

Annex 5.

The WHO guideline development process

A WHO guideline is any document that contains WHO recommendations about health interventions, whether clinical, public health or policy related. A recommendation provides information about what policy-makers, health-care providers or patients should (or should not) do or consider doing. It implies a choice between different interventions that have an impact on health and that have ramifications for resource use.

Two Guideline Development Group meetings were held. The first meeting was held in Geneva, Switzerland 9-11 May 2011. Participants in the first meeting addressed and agreed on the scope, objectives, target audience, outcomes framework, categories and the potential PICO questions under each domain of the Guidelines. The group then proceeded to discuss and finalize PICO questions. A GRADE example using interprofessional education, one of the PICO questions, was presented to the group and provided the opportunity to discuss the methodology and ask questions.

The systematic reviews, evidence tables and GRADE profiles were prepared in accordance with GRADE as illustrated in Figure 5 below. 11 systematic reviews were commissioned and completed by August 2012. In addition a feasibility and acceptability survey gathered the views of 136 stakeholders and potential beneficiaries of the recommendations from all WHO regions about the acceptability and feasibility of each of the interventions being considered. A similar survey with civil society survey (169 respondents) provided views and expectations on the main areas of interest.

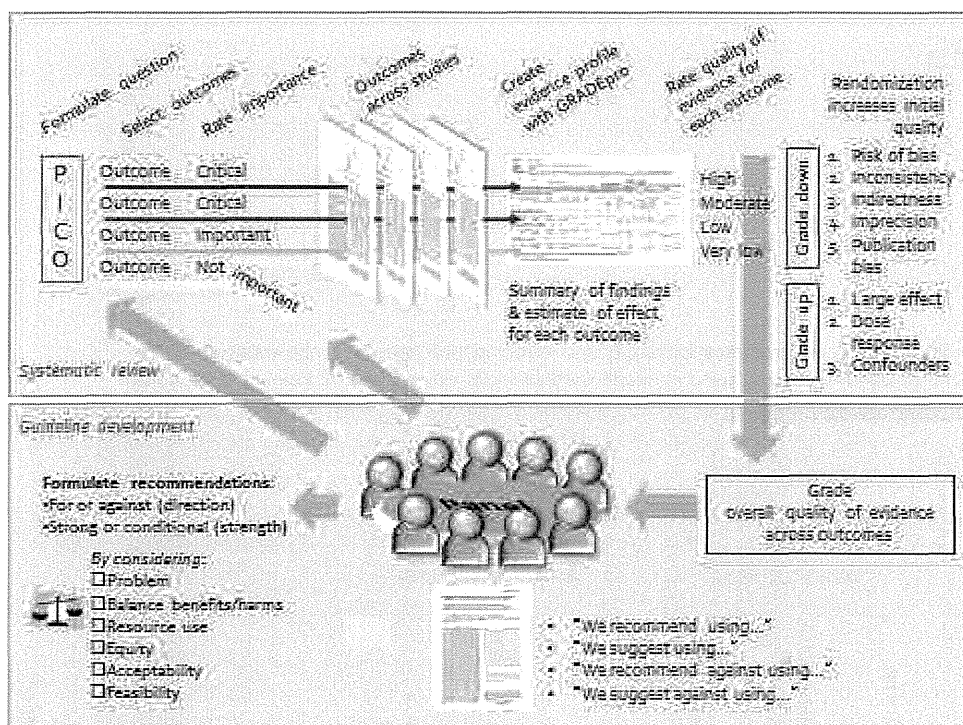
The second Guideline Development Group meeting was held at the Pan American Health Organization in Washington DC 20-22 March 2012. The purposes of the second meeting were as follows: review the findings from the systematic reviews and other evidence gathered; finalize decision tables and agree on the wording of draft recommendations; agree on each recommendation's direction and strength (conditional or strong); decide on next steps for finalizing the recommendations; and discuss strategies for launching and translating the recommendations into action. In the period between the two meetings, a Knowledge Gateway site was created where members of the Guideline Development Group could visit to download documents posted for comment/review by the WHO Geneva Secretariat.

WHO has followed the GRADE system for developing recommendations since 2008. The system separates the rating of the quality of the evidence from the rating of the strength of the recommendation. The quality of evidence reflects the extent of our confidence that the estimates of an effect are adequate to support a particular decision or recommendation. The GRADE system classifies the quality of evidence as high, moderate, low and very low. The GRADE framework considers the following factors when deciding on the quality of evidence: type of study design, risk of bias, imprecision, indirectness, inconsistency, publication bias, dose response, large effect size and plausible confounding.

The direction and strength of the recommendation reflects the extent to which the Guideline Development Group was confident that the desirable effects of following a recommendation are greater than the potential undesirable effects. In terms of implications, a strong recommendation can be adopted as a policy in most situations. A conditional recommendation implies the need for substantial debate and involvement of stakeholders in deciding whether or not to adopt the recommendation. In some cases, the panel may decide to qualify the conditional recommendation by providing the "conditions" under which it should be considered. Examples of these conditions include: ensuring availability of experienced staff, space or equipment, conducting needs assessment, and integrating the new intervention within existing programs. One specific type of conditions is implementing the intervention "in the context of close monitoring and evaluation". This is appropriate when monitoring of the fidelity of implementation of the intervention and evaluation of some short-term outcome can ensure optimal implementation and adaptation if necessary. Another specific type of conditions is implementing the intervention "only in the context of rigorous research". This is appropriate when there is a relatively high degree of uncertainty whether the desirable effects of following the recommendation are greater than the potential undesirable effects and the panel feels that the intervention should be adopted only when there is an opportunity to generate the needed evidence.

The Guidelines Development Group used a standardized decision table for transparently recording the panellists' judgments (Annex 7). All decisions were reached by agreement through discussion and consensus, including the direction and strength of recommendations and key considerations attached to the recommendations. Information from the evidence tables was used to develop the GRADE profiles for the final list of recommendations. The development of the Guidelines document was iterative with drafts of the Guidelines document circulated via email to the Guidelines Development Group, and then to peer reviewers for comment. Differences in points of view were resolved through email discussions. Questions and requests for clarification were also addressed prior to incorporation into the final draft.

Figure 5 Process of formulating recommendations



Acknowledgment: Dr. Holger Schunemann

Annex 7 provides the decision tables used by the Guidelines Development Group. The domains used to determine the strength of recommendations are described below in table 5.1

Table 5.1 Domains of decision tables

Problem	The magnitude of the problem in terms of the numbers of the target group affected.
Benefits and harms	Desirable effects (benefits) need to be weighed against undesirable effects (harms). The more that the benefits outweigh the risks, the more likely that a strong recommendation will be made.
Resource use	Lower costs (monetary, infrastructure, incremental costs, equipment or human resources) or greater cost-effectiveness will more likely result in a strong recommendation.
Feasibility, acceptability, equity	These judgements give an indication of the likelihood of the implementation of the recommendation.

Annex 6.

Grade profiles

Recommendation 1


Author(s): Elie Akl

Date: 2013-09-23

Question: Should continuous development programmes for faculty and teaching staff relevant to the evolving health-care needs of their communities be used in health professionals' education and training institutions?

Settings: Undergraduate and postgraduate programs

Bibliography: See evidence table

Quality assessment							Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Quality (assessed with: reported behavior, confidence in skills, surgical skills)									
4 ¹	randomised trials	no serious risk of bias ²	no serious inconsistency	serious ³	no serious imprecision	none	Residents assigned to the intervention group reported statistically significant changes in all behaviors ($p < 0.05$). intervention group faculty were more stringent than controls in their evaluations	 MODERATE	CRITICAL
Relevance - not measured									
0	-	-	-	-	-	-	-	-	CRITICAL

1 Results of observational studies generally support the results of RCTs

2 No major risk of bias described

3 Studies from high income countries. Surrogate outcomes

* The results across studies were not meta-analyzed given the variability in the outcome measures used, and the way they were analyzed and reported.

Recommendation 2

Author(s): Elie Akl
Date: 2013-09-23
Question: Should governments, funders and accrediting bodies support continuous development programmes for faculty and teaching staff relevant to the evolving health-care needs of their communities, \in health professionals' education and training institutions?
Settings: Undergraduate and postgraduate programs
Bibliography: See evidence table

Quality assessment							Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Quality (assessed with: reported behavior, confidence in skills, surgical skills)									
4 ¹	randomised trials	no serious risk of bias ²	no serious inconsistency	very serious ³	no serious imprecision ⁴	none	Residents assigned to the intervention group reported statistically significant changes in all behaviors (p<0.05). Intervention group faculty were more stringent than controls in their evaluations	LOW	CRITICAL
Relevance - not measured									
0	-	-	-	-	-	-	-	-	CRITICAL

- 1 Results of observational studies generally support the results of RCTs
- 2 No major risk of bias described
- 3 Studies from high-income countries. Surrogate outcomes. Moreover, the question relates to support by governments, funders, and accrediting bodies, which makes the evidence more indirect compared with the previous question
- 4 No pooled effect estimate and CI to assess precision

* The results across studies were not meta-analyzed given the variability in the outcome measures used, and the way they were analyzed and reported.

Recommendation 3

Author(s): Elie Akl
Date: 2013-09-23
Question: Should innovative expansion of faculty, through the recruitment of community-based clinicians and health workers as educators be used in the education of health professionals?
Settings: Health professionals' education and training institutions
Bibliography: Refer to decision tables

Quality assessment							Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Quality (assessed with: perceived quality)									
3	randomised trials	no serious risk of bias	serious ¹	serious ²	no serious imprecision ³	none	Results suggest that quality of care provided by untrained professionals is inferior or equal to that provided by trained professionals	LOW 	CRITICAL
Relevance - not measured									
0	-	-	-	-	-	none	-	-	CRITICAL
Quantity - not measured									
0	-	-	-	-	-	none	-	-	

1 No statistical assessment of heterogeneity available, but appeared to vary across 3 studies
 2 Studies conducted in high income countries. Outcomes are surrogate
 3 No pooled effect estimate to evaluate

* No pooled effect estimates available

Recommendation 4

Author(s): Elie Akl
Date: 2013-09-23
Question: Should adapting curricula to the evolving health-care needs of their communities be used in education and training institutions?
Settings: Health professionals' education and training institutions
Bibliography: Refer to list of studies in Evidence table

Quality assessment							Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Quality (assessed with: pass rates and performance on exams, report of target community members with improved health behavior)									
9	observational studies	no serious risk of bias ¹	no serious inconsistency	serious ²	no serious imprecision	none	Findings consist of improved pass rates and performance on exams, report of target community members with improved health behavior	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> VERY LOW	CRITICAL
Relevance (assessed with: choice of practice in community settings, primary care career)									
4	observational studies	no serious risk of bias ¹	no serious inconsistency	serious ³	no serious imprecision	none	Studies found both increased choice of practice in community settings, and increased chose of a primary care career	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> VERY LOW	CRITICAL

- 1 No adjustment for confounding
- 2 No explanation was provided
- 3 All studies conducted in high income settings. Some of the outcome measurements can be considered surrogates (self reported)

Recommendation 5

Author(s): Elie Akl
Date: 2013-09-12
Question: Should simulation methods of varying levels of fidelity be used in the education of health professionals?¹
Settings: Health professionals' education and training institutions
Bibliography: Cook, D. A., R. Hatala, et al. (2011). "Technology-Enhanced Simulation for Health Professions Education: A Systematic Review and Meta-analysis." JAMA: Journal of the American Medical Association 306(9): 978-988

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Simulation methods of varying levels of fidelity	Control	Relative (95% CI)	Absolute		
Quality (measured with: Effects on patient care ² ; Better indicated by higher values)												
14 ³	randomised trials	no serious risk of bias ⁴	no serious inconsistency ⁵	serious ⁶	no serious imprecision ⁷	none ⁸	271	270 ⁹	.	SMD 0.37 higher (0.20 to 0.54 higher)	○ ● ● ● MODERATE	CRITICAL
Relevance - not measured												
0	.	.	.	.	.	none	.	.	.	.	.	IMPORTANT

1 Systematic review included studies in medical students, physician trainees, physicians in practice, nurses, nursing students and other health professionals
 2 Meta-analyses for related outcomes (knowledge, skills, and behaviors) showed large effects consistent with results for patient-related outcomes
 3 Out of 38 included studies, 12 were randomized. Results of these 2 groups of studies were consistent, although effect size was lower for RCTs compared with non RCTs (0.37 vs. 0.50)

Recommendation 6

Author(s): Elie Akl
Date: 2013-09-19
Question: Should direct entry of graduates from relevant undergraduate, postgraduate, or other educational programmes into different or higher levels of professional studies be used in the education of health professionals?^{1,2}
Settings: Health professionals' education and training institutions
Bibliography: Please refer to list of studies in Evidence table

Quality assessment									Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations					
Quality											
40	observational studies	no serious risk of bias ³	no serious inconsistency ⁴	serious ²	no serious imprecision ⁵	none	Qualitatively, the effects of direct entry on quality were either equivalent and sometimes better than those of the control	○ ● ● ● ● ● MODERATE	CRITICAL		
Quantity											
7	observational studies	no serious risk of bias ³	no serious inconsistency ⁴	serious ²	no serious imprecision ⁶	none	Qualitatively, the effects of direct entry on quantity were either equivalent and sometimes better than those of the control	○ ● ● ● ● ● LOW	CRITICAL		

1 Studies assessed: graduate entry programs, accelerated programs, direct entry programs

2 Most studies come from high income countries

3 No detailed assessment of risk of bias for included studies was reported. We did not downgrade for risk of bias, but considered the potential risk of bias when downgrading for indirectness

4 Although no statistical assessment of heterogeneity is provided, the results were consistent in that the direct entry were at least equivalent (sometimes better) than control for this outcome


5 Although no meta-analysis is conducted, given the large number of included studies, and the apparent consistency of the results, the results were judged not to be imprecise

6 Although no meta-analysis is conducted, and although the number of studies was not that high, we did no downgrade for imprecision given the apparent consistency of the results and given we already downgraded for indirectness

* The results across studies were not meta-analyzed given the variability in the outcome measures used, and the way they were analyzed and reported.

Recommendation 7

Author(s): Elie Akl
Date: 013-09-19
Question: Should targeted admission policies seeking to increase the ethnic and geographical diversity of students be used in the education of health professionals?¹
Settings: Health professionals' education and training institutions
Bibliography: Laven 2003, De Vries 2003, Rabinowitz 2005, Woloshuk 2004

Quality assessment							Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Quality (assessed with: measured as % of health workers with a rural background currently practicing in rural area)									
15 ²	observational studies	no serious risk of bias	no serious inconsistency	serious ³	no serious imprecision	strong association ⁴	<p>Laven: Rural background was associated with rural practice in 10 of 12 studies. The strength of association ranged from an odds ratio of 1.68–3.9, but in most cases was around 2–2.5.</p> <p>de Vries: It was found that 38.4% of the rural-origin graduates are currently practicing in rural areas, compared with 12.4% of urban-origin graduates practicing in rural areas (OR=3.09).</p> <p>Rabinowitz: Showing long-term retention rates and persistent effect, after 11-16 years, 68% of the physician shortage area programme graduates were still practicing family medicine in the same rural area, compared with 46% of their non-PSAP peers.</p> <p>Woloshuk: 32% of the 22 rural background students were practicing in a rural community, as were 13% of the 56 urban background students (RR=2.55;CI=1.01-6.42).</p>	 LOW	CRITICAL
Quality									
0	no evidence available	.	.	.	.	none	.	.	IMPORTANT
Relevance									

Recommendation 8

Author(s): Elie Akl
Date: 2013-09-19
Question: Should streamlined educational pathways, or ladder programmes, for the advancement of practicing health professionals be used in the education of health professionals?
Settings: Health professionals' education and training institutions
Bibliography: Please refer to list of studies in Evidence table

Quality assessment							Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Quality (assessed with: number of graduates/completion rate, turnover rate, physician to population ratio)									
6 ¹	observational studies	serious ²	no serious inconsistency ³	no serious indirectness	no serious imprecision ⁴	none ⁵	<p>Drenkard 2005: 5.2% turnover rate for the 268 clinical ladder promoted RNs with only 14 resigning compared to a general Inova wide turnover rate of 14.1%.</p> <p>Goldberger S. 2005: Participants under the employer-sponsored workplace advancement programme had a higher-than-average PN completion rate (82% for New Courtland's nursing aides and 83% for Golden Slippers).</p> <p>Goldberger S. 2005: Reduced staff turnover and vacancy rates; outstanding retention and completion rate for CNA-to-LPN programs</p> <p>Estrada 2011: physician-population ratio improved from 1:21 000 to 1:3222</p> <p>Goodrich 2004: Number of RNs at Level IV has doubled but still lower than the desired quantity by the committee</p> <p>Ward 2007: Number of nurses advancing to Level III has increased over the years. Number of nurses advancing to Level IV has increased over the years. Percentage of nurses at each level has remained relatively constant</p>	 VERY LOW	CRITICAL
Quality (assessed with: involvement in activities)									
1 ¹	observational studies	serious ²	no serious inconsistency ⁶	no serious indirectness	no serious imprecision ³	none ⁵	<p>Nelson 2009: Career ladder RNs were more involved in leadership ($p < 0.001$), quality improvement ($p = 0.02$), preceptorship ($p = 0.001$).</p>	 VERY LOW	CRITICAL
Relevance									
1	observational studies	serious ²	no serious inconsistency ⁶	no serious indirectness	no serious imprecision ³	none ⁵	<p>Dodgson 1998: The programme effectively increased diversity within the nursing workforce and improved care for an increasingly diverse population</p>	 VERY LOW	CRITICAL

- 1 Most studies included in the evidence table did not provide comparative results and were not considered in this evidence profile
- 2 Concerns about selection bias in a number of studies
- 3 Hard to assess in the absence of meta-analysis, but reported results tended to show benefit
- 4 Difficult to assess in the absence of pooled effect estimate
- 5 Undetected but possible
- 6 Only one study considered for this outcome

* Results across studies not meta-analyzed

Recommendation 9

Author(s): Elie Akl
Date: 2013-09-19
Question: Should interprofessional education be used in the education of health professionals?
Settings: Health professionals' education and training institutions
Bibliography: Reeves et al. Interprofessional education: effects on professional practice and healthcare outcomes. Cochrane database of systematic reviews 2013.

Quality assessment							Results (narrative summary)*	Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Quality (assessed with: patient outcomes (functional improvement, community discharge, length of stay))									
6	randomised trials ¹	no serious risk of bias ²	Serious indirectness ³	serious indirectness ⁴	no serious imprecision ⁵	none	"The care provided by use of 6 inter-professional education may lead to improved outcomes for patients" ⁶	LOW	CRITICAL

- 1 2 additional studies (interrupted time series analyses) also assessed this outcome
- 2 Cochrane risk of bias summary did not suggest significant risk of bias. The systematic review authors note that 3 RCTs were unclear or had evidence of selective outcome reporting
- 3 Systematic reviewers narratively reported that some studies showed benefits while others showed no effect
- 4 Studies conducted in HIC, "primarily USA and the UK"
- 5 Hard to assess in the absence of a meta-analysis
- 6 In addition, three studies provided low quality evidence that use of interprofessional education may lead to changes in the use of guidelines or standards

* Systematic review authors did not report a pooled effect estimate

Recommendation 10

Author(s): Elie Akl
Date: 2013-09-23
Question: Should accreditation by national governments be used in the education of health professionals?
Settings: Health professionals' education and training institutions
Bibliography: Please refer to list of studies in evidence profile; Greenfield. IJQHC. 2008;3;172-183

Quality assessment									
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Results (narrative summary)*	Quality	Importance
Quality									
3	observational studies	no serious risk of bias ¹	no serious inconsistency	no serious indirectness	no serious imprecision ²	none	"accreditation affiliation of a health education program has been shown to have a positive influence on individuals seeking professional organization membership	● LOW	CRITICAL
Quantity - not reported									
0	-	-	-	-	-	none	-	-	CRITICAL

1 No such risk described
 2 Although no statistical assessment available

Recommendation 11

Author(s): Elie Akl
Date: 2013-09-23
Question: Should continuous professional development be used in health professionals?
Settings: Health professionals' education and training institutions
Bibliography: Refer to list of studies in Evidence table

Quality assessment									
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Results (narrative summary)*	Quality	Importance
Quality (assessed with: clinical practices such as application of screening tests)									
1	randomised trials ¹	no serious risk of bias	no serious inconsistency	no serious indirectness	serious ²	none	Observed and self reported practices improved (main results from RCT and overall consistent results from 12 non randomized studies)	○ ● ● ● MODERATE	CRITICAL
Relevance - not measured									
0	-	-	-	-	-	none	-	-	CRITICAL

1 12 studies with non randomized design identified; results generally consistent with those of the RCT

2 Only one study identified

* Results not meta-analyzed

Decision tables

7.1 Education and training institutions

7.1.1 Faculty development

Should education and training institutions implement faculty development programmes, which update and develop teaching and clinical skills, in both undergraduate and postgraduate programmes linked to promotion and reward versus no faculty development programmes linked to promotion and reward?

	CRITERIA	JUDGEMENT	EVIDENCE																				
PROBLEM	Is the problem serious?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Effective teaching may influence trainee performance. This impact may not only educational outcomes (e.g. student learning) but also on practice outcomes (e.g. a change in trainee practice) or health outcomes (e.g. an effect on patient or population health).								
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
Are a large number of people affected?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Most faculty and their students are affected, as well as people who seek health care.									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
BENEFITS & HARMS OF THE OPTIONS	Are the anticipated desirable effects large?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>No evidence for the undesirable effects</p> <table border="1"> <tr> <td>Quantity</td> <td>Quality</td> <td>Relevance</td> <td>Unintended effects</td> </tr> <tr> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> </table> <p>Quality</p>	Quantity	Quality	Relevance	Unintended effects	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																	
	Quantity	Quality	Relevance	Unintended effects																			
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>																				
Are the anticipated undesirable effects small?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Embedding faculty development in accreditation processes. If faculty development for teachers (and evidence of addressing teachers' needs through a variety of programmes) was embedded in on going institutional accreditation then it would be difficult for deans and educational managers to ignore the need for teachers to participate in faculty development and quality assurance of their training programmes (McLean et al., 2008; Hatem et al., 2011). At an individual level, requiring teachers to demonstrate achievement of evidence-based teaching competencies to maintain teaching accreditation would convince faculty of the importance of faculty development (Hatem et al., 2011).									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
What is the certainty of the anticipated effects?	<table border="1"> <tr> <td>Very low</td> <td>Low</td> <td>Moderate</td> <td>High</td> <td>No evidence</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> </table>	Very low	Low	Moderate	High	No evidence	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Establishing a team of faculty members whose primary responsibility is to teach. Just as research staff are currently employed in positions primarily to undertake research, teaching staff should be funded, responsible and rewarded for good teaching (Hatem et al., 2011). At the same time teaching should not be the sole preserve of these faculty members; administrators, educators, researchers and clinicians should all be expected to share in the teaching role, just as teachers should contribute to these other roles.									
Very low	Low	Moderate	High	No evidence	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>																		
Are the anticipated desirable effects large relative to the undesirable effects?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Probably yes, because of the uncertainty of the size of the undesirable effects. N. B. Depends on the programme									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
RESOURCE USE	Are the resources required small?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Main resource requirements (not costed):</p> <ul style="list-style-type: none"> • Dedicated staff and faculty • Faculty time • Development programmes 								
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
Is the incremental cost small relative to the benefits?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Benefits gained from the policy are likely to outweigh the costs									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																		

	CRITERIA	JUDGEMENT	EVIDENCE
EQUITY	What would be the impact on health equity?	Reduced <input type="radio"/> Probably reduced <input type="radio"/> Uncertain <input checked="" type="radio"/> Probably increased <input type="radio"/> Increased <input type="radio"/> Varies <input type="radio"/>	
ACCEPTABILITY	Is the option acceptable to most stakeholders?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input type="radio"/> Probably yes <input checked="" type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/>	Based on stakeholders survey, on a 1–9 scale: Mean (sd) = 7.8 (1.5) See values and preferences survey for qualitative comments
FEASIBILITY	Is the option feasible to implement?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input type="radio"/> Probably yes <input checked="" type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/>	Based on stakeholders survey, on a 1–9 scale: Mean (sd) = 6.7 (1.9) See values and preferences survey for qualitative comments

PICO B3: Should education and training institutions implement faculty development programmes, which update and develop teaching and clinical skills, in both undergraduate and postgraduate programmes linked to promotion and reward versus no faculty development programmes linked to promotion and reward?

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings <input type="radio"/>	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings <input type="radio"/>	The balance between desirable and undesirable consequences <i>is uncertain</i> <input type="radio"/>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings <input checked="" type="radio"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="radio"/>
Recommendation	<i>We recommend against the option</i> <input type="radio"/>	<i>We recommend the option only in the context of rigorous research</i> <input type="radio"/>	<i>We recommend the option in the context of close monitoring and evaluation</i> <input checked="" type="radio"/>		<i>We recommend the option</i> <input type="radio"/>
● Health professional schools should implement faculty development programmes, which update and develop teaching and clinical skills in both undergraduate and postgraduate programmes					
Justification	To address the misalignment of faculty with service delivery needs				
Implementation considerations	Considerations when designing a faculty development programme (Steinert 2009) <ul style="list-style-type: none"> • Understand the institutional / organizational culture • Determine appropriate goals and priorities • Conduct needs assessments to ensure relevant programming • Develop different programmes to accommodate diverse needs • Incorporate principles of adult learning and instructional design • Offer a diversity of educational methods • Promote 'buy-in' and market effectively • Work to overcome commonly encountered challenges • Prepare staff developers • Evaluate and demonstrate effectiveness • Provide and offer peer programme consultation to enhance faculty development initiatives 				
Key uncertainties	<ul style="list-style-type: none"> • Effect of faculty development programmes on the outcome of interest • Cost effectiveness 				
Monitoring and evaluation	<ul style="list-style-type: none"> • Accreditation process includes assessment of faculty development • Retention • Improvement of service delivery 				
Research priorities	<ul style="list-style-type: none"> • High quality research is needed to determine, inter alia, whether health professionals' education programmes make a difference to students' learning and throughput rates, whether developing teaching skills in students influences their abilities as future teachers • There is a pressing need to understand the effect of faculty development initiatives on patient outcomes and the health of populations 				

PICO B3: Should continuous development programmes for faculty and teaching staff, which update and develop teaching skills be mandatory (e.g. curriculum development and instructional design) in both undergraduate and postgraduate programmes, versus no mandatory CPD programmes, and linked to funding, promotion and reward?

Problem: Absence of higher education policies for mandatory faculty development in health professionals' education.

Option: Mandatory continuous development programmes for faculty and teaching staff, which update and develop teaching skills (e.g. curriculum development and instructional design), in both undergraduate and postgraduate programmes and linked to funding, promotion and reward.

Comparison: No mandatory policy on continuous development programmes for faculty and teaching staff.

Setting: Global, with focus on low- and middle-income countries.

	CRITERIA	JUDGEMENT	EVIDENCE	QUERIES TO PANEL												
PROBLEM	Is the problem serious?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Determining the impact of effective teaching is a challenge as many other factors may influence trainee performance. This impact may be measured as educational outcomes (e.g. student learning), practice outcomes (e.g. a change in trainee practice) or health outcomes (e.g. an effect on patient or population health; Ramani 2006). Cassel (2004) argues for a clear link between the quality of medical education and the quality of clinical practice, which should be the goal of that education.	
	No	Probably no	Uncertain	Probably yes	Yes	Varies										
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>											
Are a large number of people affected?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Overall, assessing the impact or outcomes of faculty development initiatives is difficult due to limited focus in the literature on systematic evaluations of interventions using rigorous methodologies. Those evaluations that have occurred, largely report on faculty satisfaction with the programme, or changes in faculty knowledge, attitudes or skills as a result of the intervention (Steinert et al., 2006).		
No	Probably no	Uncertain	Probably yes	Yes	Varies											
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>											
BENEFITS & HARMS OF THE OPTIONS	Are the anticipated desirable effects large?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Desirable effects are increased: quantity, quality and relevance of health professionals Possible resources used without an effect (opportunity costs)	<input type="radio"/>
	No	Probably no	Uncertain	Probably yes	Yes	Varies										
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
	Are the anticipated undesirable effects small?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Embedding faculty development in accreditation processes. If faculty development for teachers (and evidence of addressing teachers' needs through a variety of programs) was embedded in ongoing institutional accreditation then it would be difficult for deans and educational managers to ignore the need for teachers to participate in faculty development and quality assurance of their training programs (McLean et al., 2008; Hatem et al., 2011). At an individual level, requiring teachers to demonstrate achievement of evidence-based teaching competencies to maintain teaching accreditation would convince faculty of the importance of faculty development (Hatem et al., 2011).	
No	Probably no	Uncertain	Probably yes	Yes	Varies											
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>											
What is the certainty of the anticipated effects?	<table border="1"> <tr> <td>Very low</td> <td>Low</td> <td>Moderate</td> <td>High</td> <td>No evidence</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> </table>	Very low	Low	Moderate	High	No evidence	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>			
Very low	Low	Moderate	High	No evidence	Varies											
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>											
Are the anticipated desirable effects large relative to the undesirable effects?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Establishing a team of faculty members whose primary responsibility is to teach. Just as research staff are currently employed in positions primarily to undertake research, teaching staff should be funded, responsible and rewarded for good teaching (Hatem et al., 2011). At the same time teaching should not be the sole preserve of these faculty members; administrators, educators, researchers and clinicians should all be expected to share in the teaching role, just as teachers should contribute to these other roles. N. B Depends on the context and the programme.		
No	Probably no	Uncertain	Probably yes	Yes	Varies											
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>											

	CRITERIA	JUDGEMENT	EVIDENCE	QUERIES TO PANEL
RESOURCE USE	Are the resources required small?	No <input type="radio"/> Probably no <input checked="" type="radio"/> Uncertain <input type="radio"/> Probably yes <input type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/>	Main resource requirements <ul style="list-style-type: none"> Financial Human resources Infrastructure 	Resources to implement the policy
	Is the incremental cost small relative to the benefits?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input type="radio"/> Probably yes <input checked="" type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/>		
EQUITY	What would be the impact on health equity?	Reduced <input type="radio"/> Probably reduced <input type="radio"/> Uncertain <input checked="" type="radio"/> Probably increased <input type="radio"/> Increased <input type="radio"/> Varies <input type="radio"/>		
ACCEPTABILITY	Is the option acceptable to most stakeholders?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input type="radio"/> Probably yes <input checked="" type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/>		Might not be acceptable to the current faculty (requires change)
FEASIBILITY	Is the option feasible to implement?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input type="radio"/> Probably yes <input checked="" type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/>		

PICO B3 RECOMMENDATION: Should continuous development programmes for faculty and teaching staff, which update and develop teaching skills be mandatory (e.g. curriculum development and instructional design) in both undergraduate and postgraduate programmes, versus no mandatory CPD programmes, and linked to funding, promotion and reward?

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings <input type="radio"/>	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings <input type="radio"/>	The balance between desirable and undesirable consequences <i>is uncertain</i> <input type="radio"/>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings <input checked="" type="radio"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="radio"/>
Recommendation	<i>We recommend against the option</i> <input type="radio"/>	<i>We recommend the option only in the context of rigorous research</i> <input type="radio"/>	<i>We recommend the option in the context of close monitoring and evaluation</i> <input checked="" type="radio"/>	<i>We recommend the option</i> <input type="radio"/>	
	<input checked="" type="radio"/> Governments, funders and accrediting bodies should implement higher education policies for mandatory faculty development programmes that are aligned with the goal of relevant health professionals' education (in developing teaching and clinical skills) and linked to funding, promotion and reward				
Justification	To address the misalignment of faculty with service delivery needs				
Implementation considerations	<ul style="list-style-type: none"> determine appropriate goals and priorities conduct needs assessments to ensure relevant programming develop different programmes to accommodate diverse needs incorporate principles of adult learning and instructional design offer a diversity of educational methods promote 'buy-in' and market effectively evaluate – and demonstrate – effectiveness 				
Key uncertainties	The extent to which a policy can bring about change in faculty development				
Monitoring and evaluation	Changes in higher education policies				

Research priorities	<i>Addressing research gaps.</i> High quality research is needed to determine, inter alia, whether health professionals' education programmes do increase confidence in teaching, whether faculty development programmes to develop teaching skills make a difference to students' learning and throughput rates, whether developing teaching skills in students influences their abilities as future teachers, and the influence that teaching rewards have on faculty development. Further, as above, there is a pressing need to understand the effect of faculty development initiatives on patient outcomes and the health of populations.
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PICO B4: Should innovative expansion of faculty, through the recruitment of community-based clinicians and health workers as educators, be used versus no such expansion?

	CRITERIA	JUDGEMENT	EVIDENCE												
PROBLEM	Is the problem serious?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	One of the biggest barriers to scaling up is the inadequate number of faculty/educators. The reasons are twofold: lower salaries compared to clinicians and restrictive academic requirements. Very often, health professionals wanting to go into education need to take a basic education course and are also required to have postgraduate qualifications in science education. Unless innovative approaches are taken, the shortage will remain absolute and restrict the scaling up of health professionals' training.
	No	Probably no	Uncertain	Probably yes	Yes	Varies									
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
Are a large number of people affected?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Many health professional schools/training institutions are affected by this. There is good international evidence of this in Hense (1991) and Yordy (2006).	
No	Probably no	Uncertain	Probably yes	Yes	Varies										
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
BENEFITS & HARMS OF THE OPTIONS	Are the anticipated desirable effects large?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Desirable effect The desirable effect would be to increase the number of available educators and thus to be able to train more health professionals.
	No	Probably no	Uncertain	Probably yes	Yes	Varies									
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>									
	Are the anticipated undesirable effects small?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Undesirable effects The possible undesirable effect would be a "lowering" of standards in terms of training. This is based on the premise that researchers and scientists make better educators, which is not based on any evidence, although may depend to some degree on the topic is basic science (e.g. biochemistry) as different from clinical topics. As long as there is a balance in a faculty, with maintenance of a cadre of scientist-researchers, this should minimise undesirable effects (Ferreira, personal communication).
No	Probably no	Uncertain	Probably yes	Yes	Varies										
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
What is the certainty of the anticipated effects?	<table border="1"> <tr> <td>Very low</td> <td>Low</td> <td>Moderate</td> <td>High</td> <td>No evidence</td> <td>Varies</td> </tr> <tr> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	Very low	Low	Moderate	High	No evidence	Varies	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Although there are no systematic reviews, there is anecdotal evidence. Experience in Brazil suggests a dramatic effect is possible with massive recruiting through fellowships and ordinary PHC professionals to participate in a triangular teaching/learning process. This improves their quality, opens the minds of regular teachers towards community environment assistance and encourages students to become members of future 'Family Health' teams. This is seen as the only realistic option in areas where there is growth of students and/or undersupply of educators, because there is no reliable supply stream of educators, particularly for underserved areas. (Personal communication with Jose Roberto Ferreira, formerly a senior director of HR at PAHO for 30 years and currently Advisor to Fiocruz Foundation and to the Ministry of Health. He is in the process of assessing all the educational programmes in interaction with MOH; Ferreira et al., 2007; Haddad et al., 2008).	
Very low	Low	Moderate	High	No evidence	Varies										
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>										
Are the anticipated desirable effects large relative to the undesirable effects?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
No	Probably no	Uncertain	Probably yes	Yes	Varies										
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	CRITERIA	JUDGEMENT	EVIDENCE												
RESOURCE USE	Are the resources required small?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Main resource requirements</p> <p>The main resources required are funding to pay for the increased numbers of educators and for their replacements in terms of some of their clinical duties, and the human resources i.e. sufficient numbers of clinicians who are interested and able to teach. There is also a need for incentives for teaching and development of teacher/preceptor training resources, which require funding.</p>
	No	Probably no	Uncertain	Probably yes	Yes	Varies									
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>										
Is the incremental cost small relative to the benefits?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>The benefit this brings of increasing the numbers of health professionals that can be trained will rapidly outweigh the costs; although the increased numbers of health professionals will themselves bring about additional costs, this will be balanced by strengthening of the system with possibilities of enhancing recruitment and self-regeneration. The relative balance of these factors depends on training an appropriate mix of future health professionals.</p>	
No	Probably no	Uncertain	Probably yes	Yes	Varies										
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>										
EQUITY	What would be the impact on health equity?	<table border="1"> <tr> <td>Reduced</td> <td>Probably reduced</td> <td>Uncertain</td> <td>Probably increased</td> <td>Increased</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>If there was appropriate selection of educators familiar with and grounded in primary care and a socially accountable approach, there could be a major impact on equity. This would occur through training health professionals with a generalist focus, skills in working in teams and distributed according to population health needs. This could be the case particularly in rural areas where there are difficulties in retaining health professionals unless they are educated and trained in rural settings.</p>
Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies										
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
ACCEPTABILITY	Is the option acceptable to most stakeholders?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>There may be resistance from traditional health professional schools, with guarding of territory and suspicion from institutions where the hierarchy is based on scientific achievement and research. Desired cultural and attitudinal changes can be achieved by refocussing institutions on their core mission and responsibilities to the communities they serve.</p>
No	Probably no	Uncertain	Probably yes	Yes	Varies										
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>										
FEASIBILITY	Is the option feasible to implement?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<p>Dual appointments of educators in schools and health facilities, and adjunct appointments of educators from health facilities, are two examples of successful innovations that are being applied in many settings to rapidly scale up faculty. There is good international evidence for this.</p>
No	Probably no	Uncertain	Probably yes	Yes	Varies										
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>										

PICO B4 RECOMMENDATION: Should innovative expansion of faculty, through the recruitment of community-based clinicians and health-care workers as educators be used versus no such expansion?

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings <input type="radio"/>	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings <input checked="" type="radio"/>	The balance between desirable and undesirable consequences <i>is uncertain</i> <input type="radio"/>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings <input type="radio"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="radio"/>
Recommendation	<i>We recommend against the option</i> <input type="radio"/>	<i>We recommend the option only in the context of rigorous research</i> <input type="radio"/>	<i>We recommend the option in the context of close monitoring and evaluation</i> <input checked="" type="radio"/>	<i>We recommend the option</i> <input type="radio"/>	
Justification	<p>● Innovative expansion of faculty through the recruitment of community-based clinicians and health-care workers in the context of research and with close monitoring and evaluation</p>				
	-				

Implementation considerations	<ul style="list-style-type: none"> • These educators must come from and be based in the context in which health professionals are needed, in order to ensure socially accountable training • Up skilling and in-service education (faculty development) for these educators becomes a critical need as part of the implementation • There needs to be a support structure for this. Scaling up without better infrastructure or ensuring the right level of training (relevance) and supervision/mentoring may only bring temporary benefits
Key uncertainties	The impact on quality of graduates of changing the requirements of educators
Monitoring and evaluation	<ul style="list-style-type: none"> • Numbers, locations and qualifications of educators • Numbers of health professionals produced and location/nature of their practice
Research priorities	<ul style="list-style-type: none"> • There is a need to assess the effectiveness of educators in terms of the skills that are most useful and valuable, and to explore the best ways to support them in developing these skills • There needs to be more case studies in countries who have tried to implement innovative education • There is also a need for longitudinal (prospective) studies for the future on the use of innovative education with a control group and with attention to confounding factors

7.1.2 Curriculum development

PICO B5/6: Should adapting curricula to evolving needs through the incorporation of core competencies and development of the curriculum be implemented versus no adaptation of curricula to evolving needs?

	CRITERIA	JUDGEMENT	EVIDENCE																				
PROBLEM	Is the problem serious?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Curriculum is a means by which health professionals can acquire appropriate knowledge and skills to respond to the needs of a given population. Most curricula for health professions are outdated and do not respond to the needs of the population (Frenk et al., 2010), compromising efforts towards achievement of key health targets such as the MDGs.								
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>																		
Are a large number of people affected?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Affects all health professionals and the populations they serve									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>																		
BENEFITS & HARMS OF THE OPTIONS	Are the anticipated desirable effects large?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<table border="1"> <tr> <td>Quantity</td> <td>Quality</td> <td>Relevance</td> <td>Unintended effects</td> </tr> <tr> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> </table> <p>A competency-based curriculum can help to define a specific training programme (Smith et al., 2009; Mullan et al., 2010).</p>	Quantity	Quality	Relevance	Unintended effects	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																	
	Quantity	Quality	Relevance	Unintended effects																			
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>																				
Are the anticipated undesirable effects small?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Measurable improvements in the knowledge, skills and attitudes of participants based on pre-and post-tests in a cancer care competency initiative were noted (Smith et al., 2009).									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
What is the certainty of the anticipated effects?	<table border="1"> <tr> <td>Very low</td> <td>Low</td> <td>Moderate</td> <td>High</td> <td>No evidence</td> <td>Varies</td> </tr> <tr> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	Very low	Low	Moderate	High	No evidence	Varies	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Quantity could affect the effective delivery of the curricula. For example, there is need to balance the teacher student ratio. Allocation of learning and teaching hours may also have implications on quality.									
Very low	Low	Moderate	High	No evidence	Varies																		
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
Are the anticipated desirable effects large relative to the undesirable effects?	<table border="1"> <tr> <td>No</td> <td>Probably no</td> <td>Uncertain</td> <td>Probably yes</td> <td>Yes</td> <td>Varies</td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Effective curricula based on evidence entails: <ul style="list-style-type: none"> • significant institutional groundwork taking into account underserved areas; • needs assessment to identify immediate and long-term educational and population needs; • clear articulation of rationales and objectives, greater use of interactive methods /problem based learning. 									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
			Competency-based curricula have the potential of bringing about positive educational effects such as: improvements in curricula that entail revision of teaching modalities; focus on prevailing health needs and trends; addresses individual student needs; generates a comprehensive approach to infrastructure development to include infrastructure and technology development; and improvements in the curricula can lead to better health service delivery.																				