=28) | Very good / good | 7 |
| | Moderate | 15 |
| | Little | 6 |
| Access to the Cochrane Library | Yes | 11 |
| | No | 13 |
| | I don't no | 5 |

Qualitative analyses



Main results feasibility & acceptance

Participants' expectations were met. They appreciated the interactive instructional design and judged the case example about smoking cessation as relevant and helpful.

Comprehensibility of the learning modules was rated as high. However, practical exercises revealed that relevant subjects were insufficiently understood.

The training folder was appreciated in order to make notes. Participants appraised the work tasks as comprehensible but also challenging.

Regarding theory-practice transfer, the steps of shared decision-making were seen as helpful structuring consultations. It was seen as a barrier that shared decision-making would be time-consuming and that good information material is missing quite often.

→ The programme was revised according to the results.

Critical health competence

22 participants completed both scenarios of the CHC test.

| | Mean (\pmSD) before training | Mean (\pmSD) after training | P value |
|--------------------------|--|---|----------------|
| Person parameters | 571.21 (\pm 82.87) | 671.90 (\pm 51.38) | <0.0001 |

Limits

Recruitment problems were encountered despite intensive advertising. The location and / or the hosting organization might be an important factor.

Not all participants were practitioners being able to judge the practical relevance of the training.

The researchers who developed and conducted the training also analysed the data.

Only 22 participants completed the CHC test. The instrument has been validated in groups of trained and untrained secondary school and university students and not in physicians.

Bottom line

The training programme was feasible and might increase critical health competences.

After successful evaluation in a randomised controlled trial, the course should be established as a continuing medical education opportunity for practitioners.

The training could also easily be adapted to an interprofessional training.

A concept for long-term implementation needs to be derived in order to reach the goal of facilitating evidence-based practice.

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