PINET
Personalized Integrated Evidence-Based Medicine teaching for trainees in General Practice:
a Randomized Controlled Trial

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Julius Center
for Health Sciences and Primary Care
GP training program in the Netherlands

- Three years
- Two years in general practice, 1st and 3rd year
- EBM\(^1\) = part of the training programme
- Goal: evidence based performance
Why do I need EBM?

Assignment with problem

Clinical problem

Hypothetical scenario

• Not practical
• EBK knowledge and skills

Not (direct) clinically relevant

• Forgets soon
• Not interesting for supervisor

Does not use newly learnt in clinical practice

“Why do I need EBM?”

“EBM is useful!”

Direct clinically relevant

Applicable in clinical practice

• Incorporates into discussion/journalclub
• Interesting for supervisor

Uses newly learnt in clinical practice

Staged EBM training

Background

Aim

Methods

Results

Limits

Bottom line
<table>
<thead>
<tr>
<th>Background</th>
<th>Aim</th>
<th>Methods</th>
<th>Results</th>
<th>Limits</th>
<th>Bottom line</th>
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</table>

**Aim**

To compare the effects of an integrated EBM training program to a standalone EBM training program on seeking behavior in daily clinical practice, EBM attitude and EBM knowledge.
PINET
Prospective cluster-randomized, pragmatic, controlled trial

Follow up period: 2 years

3rd year GP-trainees
UMC Utrecht

START: March 2011

STANDALONE EBM TRAINING

1

INTEGRATED EBM TRAINING

1

1 year after graduation

END: December 2013
Outcomes

Knowing = KNOWLEDGE

Application = SKILLS

Show = SKILLS

Doing = BEHAVIOR

Background | Aim | Methods | Results | Limits | Bottom line
---|---|---|---|---|---
Log
Digital, 8 days, all patients

Questionnaire
Paper, 3x, 1 hour

1

2

3
Trainees (n=82)

Exclusion (n=3)

Randomized (n=79)

Integrated EBM training (n=39)

Primary outcome (n=27, 69%) Secondary outcomes (n=33, 85%)

Exclusion (n=12)
1. No baseline (1)
2. No follow up (11)

Regular EBM training (n=40)

Primary outcome (n=32, 80%)
Secondary outcomes (n=33, 83%)

Exclusion (n=8)
1. No baseline (2)
2. No follow up (6)

Exclusion (n=7)
1. No baseline (0)
2. No follow up (7)
Mean scores, before vs. after

**Seeking behavior**  
(max: 100%)

**EBM attitude**  
(max: 100)

**EBM knowledge**  
(max: 50)
# Seeking behavior (0-100%)

<table>
<thead>
<tr>
<th></th>
<th>Model 1 (n=59)</th>
<th>Model 2 (n=54)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>estimate</td>
<td>95% CI</td>
</tr>
<tr>
<td>Baseline (0-100%)</td>
<td>0.91^</td>
<td>0.08 ; 11.1</td>
</tr>
<tr>
<td>Intervention</td>
<td>9.9</td>
<td>-5 ; 25</td>
</tr>
</tbody>
</table>

**EBM supervisor**

|                  |                |
| Attitude (0-100%)| 0.10           |
| Knowledge (0-50%)| 0.18           | -1.2 ; 1.6     |
### EBM attitude (0-100)

<table>
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<tr>
<td></td>
<td>estimate</td>
<td>95% CI</td>
</tr>
<tr>
<td>Baseline (0-100)</td>
<td>0.39</td>
<td>0.11 ; 0.68</td>
</tr>
<tr>
<td>Intervention</td>
<td>54</td>
<td>30 ; 77</td>
</tr>
</tbody>
</table>

**EBM supervisor**

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</thead>
<tbody>
<tr>
<td>Attitude (0-100)</td>
<td>0.05</td>
<td>0.02 ; 0.07</td>
</tr>
<tr>
<td>Knowledge (0-50)</td>
<td>0.38</td>
<td>0.0 ; 0.75</td>
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</tbody>
</table>
## EBM knowledge (0-50)

<table>
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</tr>
</thead>
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<tr>
<td><strong>Fixed effects</strong></td>
<td><strong>estimate</strong></td>
<td><strong>95% CI</strong></td>
</tr>
<tr>
<td>Baseline (0-50)</td>
<td>0.98 (^\wedge)</td>
<td>0.94 ; 1.01</td>
</tr>
<tr>
<td>Intervention</td>
<td>0.18</td>
<td>-1.54 ; 1.90</td>
</tr>
<tr>
<td><strong>EBM supervisor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude (0-100)</td>
<td>0.01</td>
<td>0.0 ; 0.02</td>
</tr>
<tr>
<td>Knowledge (0-50)</td>
<td>0.06</td>
<td>-0.12 ; 0.24</td>
</tr>
</tbody>
</table>

**Note:** Estimates and confidence intervals are provided for different models and models.

**Aim:**

**Methods:**

**Results:**

**Limits:**

**Bottom line:**
Limits

Methods
- Loss to follow up
- High baseline level
- Logs

Intervention
- Contamination
- Differences in implementation of integrated parts (n=17)
  - 94% educational dialogue with supervisor (1/week <-> less than 1/month)
  - 47% appraisal of an article
  - 53% one or more e-learning courses
  - 22% online coaching
Bottom line

• Effect intervention non-significantly
• Different implementation of integrated parts
• Without intervention: loss in EBM behavior and attitude compared to baseline
• With intervention: “less loss....”
• Supervisors’ EBM attitude and EBM knowledge are influencing factors
Questions?

"JUST THINK OF IT AS IF YOU'RE READING A LONG TEXT MESSAGE."

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