

<b>Implementation considerations</b>	<ul style="list-style-type: none"> <li>Resistance to curriculum change can occur. Significant changes may have implications on faculty who may be uncertain of new understandings and practices, and will need to take into account issues of timelines for the rollout and faculty development</li> <li>Establishing or working with existing institutional structures including community placements for learning</li> <li>Continuous evaluation</li> </ul>
<b>Key uncertainties</b>	Cost implications; timing for curricula changes; effect on quantity unknown; curriculum as a means to social accountability uncertain
<b>Monitoring and evaluation</b>	<ul style="list-style-type: none"> <li>Numbers, locations and qualifications of educators</li> <li>Numbers of health professionals produced and location/nature of their practice</li> </ul>
<b>Research priorities</b>	<ul style="list-style-type: none"> <li>Impact on quantity, quality, relevance of competence-based curricula</li> <li>Links between the retention of health workers trained in rural settings and adapted competency-based curricula that take into account rural settings</li> <li>Evidence of improved proficiency attributed to new curricula</li> <li>Long-term evaluation of the impact of improved proficiency attributed to curricula by following former course participants, their residency programme directors and perhaps peers</li> <li>Longitudinal studies linking the retention of health workers trained in community and rural settings can be linked back to changes in the curricula</li> <li>Special case studies of universities such as Keele which have, from the outset aimed their curricula and training in rural GP practices</li> </ul>

### 7.1.3 Simulation methods

PICO B8: Should simulation methods of varying methods of fidelity be used in the education of health professionals versus no simulation?

	CRITERIA	JUDGEMENT	EVIDENCE
PROBLEM	<b>Is the problem serious?</b>	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/></p>	<p>It is important to help trainees acquire necessary skills while minimizing adverse effects on patients they are taking care of.</p> <p>This search was based on the original question of the "Effectiveness of infrastructure materials and related resources (including information and communication technologies) necessary for health professionals' education and training in producing quantity, quality and relevance".</p> <p>A number of studies have shown a clear relationship between the availability of resources for education, the deployment of these resources and the production of health professionals. Although the availability of educational resources, whether in resource-poor or resource-high contexts, is a pre-condition for their deployment, it is not a pre-condition for efficient use. To this end, availability of infrastructure, materials and resources, and their efficient use in the education and production of health professionals are considered on two areas:</p> <ol style="list-style-type: none"> <li>the infrastructure of interest researched were: classrooms; meeting rooms; libraries; clinical skills lab student housing;</li> <li>resources such as: audiovisual; technology; computers; e-learning; ICTs; Internet.</li> </ol> <p>The systematic reviews for simulation were of high quality.</p> <p>Notes:</p> <p>How to define simulation:</p> <ul style="list-style-type: none"> <li>anatomical models</li> <li>three dimensional video</li> <li>expert patients</li> <li>students practicing on students?</li> </ul> <p>Could this include educational games?</p>
	<b>Are a large number of people affected?</b>	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/></p>	<p>Most health workers are affected, as well as people who seek health care</p>

	CRITERIA	JUDGEMENT	EVIDENCE																				
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 checked="" 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 checked="" 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 type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table> <p>A number of good quality systematic reviews identified a wide range of studies including RCTs in various professions (medical, nursing, multidisciplinary) of various levels (students, practitioners)</p>	Quantity	Quality	Relevance	Unintended effects	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>																	
	Quantity	Quality	Relevance	Unintended effects																			
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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"/>	<p><b>Quantity</b> Not applicable</p> <p><b>Quality</b></p> <ul style="list-style-type: none"> <li>Improved competence, performance</li> <li>Improved knowledge</li> <li>Improved trainee satisfaction</li> <li>More practice yields better results</li> <li>However, inconsistent results for sustainability</li> <li>Results for patient outcomes inconsistent</li> </ul>									
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 type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>	Very low	Low	Moderate	High	No evidence	Varies	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p><b>Relevance</b> No evidence identified</p> <p><i>Notes:</i> Large in terms of safety. Literature from emersion medical (Tulenko). American academy of paediatrics newborn resuscitation. Use evidence showing increased number of times doing a procedures increases proficiency. Allows the education of more students with fewer faculty. Important bridge between theory and practice. Opportunity costs. Risk of not performing the procedure on real patients (e.g. paid patients). Question about sustainability due to expensive, high-tech models that wear out and require replacement and maintenance. When possible, use low- cost methods for simulations (e.g. oranges for injections, animals – deliver babies of cows). Anatomical models used for delivery are very relevant, intubation very relevant, intubation done on mannequins. Provides proof of clinical competence (e.g. number of births attended, etc.). No undesirable effects, if well integrated into the curriculum. Could limit creative response to unexpected if not fidel to real life. Three dimensional video does not develop manual skills. Not a substitute, but a proxy.</p>									
Very low	Low	Moderate	High	No evidence	Varies																		
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" 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"/>									
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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><b>Main resource requirements:</b> Simulation cost U.S. (\$5000 – \$200 000) Staff to operate simulation programmes (cost to be worked out at country level) <i>Example:</i> cost of training a surgical resident in the operating room for four years nearly \$50 000 MEPI schools say it is expensive (cardiovascular system, orthopedics). Some low cost/quality models are not durable. Development costs are high. If use low-cost options (e.g. oranges for injections), or open source agreements, then the cost is lower. Development costs differ by country.</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 checked="" 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 checked="" type="radio"/>	<p>Uncertain because of the uncertainty of the size of the benefits and the potentially large resource use Incremental cost likely to vary with the cost of the specific simulation method</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 checked="" 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 checked="" type="radio"/></td> <td><input 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Probably no effect Patients may refuse to serve as human mannequins</p>								
Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies																		
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																		

	CRITERIA	JUDGEMENT	EVIDENCE												
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 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 checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Not assessed in the stakeholders survey
No	Probably no	Uncertain	Probably yes	Yes	Varies										
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" 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 checked="" 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 checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Not assessed in the stakeholders survey
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PICO B8 RECOMMENDATION: Should simulation methods be used in the education of health professionals?

<b>Balance of consequences</b>	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 type="radio"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input checked="" type="radio"/>
<b>Recommendation</b>	<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 type="radio"/>	<i>We recommend the option</i> <input checked="" type="radio"/>	
<b>● Simulation methods should be used in the education of health professionals</b>					
<b>Justification</b>	<ul style="list-style-type: none"> <li>• Needed to acquire skills, accelerate learning</li> <li>• Allow for a variety of situations</li> <li>• Develop manual skills (can only learn by doing – through repetition)</li> </ul>				
<b>Implementation considerations</b>	<ul style="list-style-type: none"> <li>• Availability of experienced staff</li> <li>• Availability of space and equipment</li> <li>• Seamless integration with the curriculum and a focus on developing priority competencies, based on population health needs</li> <li>• Cost</li> </ul>				
<b>Key uncertainties</b>	<ul style="list-style-type: none"> <li>• Impact of simulation techniques on patient outcomes</li> <li>• Cost versus effectiveness</li> </ul>				
<b>Monitoring and evaluation</b>	<ul style="list-style-type: none"> <li>• More data on its use in low-resource settings</li> <li>• Students performing a procedure an increased number of times versus without simulation</li> <li>• Ability to perform procedures that otherwise could not be performed</li> </ul>				
<b>Research priorities</b>	<ul style="list-style-type: none"> <li>• Suggest postponing the identification of research priorities until a more expanded review of the literature is conducted</li> <li>• Good quality studies assessing effects on patient outcomes</li> <li>• Identifying methods to increase sustainability of benefits</li> <li>• Gender considerations</li> </ul>				

7.1.4 Direct entry of students

PICO B9: Should direct entry be used to increase the number of graduates from relevant undergraduate, postgraduate or other educational programmes into professional studies versus no direct entry of graduates from other relevant programmes?

	CRITERIA	JUDGEMENT	EVIDENCE
PROBLEM	Is the problem serious?	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"/>	There is a severe shortage of health workers and an inequity of distribution. The need for increasing the number of registered health professionals is a serious challenge. Direct Entry or Accelerated Degree Programs provide a quick and safe method to increase the number of health workers.
	Are a large number of people affected?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input type="radio"/> Probably yes <input type="radio"/> Yes <input checked="" type="radio"/> Varies <input type="radio"/>	
BENEFITS & HARMS OF THE OPTIONS	Are the anticipated desirable effects large?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input checked="" type="radio"/> Probably yes <input checked="" type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/>	Quantity <input checked="" type="radio"/> Quality <input checked="" type="radio"/> Relevance <input type="radio"/> Unintended effects <input type="radio"/> A number of literature reviews were identified but no systematic reviews <b>Quantity</b>
	Are the anticipated undesirable effects small?	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"/>	Anecdotal reports of increasing numbers of health workers but no evaluation studies directly addressed this <ul style="list-style-type: none"> <li>Some moderate evidence:                             <ul style="list-style-type: none"> <li>for improved retention (1 study – low-quality evidence)</li> <li>job satisfaction.</li> </ul> </li> </ul>
	What is the certainty of the anticipated effects?	Very low <input type="radio"/> Low <input type="radio"/> Moderate <input checked="" type="radio"/> High <input checked="" type="radio"/> No evidence <input type="radio"/> Varies <input type="radio"/>	<b>Quality</b> Better outcomes or at least equivalence for: <ul style="list-style-type: none"> <li>critical thinking</li> <li>passing rates for national exams</li> <li>professional practice</li> <li>clinical competence</li> <li>leadership.</li> </ul>
	Are the anticipated desirable effects large relative to the undesirable effects?	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"/>	<b>Relevance</b> No specific evidence identified
RESOURCE USE	Are the resources required small?	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"/>	<b>Main resource requirements:</b>
	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 type="radio"/> Probably increased <input checked="" 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"/>	
FEASIBILITY	Is the option feasible to implement?	No <input type="radio"/> Probably no <input type="radio"/> Uncertain <input checked="" type="radio"/> Probably yes <input type="radio"/> Yes <input checked="" type="radio"/> Varies <input type="radio"/>	Not assessed in the stakeholders survey

PICO B8 RECOMMENDATION: Should simulation methods be used in the education of health professionals?

<b>Balance of consequences</b>	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 type="radio"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="radio"/>
<b>Recommendation</b>	<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"/>	
<b>Justification</b>	<p>● Most of the evidence was from non-randomized parallel two group comparisons with no pre- and post-tests (Level III-c), however, the findings were consistent in showing equivalence in quality outcomes with potential to increase quantity outcomes. A Grade B level of moderate support.</p> <p>We are taking the question as relating to undergraduate (pre-qualification) education and to graduates.</p>				
<b>Implementation considerations</b>	Consideration should be given to the type of pre-degrees as a number of studies were identified that evaluated the predictors of success. These studies were excluded but should be considered in any implementation.				
<b>Key uncertainties</b>	-				
<b>Monitoring and evaluation</b>	-				
<b>Research priorities</b>	Standard outcome measurement				

## 7.1.5 Admission procedures

PICO B10: Should targeted admissions policies seek to increase the ethnic and geographical diversity of students and be supported by mechanisms to ensure completion of education programmes versus no targeted admissions policies and supportive mechanisms?

	CRITERIA	JUDGEMENT	EVIDENCE
PROBLEM	Is the problem serious?	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/>    <input type="radio"/></p>	<p>There is substantial evidence to show that admissions of students from rural or poorer areas is unbalanced and some but less published evidence that there are insufficient numbers of women in some countries to produce a balanced workforce. Although issues of recruiting and retaining doctors in rural and remote service numerically dominant in the published literature found there are some studies on other categories of health worker, and reports relating to low- and middle-income countries.</p> <p>Few references were found to any linkage between admission procedures or criteria and the numbers of graduates produced. This is not surprising, given that the main determinants of the volume of outputs from training are the volumes of health workers needed/ demanded and the capacity of training institutions.</p>
	Are a large number of people affected?	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/></p>	<p>All undergraduate students</p> <p>There is a general, but not universal finding, that previous academic achievement is a good predictor of success in medical schools in Austria (Reibnegger et al 2010), Canada (Kularunga-Moruzi, Norman 2002), Croatia (Jankovic et al., 2002), Germany (Hansel et al., 2010), Holland (Urlings-Strop et al., 2009; Cohen-Schotanus et al., 2006), UK (Brown, Lilford 2008) and the USA (Mitchell 1990).</p> <p>The same broad conclusion is reached in some studies from developing countries, among them Bahrain (Al Nasir, Robertson 2001), Nigeria (Egbewale et al., 2009) and Sri Lanka (Hewage et al., 2011).</p> <p>Some evidence disputing the predictive validity of previous academic attainment is offered for the New Zealand (Collins et al., 1995; Poole et al., 2012) and for Pakistan (Huda et al., 2001) and Sri Lanka (De Silva et al., 2004 and 2006) and the USA (Basco et al., 2000).</p> <p>For nurse education, a meta-analysis carried out in the US (Grossbach, Kuncel 2011) found that standardized admission tests were effective predictors of performance in the National Council Licensure Examination for Registered Nurses. Pre-nursing grade point average was also effective, but to a lesser extent. In the UK, a study of an entering cohort of pre-registration Diploma of Nursing students concluded that students with higher level entry qualifications performed consistently better than those with lower level qualifications (McCarey et al., 2007). A Canadian study (Carpio et al., 1996) found that school grades in English and chemistry were the best predictors at entry stage of success in licensure examinations. A New Zealand study which took as the outcome performance in the first year of an undergraduate nursing programme (Shulruf et al., 2011) found that the best predictor of success was final year secondary school achievement as measured by the National Certificate of Educational Achievement Grade Point Average (NCEAGPA).</p> <p>A dissenting voice from the UK (Ofori 2000) argued that paper qualifications in psychology, sociology or biology should not be relied on as predictors of academic performance in their related nursing modules, and that age was a good predictor (mature students, defined as &gt;34 years on entry, did better), a finding which has been reported from other studies, and is advanced in the cause of a more diverse student body.</p>

	CRITERIA	JUDGEMENT	EVIDENCE																				
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 type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> </tr> </table> <p><b>Selection</b></p> <p>The potential impact of selecting medical students of rural origin was quantified by Rabinowitz in a longitudinal study that evaluated the impact of the Physician Shortage Area Program (PSAP) in the USA. The PSAP combined selective admission criteria with a rurally orientated educational programme. On multivariate analysis, rural origin was the single variable most strongly associated with rural practice (OR 4.2, 95% confidence interval [CI] 2.8–6.3). Another strong influence that was rarely considered is the origin of the spouse. Rabinowitz found that 64% of rural physicians had spouses of rural origin; in Australia, doctors whose spouses had a rural background were significantly more likely to practice in a rural setting (OR 3.14; 95% CI 1.96–5.1). A home prefecture recruiting scheme in Japan was successful in recruiting medical professionals from rural areas and retaining them as qualified professionals in medically underserved prefectures</p> <p>A number of literature reviews were identified but no systematic reviews</p>	Quantity	Quality	Relevance	Unintended effects	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
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	Quantity	Quality	Relevance	Unintended effects																			
<input checked="" type="radio"/>	<input 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"/>	<p><b>Quantity</b></p> <p>There is a substantial body of evidence that selection according to geographic origin increases the number of graduates who practise in rural settings.</p>									
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 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>	Very low	Low	Moderate	High	No evidence	Varies	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p><b>Quality</b></p> <p>There is a considerable literature on admission criteria as a predictor of performance within the training experience, which takes as the end point course completion or attainment of a qualification (sometimes attainment before course completion).</p>									
Very low	Low	Moderate	High	No evidence	Varies																		
<input type="radio"/>	<input type="radio"/>	<input checked="" 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"/>	<p><b>Relevance</b></p> <p>No specific evidence identified There is considerable evidence that students selected from rural areas are most likely to serve in rural areas, though this is not always the case.</p>									
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 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>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<p><b>Main resource requirements:</b></p> <p><b>Resource</b></p> <p>Faculty and adjunct faculty time in terms of intensive academic and social support, individual mentoring, MCAT preparation, coaching in the application process, and upper-level science course work.</p> <p>Secondary school pre-admission coaching</p> <p>Financial support to complete academic programmes</p> <p>Social services support where necessary</p>								
	No	Probably no	Uncertain	Probably yes	Yes	Varies																	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" 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 type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" 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 type="radio"/>	<input checked="" type="radio"/>	<p>This will depend on the country and the cadre of health professional required for scaling up</p>									
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" 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 type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> </table>	Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<p>Recruiting students across ethnic, geographical and all categories of social classes would lead to increased equity</p>								
Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies																		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" 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 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>There may be some resistance from some medical colleges who may regard this as lowering of standards</p>								
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												
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"/>	There are number of these programmes already running in Australia, UK and USA
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 B10 RECOMMENDATION: Should targeted admissions policies seek to increase the ethnic and geographical diversity of students and be supported by mechanisms to ensure completion of education programmes versus no targeted admissions policies and supportive mechanisms?

<b>Balance of consequences</b>	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 type="radio"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="radio"/>
<b>Recommendation</b>	<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"/>	
<b>Justification</b>	<p>● <b>There is an extensive literature on recruiting and retaining trained health workers for service in rural and remote areas, and this proved to be the most frequently encountered theme in the literature. Less well documented are published studies on minority groups, nursing and allied professions and medical mid-level providers.</b></p> <p><b>We are taking the question as relating to undergraduate (pre-qualification) education.</b></p>				
<b>Implementation considerations</b>	<p><b>Quantity</b> Admissions policies should be consistent with decisions concerning the supply of particular cadres of health workers. They should take into account the likely numbers of each cadre needed.</p> <p><b>Quality</b> Admissions reforms tend to imply curriculum reforms as the student population changes. In some cases (e.g. China) there are different certificates available to graduates depending on their entry qualifications. However, students may still go on to pursue more advanced qualifications.</p> <p><b>Relevance</b> There is evidence that students selected from rural areas are most likely to serve in rural areas, though this is not always the case. The preferences of applicants should be taken into account.</p> <p><b>Complexity and caution</b> Admissions procedures by themselves will not overcome inequalities in health-care systems. Where targeted admissions policies are used, support mechanisms must be in place to ensure conditions in which students are able to complete programmes. These may include adjustments to the curriculum, teaching and learning methods and financial support. Currently, many of the students who do not complete their courses do so for financial reasons, so disadvantaged students would need financial support (South Africa subsidy system).</p> <p>The characteristics of underserved populations may vary from place to place. For example in Brazil populations in favelas may be less well served than populations in rural areas.</p>				
<b>Key uncertainties</b>	<ul style="list-style-type: none"> <li>• The impact of admissions procedures on their own.</li> <li>• The impact of admissions policies on underserved populations across countries or even in the same country may vary.</li> </ul>				
<b>Monitoring and evaluation</b>	Close monitoring and evaluation is needed for admissions of innovative admissions policies but in particular monitoring of policies introduced with supportive mechanisms to obtain better information on their impact.				

<b>Research priorities</b>	<p>The literature on admissions criteria and practices is hugely biased in favour of rich countries. It is also biased in favour of medical education, to the relative neglect of nursing and allied health professions. This suggests a need to make research funding available in low- and middle-income countries to enable academics to replicate the types of studies that have been undertaken in developed countries, and to extend their scope particularly to types of health worker specific to those locations, for example medical assistants/clinical officers and pharmacy technicians.</p> <p>Make research funding available to low- and middle-income countries to enable academics to replicate the types of studies that have been undertaken in developed countries.</p> <p>Extend their scope, particularly to types of health workers specific to those locations, for example mid-level providers such as medical assistants/clinical officers/clinical associates/non physician clinicians. It would be helpful if cohort studies with large national samples following the entire pipeline from pre-admission characteristics through to long-term employment could be undertaken.</p> <p>Even in the rich countries, most of the studies encountered suffer from severe limitations of scope (restriction to one cadre or one training school), sample size (often below 100 and sometimes below 10 subjects) and weak methodology (low response rates, biased selection of subjects, failure to control for confounding variables, use of proxy outcome measures such as career intentions instead of observed career paths).</p>
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### 7.1.6 Educational pathways and ladder programmes

PICO C1: Should streamlined educational pathways, or ladder programmes, for the advancement of practicing health professionals be adapted in both undergraduate and postgraduate programmes, improve the quantity, quality, and relevance of health professionals?

	CRITERIA	JUDGEMENT	EVIDENCE																				
<b>PROBLEM</b>	<b>Is the problem serious?</b>	<table border="0"> <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"/>	Rigid professional boundaries between professionals makes less adaptable to the needs of the population. The problem is serious in underserved areas.								
	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"/>																		
	<b>Are a large number of people affected?</b>	<table border="0"> <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"/>	The proportion of rural population is huge in developing countries (ex. 60% in SEARO region). Urban poor also can be served by the graduates of this ladder programmes.								
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"/>																		
<b>BENEFITS &amp; HARMS OF THE OPTIONS</b>	<b>Are the anticipated desirable effects large?</b>	<table border="0"> <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="0"> <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 type="radio"/></td> <td><input type="radio"/></td> </tr> </table> <p><b>Quantity</b></p> <p>The intent to stay at the hospital for more than a year increased as nurses moved upward in the career ladder programme. No quantifiable measures reported although authors hypothesize retention might be due to intrinsic motivation factors such as updating of nursing knowledge and skills, personal development and possibility of salary increase when moving up along the ladder (Bjørk et al., 2007).</p>	Quantity	Quality	Relevance	Unintended effects	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input 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 type="radio"/>	<input type="radio"/>																				
<b>Are the anticipated undesirable effects small?</b>	<table border="0"> <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"/>										
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"/>																		
<b>What is the certainty of the anticipated effects?</b>	<table border="0"> <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 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>	Very low	Low	Moderate	High	No evidence	Varies	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p><b>Quality</b></p> <p>Participants in the ladder programme showed a higher involvement in leadership (<math>p &lt; 0.001</math>) quality improvement (<math>p &lt; 0.02</math>) and preceptorship (<math>p &lt; 0.001</math>) compared to non-career ladder professionals in the same job role (Nelson, Cook 2008).</p>									
Very low	Low	Moderate	High	No evidence	Varies																		
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																		
<b>Are the anticipated desirable effects large relative to the undesirable effects?</b>	<table border="0"> <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><b>Relevance</b></p> <p>Outcome not reported</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"/>																		

	CRITERIA	JUDGEMENT	EVIDENCE												
RESOURCE USE	Are the resources required small?	<table border="0"> <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 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>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p><b>Main resource requirements:</b></p> <ul style="list-style-type: none"> <li>• Salary increases for the upper ladder</li> <li>• Dedicated staff for the ladder programme</li> <li>• Training/capacity building of current faculty</li> </ul> <p>An observational study describing a 20-year clinical ladder programme. Resources needed to implement the clinical ladder included an annual budget plan highlighting salary increases reflecting advancement in the ladder and an initial benchmarking with known successful programmes in the same geographical area (Pierson 2010).</p>
	No	Probably no	Uncertain	Probably yes	Yes	Varies									
<input checked="" type="radio"/>	<input 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="0"> <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 checked="" 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 checked="" type="radio"/>	-	
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 checked="" type="radio"/>										
EQUITY	What would be the impact on health equity?	<table border="0"> <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 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 type="radio"/>	<input type="radio"/>	<input type="radio"/>	It depends on the context
Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies										
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>										
ACCEPTABILITY	Is the option acceptable to most stakeholders?	<table border="0"> <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>Based on the stakeholders survey, on scale 1-9: Mean (sd) = 7.2 (1.8)</p> <p>See pages 34–35 for qualitative comments</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"/>										
FEASIBILITY	Is the option feasible to implement?	<table border="0"> <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>If regulations are strict, career ladder is difficult. In Africa, for example, it is very difficult to change the mindset.</p> <p>Based on the stakeholders survey, on scale 1-9: Mean (sd) = 6.0 (x,x)</p> <p>See pages 34–35 for qualitative comments</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"/>										

PICO C1 RECOMMENDATION: Should streamlined educational pathways, or ladder programmes, for the advancement of practicing health professionals be adapted in both undergraduate and postgraduate programmes?

<b>Balance of consequences</b>	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"/>
<b>Recommendation</b>	<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"/>	
	<p><b>● Ladder programmes should be delivered</b></p> <ul style="list-style-type: none"> <li>• Specify conditions; available resources (training, faculty, cost, time)</li> <li>• Evidence of pilot interventions. Negative consequences also should be studied</li> </ul>				
<b>Justification</b>	-				
<b>Implementation considerations</b>	<ul style="list-style-type: none"> <li>• ILO issued relevant documents. Duplication should be avoided. If its implementation is limited, this guideline can reinforce its implementation</li> <li>• Regulations should be carefully examined</li> <li>• Commitment by senior management and faculty</li> <li>• Interest and expertise among faculty and administrators</li> <li>• Budget plan for increasing the salary</li> <li>• Community contributions to implement the programme</li> </ul>				

<b>Key uncertainties</b>	Negative consequences of the ladder programmes are not well studied
<b>Monitoring and evaluation</b>	Careful monitoring of those who stepped up the ladders and those who wanted but failed
<b>Research priorities</b>	Gather more information on HRH problems that lend themselves to the application of educational and clinical ladders; (2) more specific costs and benefits of educational and clinical ladders through more evaluation or case studies

### 7.1.7 Interprofessional education

PICO B7 : Should inter-professional education (IPE) be implemented in both undergraduate and postgraduate programmes versus no inter-professional education be used?

	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"/>	Patient care is a complex activity which demands that health and social care professionals work together in an effective manner. The evidence suggests that these professions do not effectively work well together. Interprofessional education (IPE) offers a possible way to improved collaboration and patient care. In this question, our judgement is on the problem of IPE, not on the question of whether professions do not effectively work well together.								
	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 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"/>	All health workers are affected as well as people that seek care									
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 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"/>	<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>Only three small-size controlled trials assessing intermediate outcomes</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 checked="" type="radio"/>	<input 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"/>	<p><b>Quantity</b> Not relevant. (We comment on 'quantity' below)</p> <p><b>Quality</b></p> <ul style="list-style-type: none"> <li>The evidence from controlled studies demonstrated that IPE resulted in increased confidence in their own professional identity and helped them value the difference making them better for clinical placement.</li> <li>Students demonstrated more positive attitudes to team collaboration, improved communication skills</li> <li>No practice-level impact assessment</li> </ul>									
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 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"/>										
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 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><b>Relevance</b></p> <ul style="list-style-type: none"> <li>Interdisciplinary community-oriented exercises during IPE offer unique opportunities for students to appreciate health problems as they occur in the community</li> <li>Only one study which compared students from one school to another where there was no intervention did not show a <b>significant difference</b></li> </ul>									
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"/>																		

	CRITERIA	JUDGEMENT	EVIDENCE												
RESOURCE USE	Are the resources required small?	<table border="0"> <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"/>	<b>Main resource requirements:</b> <b>Resource</b> Staff from different faculties, work settings and locations Staff training Significant layer of coordination for interprofessional educators and curriculum developers Supervision of students Space issues
	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="0"> <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"/>	Uncertain given the uncertainty of benefits	
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="0"> <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 type="radio"/></td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> </table>	Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	-
Reduced	Probably reduced	Uncertain	Probably increased	Increased	Varies										
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>										
ACCEPTABILITY	Is the option acceptable to most stakeholders?	<table border="0"> <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"/>	Based on stakeholders survey, score on a scale from 1–9: Mean; 6.9 SD: 2.2 Refer to pages 51–52 for qualitative comments
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"/>										
FEASIBILITY	Is the option feasible to implement?	<table border="0"> <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"/>	Based on stakeholders survey, score on a scale from 1–9: Mean; 6.0; SD: 2.2 Refer to pages 51–52 for qualitative comments
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"/>										

PICO B7 RECOMMENDATION: Should inter-professional education (IPE) be implemented in both undergraduate and postgraduate programmes be used versus no IPE?

<b>Balance of consequences</b>	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 type="radio"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="radio"/>
<b>Recommendation</b>	<i>We recommend against the option</i> <input type="radio"/>	<i>We recommend the option only in the context of rigorous research</i> <input checked="" type="radio"/>	<i>We recommend the option in the context of close monitoring and evaluation</i> <input type="radio"/>	<i>We recommend the option</i> <input type="radio"/>	
<b>Justification</b>	<p>● Before supporting this recommendation fully, we would recommend work to obtain much better evidence, in institutions with programmes and resources available to support the necessary research.</p> <p>We find a disconnect between the question (“Should inter-professional education [IPE] in both undergraduate and postgraduate programmes be used?”) and the related problem statement (“Low number, quality and relevance of health professionals”); and the statement “the evidence suggests that these professions do not effectively work well together”. The evidence for the latter statement should be included.</p> <p>IPE may also be relevant to quantity as well as quality and relevance questions. IPE may be resource-efficient in a way that allows more health workers to be educated.</p> <p>We are taking the question as relating primarily to undergraduate (pre-qualification) education.</p>				
<b>Implementation considerations</b>	Students in the ‘non-clinical’ professional categories (such as biomedical sciences) were less appreciative of IPE. They needed more explicit learning objectives				

<b>Key uncertainties</b>	<ul style="list-style-type: none"> <li>Impact of IPE on the outcome of interest</li> <li>Cost effectiveness</li> </ul>
<b>Monitoring and evaluation</b>	Given the uncertainties noted above, careful monitoring of the rollout of this intervention will be needed, particularly on resource use (human, material, financial, time)
<b>Research priorities</b>	<ul style="list-style-type: none"> <li>Better quality studies looking at quality of health professionals and relevancy to the communities being served.</li> <li>Other priorities: <ol style="list-style-type: none"> <li>Approaches for training educators involved in IPE</li> <li>Studies of cost effective models for IPE and sustaining IPE</li> <li>Evaluation of impact of IPE on health professional practice in developing countries.</li> </ol> </li> </ul>

## 7.2 Accreditation

### 7.2.1 Accreditation

PICO C2: Should accreditation of health professionals' education be introduced to improve the quality of health professionals' education versus no accreditation?

	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"/>	Health professions education is resource intensive and attracts some of the most promising students in all countries. Less than 50% of countries have a credible, transparent and comprehensive accreditation system.								
	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 population 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 type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> </table> <p>Historical experience in the UK (Medical Act of 1858 establishing the General Medical Council) and the USA (Flexner Report, 1910) indicates substantial closing of sub-standard schools as a result of the introduction of quality standards.</p>	Quantity	Quality	Relevance	Unintended effects	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" 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 checked="" 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"/>	Two systematic reviews identified for medical education and two studies for nursing education. The reviews found very limited evidence of the effectiveness of accreditation on educational and service outcomes.									
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 checked="" 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 type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p><b>Quantity</b></p> <p>Could negatively affect quantity as a result to school closures but no evidence identified</p> <p><b>Quality</b></p> <p>Strongly believed to improve quality but evidence weak. Historically, there is evidence of schools being closed on the introduction of accreditation or re-accreditation</p>									
Very low	Low	Moderate	High	No evidence	Varies																		
<input type="radio"/>	<input type="radio"/>	<input checked="" 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"/>	<p><b>Relevance</b></p> <p>Positive – provided accreditation standards reflect population needs</p> <p><b>Other</b></p> <ul style="list-style-type: none"> <li>Education and training in non-accredited institutions could lead to non-recognition of qualifications post graduation</li> <li>Risk of abuse with private accrediting bodies</li> <li>Poor accreditation may produce a false sense of security</li> </ul>									
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												
RESOURCE USE	Are the resources required small?	<table border="0"> <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 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>	No	Probably no	Uncertain	Probably yes	Yes	Varies	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p><b>Main resource requirements:</b></p> <p><b>Resource</b></p> <p>Two items of importance in literature:</p> <ul style="list-style-type: none"> <li>Resources for implementing the accreditation process</li> <li>Resources for improving institutions to allow them to reach accreditation standards</li> </ul>
	No	Probably no	Uncertain	Probably yes	Yes	Varies									
<input checked="" type="radio"/>	<input 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="0"> <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"/>	Uncertain because of the uncertainty of the size of the benefits and the potentially large resource use. Resources also depend on the current level of quality in educational institutions.	
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"/>										
EQUITY	What would be the impact on health equity?	<table border="0"> <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"/>	Depends on whether accreditation standards are attuned to population health, as set by country
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="0"> <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>Based on the stakeholders survey, on scale 1-9: Mean (sd) = 7.6 (1.7)</p> <p>Qualitative comments drawn from feasibility and acceptability survey.</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"/>										
FEASIBILITY	Is the option feasible to implement?	<table border="0"> <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>Based on the stakeholders survey, on scale 1-9: Mean (sd) = 6.7 (2.1)</p> <p>Qualitative comments drawn from feasibility and acceptability survey</p>
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"/>										

PICO C2 RECOMMENDATION: Should accreditation of health professionals' education be introduced to improve the quality of health professionals' education versus no accreditation?

<b>Balance of consequences</b>	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"/>
<b>Recommendation</b>	<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 type="radio"/>	<i>We recommend the option</i> <input checked="" type="radio"/>	
<p>● If a country has a health professions educational institutions accreditation system(s), the system(s) should be reviewed relative to established professional guidelines for accreditation</p> <p>If a country does not have a health professions educational institutions accreditation system(s), an accreditation system(s) should be developed with reference established professional guidelines for accreditation</p> <p>In both instances, it will be important that accreditation includes attention to:</p> <ul style="list-style-type: none"> <li>addressing population needs</li> <li>providing holistic health professionals' education</li> <li>concern with health workforce needs.</li> </ul>					

<b>Justification</b>	Strong historical and limited current evidence suggests that accreditation is an important quality improvement and assurance mechanism for health professions schools. Moreover, accreditation can be a strong building block in effecting the relevance of a county's health workforce in meeting population health needs. Lastly, accreditation can promote social responsibility in terms of institutions addressing population needs.
<b>Implementation considerations</b>	<p>Sets of accreditation process standards have been developed. International professional groups such as ICN, ICM, WFME should discuss these so that a set of global standards can be developed. Such standards should include inter alia:</p> <ul style="list-style-type: none"> <li>• accreditation must be based on standards</li> <li>• it must be supported by legislation</li> <li>• it should be done independently</li> <li>• the process should be transparent</li> <li>• the system and process should be periodically evaluated</li> </ul>
<b>Key uncertainties</b>	<ul style="list-style-type: none"> <li>• Effect on quantity, quality, relevance</li> <li>• Cost</li> <li>• Ability/willingness to address population health issues in accreditation process</li> </ul>
<b>Monitoring and evaluation</b>	<ul style="list-style-type: none"> <li>• Given the uncertainties noted above, careful monitoring and evaluation of effectiveness of this intervention will be needed, particularly on transparency and expertise requirements (human, financial, time)</li> <li>• Monitoring of appropriate implementation</li> </ul>
<b>Research priorities</b>	<ul style="list-style-type: none"> <li>• Impact on quantity, quality, relevance</li> <li>• Success in addressing population health issues in accreditation process</li> <li>• Impact on educational institutions and the graduates they prepare</li> <li>• Comparative studies on the process of accreditation, using criteria such as purpose, cost, transparency and social accountability</li> </ul>

7.2.3. Continuous professional development (CPD)

PICO C5. Should continuous professional development and in-service training of health professionals implemented be implemented which reflects reforms in education to address evolving population health needs, increase the coverage of services, and actively engage education and training institutions in its design and execution versus no such training and development of health professionals?

	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"/>	<p>Given the exponential progress seen today in technology, diagnostics tools and treatment methods, updating and maintaining the knowledge and skills of health workers throughout their professional life becomes more important than ever. Problems is serious</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"/>																		
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"/>	<p>All health workers are affected, as well as people that seek health care</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"/>																		
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 type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input checked="" type="radio"/></td> </tr> </table> <p><b>Undesireable effects:</b></p> <ul style="list-style-type: none"> <li>absenteeism (time out of the clinics while sitting on CPD programmes).</li> <li>Essential newborn care practices – Sri Lanka (Senarath 2007): The intervention group received a comprehensive 4-day training programme based on WHO Training Modules on Essential Newborn Care and Breastfeeding, aiming at increasing knowledge of essential newborn care (ENC), and developing the corresponding skills among midwives, nurses and doctors in obstetric units. Teaching strategies included lecture discussions, demonstrations, hands-on training, practical assignments, and small group discussions. Sample size: 27 midwives, 19 nurses and 13 doctors in the study group, and 26 midwives, 19 nurses, and 16 doctors in the control group. Results: Practices of cleanliness, thermal protection and neonatal assessment improved significantly in the intervention group relative to the control group (<math>p &lt; 0.05</math>).</li> <li>Sexually transmitted diseases (STD) – Peru: The course design used a learning theory approach, was based on participants’ needs assessment, had an interactive format, used case-based learning with performance feedback, was tailored to local STD problems and included reinforcement components (e.g. mail consultation and learning materials). Sample size: 10 intervention cities, with 642 health workers participating in training, and 527 who did not participate in intervention. Results: knowledge scores among physicians improved from 64.2% to 77.9% at 4-month follow-up (<math>p &lt; 0.001</math>). Self-reported STD management practices did not change. Covered 60% of health workers of 10 Peruvian cities.</li> <li>Diarrhoea and cholera case management – Guatemala (Flores et al., 2002): an in-service distance education programme in diarrhoea and cholera case management for physicians and nurses (which was simultaneously introduced in El Salvador, Guatemala, Honduras and Nicaragua in 1994). Sample size: intervention group: 66 health workers, control group: 66 health workers. The programme was conducted for three weeks and follow up was made after one month to see the health workers’ performance. Results: percentage of diarrhoea cases assessed correctly and dehydration cases classified correctly increased by 25% more in the programme group than in the control group (<math>p &lt; 0.05</math>), but post-course performance was still only 55–60% in the programme group. Rehydration treatment did not improve. Counselling improved insignificantly. Completion rates were high.</li> </ul>	Quantity	Quality	Relevance	Unintended effects	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" 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 checked="" 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"/>										
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 checked="" 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 type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>										
Very low	Low	Moderate	High	No evidence	Varies																		
<input type="radio"/>	<input type="radio"/>	<input checked="" 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 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"/>										
No	Probably no	Uncertain	Probably yes	Yes	Varies																		
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	CRITERIA	JUDGEMENT	EVIDENCE
RESOURCE USE	Are the resources required small?	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input type="radio"/></p>	<p><b>Main resource requirements:</b></p> <p>Using local technology, minimal resources, and evidence-based strategies, the course was provided to nearly half of the physicians and midwives working in the private sector in 10 of the larger cities throughout Peru.</p> <p>Postdoctoral trainee salary for one author for 12 months, plus approximately \$5,000 for course production, including platform, content and fieldwork (Canchihuamna et al., 2011).</p> <p>Programme cost was US\$60 per enrollee (including all costs incurred to implement the programme but none of the costs to develop the curriculum or evaluate the programme), which compares favourably with the cost of other distance education programmes implemented in developing countries (Flores et al., 2002).</p> <p>(Discussion: What does 'small' indicate? Probably number, because of need to cover absenteesm, transportation fee, etc.)</p>
	Is the incremental cost small relative to the benefits?	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input type="radio"/></p>	<p>One article presented a model that related the degree of treatment underuse (which can presumably be measured as one effect of CPD programmes) to the implementation costs. Two application examples of outreach programmes for the prevention of stroke and coronary disease analysed the relevance of implementation costs with respect to the cost-effectiveness ratio and total costs. The model demonstrated that implementation costs may have little impact on the cost-effectiveness ratio but may nevertheless be relevant to a third-party payer who needs to stay within the budget and ensure that care is provided to a large underserved population (Gandjour, Lauterbach 2005).</p>
EQUITY	What would be the impact on health equity?	<p>Reduced    Probably reduced    Uncertain    Probably increased    Increased    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input type="radio"/></p>	<ul style="list-style-type: none"> <li>• If CPD is delivered according to the needs of health service and population, it may improve the quality.</li> <li>• Need another box for 'wishful thinking'</li> <li>• It is important who delivers the programme (government, professional associations and others)</li> </ul>
ACCEPTABILITY	Is the option acceptable to most stakeholders?	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input type="radio"/></p>	<p>The option = multiple techniques CPD programmes (table 4.9 of the Policy Guidelines on Increasing Access to Health Workers in Remote and Rural Areas)</p>
FEASIBILITY	Is the option feasible to implement?	<p>No    Probably no    Uncertain    Probably yes    Yes    Varies</p> <p><input type="radio"/>    <input type="radio"/>    <input type="radio"/>    <input checked="" type="radio"/>    <input type="radio"/>    <input type="radio"/></p>	<p>Among physicians and midwives in Peru, an Internet-based CE course was feasible, acceptable with high participation rates, and led to sustained improvement in knowledge at four months (Canchihuamna et al., 2011)</p> <p>Certainly CPD is taking place already, but in underserved areas, it is more important to get access to CPD and there are also more challenges</p> <p>It depends on the commitment of the government</p> <ul style="list-style-type: none"> <li>• - 85% (table 4.5 of the Policy Guidelines on Increasing Access to health Workers in Remote and Rural Areas)</li> </ul>

PICO C5 RECOMMENDATION: Should continuous professional development and in-service training of health professionals be implemented which reflects reforms in education to address evolving population health needs, increase the coverage of services, and actively engage education and training institutions in its design and and execution?

<b>Balance of consequences</b>	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"/>
<b>Recommendation</b>	<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"/>	
	● <b>CPD programmes, delivered through comprehensive multiple and interactive techniques, are likely to improve quality of health workers, measured as improved clinical practice, knowledge, skills and attitudes</b>				
<b>Justification</b>	<ul style="list-style-type: none"> <li>• CPD is important for everyone given the rapid progress seen today in technology, diagnostics tools and treatment methods, updating and maintaining the knowledge and skills of health workers throughout their professional life</li> <li>• Programmes that are responsive to the needs of health service and population in all areas</li> </ul>				
<b>Implementation considerations</b>	<ul style="list-style-type: none"> <li>• CPD would be transformative education if they are focused especially in areas where there are resource shortages</li> </ul>				
<b>Key uncertainties</b>	<ul style="list-style-type: none"> <li>• Amount, relevance, impact on service quality, and costs of CPD</li> <li>• Impact of pharmaceutical industry</li> </ul>				
<b>Monitoring and evaluation</b>	<ul style="list-style-type: none"> <li>• Course evaluation survey at the end of every course is not enough</li> <li>• Assess durability of skills after the programme ends</li> <li>• It is important to monitor and to plan future sessions</li> </ul>				
<b>Research priorities</b>	<ul style="list-style-type: none"> <li>• There is a need for more standardized approaches in research on CPD effectiveness, particularly with regards to clearly defining the interventions, control groups and the methods and tools used to measure the effects of CPD</li> <li>• Explore in more depth the advantages and disadvantages of more innovative methods to deliver CPD, such as Internet-based or use of mobile phones</li> </ul>				

## Annex 8.

# Example of Systematic Review

## SYSTEMATIC REVIEW PROTOCOL<sup>23</sup>

The Effect of streamlined educational pathways, or ladder programmes, for the advancement of practicing health professionals

<b>Organization, City, Country:</b>	University of the Philippines Manila , Manila , Philippines
<b>Prepared by:</b>	Marilyn Lorenzo, Venice Celis, Sharlyn Celino
<b>Document date:</b>	February 20, 2012
<b>Version:</b>	Final
<b>Senior supervisor:</b>	Marilyn Lorenzo
<b>Research team members:</b>	Jenny dela Rosa, Vanessa Manila, Venice Celis ,Grace Fernandez, Sharlyn Celino

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### 1.0 Background

Health systems everywhere need health professionals who adapt to the health demands of clients and can address the multi-faceted needs of patients. Health system strengthening goals include improving professional development and retention of health care providers who can function in multiple settings and have a wide variety of competencies.

Educational Ladder programs or other streamlined educational pathways such as clinical career ladder programs have been utilized to develop a wide array of competencies for health workers in underserved areas and to promote advancement of practicing health professionals.

<sup>23</sup> For all systematic reviews, see <http://www.who.int/hrh/education/planning/en/index.html>

Documented educational ladder programs are curricular innovations stringing together several health professional development curricula into one integrated undergraduate program. These develop multiple competencies of health professionals who go through the entire ladder. Programs like these promote retention and effectively address mal-distribution of health professionals especially in underserved areas. On the other hand, clinical ladder programs have provided frameworks for recruiting, developing and evaluating health professionals, notably nurses, to promote career progression and retention.

A documented ladder curriculum program was established by the University of the Philippines Manila – School of Health Sciences (SHS) in Tacloban, Leyte in 1977. Its program is radically different from those found in standard medical schools with the objective of producing a broad range of health workers to serve depressed and underserved communities. It designed and tested new program models for health human resources development that would be replicable in different parts of the country, and in other countries with the same situation as in the Philippines.

The five levels in the ladder-type structure are: Barangay Health Workers program (which was later incorporated in the first quarter courses of the Community Health Workers program or midwifery course); Community Health Workers program; B. S. Nursing program; B.S. Community Medicine (Bachelor's degree at par with baccalaureate degrees awarded by the University) and M.D. program. Students are eligible to enroll in the program if they come from depressed and underserved areas. They are nominated by their own communities for admission and do not go through normal university entrance admission screening processes. The students and his community forge a social contract that ensures that the student upon graduation from a specific ladder program returns and serves in their community as a health worker. Service leaves between ladders are important components of the program, providing opportunities for the student to serve and learn at the same time. During the service leaves, the school ensures a firm linkage between the student, the rural health unit and his village or barangay. Upon performing his/her tasks satisfactorily, the student returns to the school to move up the ladder again upon the nomination of his community if there is a need for a health worker with more complex skills. Graduates of the ladder - type curriculum expressed that SHS made them recognize the importance of education and return service. They learned discipline and they became conscious of the need for service to the Filipino community. With the SHS education, they were able to understand and address the real needs of their people (Tayag and Clavel, 2011).

The step-ladder approach provides for less attrition and waste of resources as one may enter and exit at any level and become a functional health provider in the health care system. It also allows for the progressive, unified and continuous development of competencies of a health worker. The ladder-type curriculum addresses brain drain and mal-distribution of health manpower (Tayag and Clavel, 2011).

Clinical Ladder Programs provide a professional framework for developing, evaluating and promoting registered nurses (Krugman et al, 2000 Gustin et al, 1998, Bjørk, 2007, Cook, 2008). It is designed for the recognition and reward of skills in nursing practice. It also aims to promote administrative and education roles of nurses (Goodrich and Ward, 2004). Buchan (1999) considers it as a grading structure which facilitates career progression and associated differentiation of pay through defining different levels of clinical and professional practice in nursing. Advancement through the ladder depends upon meeting the criteria of clinical excellence, skills and competency, professional expertise and educational attainment defined in each level.

To enhance the ongoing process of growth in the practice of professional networking, clinical ladder programs were established that focused on the retention, recognition and recruitment of nurses was established in 1970's (Krugman et al, 2000, Goodloe et al, 1996, Ward and Goodrich, 2007 and Drenkard and Swatwout, 2005). At first, the program was not well received by health professionals because they saw it as a complex process that was difficult to comprehend (Krugman, 2000). To address this issue, many hospitals started modifying clinical programs that best suit the need of the institution and health professionals.

Most of the mechanisms of clinical ladders (mostly three or four level systems) often refer to the work of Zimmer and Benner (Krugman et al, 2000, Goodrich and Ward, 2004, Drenkard and Swatwout, 2005, Goodloe et al, 1996, Gustin et al, 1998, Buchan, 1999, Korman and Eliades, 2010, Pierson et al, 2010, Buchan and Thompson, 1997, Robinson et al, 2003). Studies revealed that hospitals offering career ladders have higher levels of personnel satisfaction than those who lack internal opportunities for professional advancement (Krugman et al, 2000 and Gustin et al, 1998). Positive outcomes from clinical ladder programs are improvement of staff satisfaction, patient satisfaction, physician satisfaction, professional development (Ward and Goodrich, 2007), quantity of expert nurses (Dodgson et al, 1998) and healthcare expenditures. The literature reveals that the use of clinical ladders results in decreased costs (Drenkard and Swatwout, 2005), decreased use of nursing sick time, decreased turnover, and decreased use of agency nurses (Buchan, 1999).

## 2.0 Objective