

Summary of the evidence

Undergraduate training, particularly for physicians, is typically conducted in tertiary care institutions using the latest available technology and diagnostic tools. Once medical studies finish, young graduates are left without skills to deal with health situations in areas where advanced technology and tools are not available. The same holds true for other health professions. Clinical placements in rural areas during undergraduate studies is one way to expose students to the health issues and conditions of service within rural communities, and give them a better understanding of the realities of rural health work.

The evidence on the effects of clinical rotations on improved retention is mixed, but it does show that exposure to rural communities during undergraduate studies influences subsequent choices to practise in those areas, even for students with an urban background (44–47¹⁶). These studies, which were conducted for medical, pharmacy and nursing students, also show improved competencies in dealing with rural health issues among students who completed a rural placement during their studies. However, as the rural placements are not always mandatory, there is sometimes the possibility that students from a rural background may self-select for these programmes, bringing potential confounders to the results of the studies.

Commentary

Rural-based training may allow health workers to “grow roots” in such locations and facilitate the development of professional networks. It may also increase awareness of rural health, even for those who may eventually choose not to practise in a rural area on a permanent basis. The effect can be larger if this intervention is associated with A1 (targeted admission), A2 (location of schools outside major cities) and A4 (changes in curricula).

The optimum duration of the rural exposure during undergraduate studies is not known. It varies from four weeks up to 36 weeks of placement, and it can be mandatory or voluntary. The local availability of mentors, trainers and supervisors is a critical component of this intervention. Stronger study designs are needed to better address confounders in self-selection of students in the rural clinical placement programmes. More studies are needed on other types of health workers and from developing countries.

3.2.5 Scholarships



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¹⁶ Courtney et al. 2002; Smucny et al. 2005; Capstick, Beresford, Gray, 2008; Halaas et al. 2008.

Provide scholarships, bursaries or other education subsidies with enforceable agreements of return service in rural or remote areas to increase recruitment of health workers in these areas.

Quality of evidence: Low

Strength of the recommendation: Conditional

Summary of the evidence

Many governments offer students in the health professions scholarships, bursaries, stipends or other forms of subsidies to cover the costs of their education and training and in return students agree to work in a remote or rural area for a certain number years after they become a qualified health worker.

A systematic review analysed the effectiveness of financial incentives given in return for medical service in rural areas (71¹⁷). It included 43 studies, of which 34 evaluated programmes based in the USA, while the rest examined programmes from Canada, Japan, New Zealand and South Africa. In these programmes, future health workers (i.e. students), or practising health workers enter into a contract whereby they receive some sort of financial incentive (either scholarships for their education, or loans to payback their education, or direct financial incentives), and in exchange they commit to serve in a rural area for a certain period of time. Usually this intervention is combined with other types of retention strategies, such as recruitment of students from rural backgrounds or training in a rurally located school (see Box 6).

These types of bonding schemes were linked to impressive retention rates in 18 studies: the proportion of participants who remained in the underserved area after completing their obligated period of service ranged from 12% to 90%. Yet numerous studies included in this systematic review had serious methodological flaws and therefore these findings should be interpreted with some caution.

Commentary

Bonding schemes appear to be successful in placing significant numbers of health workers in rural areas, and some even appear effective in ensuring that programme participants will continue to work in other underserved areas after completing their obligatory service. However, as many offer a “buy-out” option, further information is required to understand how popular this option is in comparison with completing the compulsory service.

¹⁷ Bärnighausen, Bloom, 2009.

As with other recommendations, positive outcomes are more likely if these return-of-service agreements are combined with other interventions. For example, combining these incentives with targeted admissions is likely to have a larger effect.

Further evidence is required on education subsidies in return of service for nursing students and other types of health professional students. More needs to be known about the characteristics of students who commit to return-of-service agreements and why some graduates choose the “buy-out” option rather than completing their service. More cohort studies should be conducted to compare the retention rates of health workers who have completed their return of service with those who graduated without being part of a bonding scheme.

3.3 Monitoring, implementation and evaluation (for completion after comments)

One of the main causes of shortages and poor distribution of health workers at national and sub-national levels is lack of sufficient numbers of health professionals couple with in some cases inadequate numbers of persons with appropriate education and training entering the labour market. Many low and middle income countries do not have this type of data available for use by ministries of health and education nor the capacity to utilize this data to inform health workforce strategies.

3.3.1 Monitoring health workforce supply

It is critical to monitor each of the components of capacity and output. By drawing on assessments of oversupply or undersupply of various cadres of the active health workforce, institutional capacity for producing new health workers can be decreased or increased, or training programmes for new cadres can be developed. This information can be used to identify the specific bottlenecks in capacity so that if rapid increases in production are required, capacity can be increased as rapidly as possible.

3.3.2 Monitoring certification rates

Monitoring trends in professional certification and licensing numbers and success rates can help identify a variety of problems in the entry process, such as an increase in the licensing exam failure rate, which may indicate insufficiencies in training curricula or exams that are outdated in relation to changes and innovations in clinical practice.

There are cases where graduates succeed in the institutional proficiency tests, but fail the professional association certification exam, indicating a mismatch in the level of proficiency expected at the institutional versus the association level.

In settings with extreme shortages or maldistribution of highly skilled health-service providers, it is important to monitor the rapid production of large cadres of lower skilled workers to meet the immediate needs for basic health services among underserved, mainly rural communities. Since these workers will often be the first point of contact with the formal health-care system, and therefore will represent the system at the community level, guaranteeing the quality of the workers through proper certification is of extreme importance.

3.4 Good practice Recommendations: Governance and planning

3.4.1 Good practice 1

Government at the highest level shows political commitment to reform and takes leadership of its implementation.

3.4.2 Good practice 2

There is formal collaboration and shared accountability between the ministry of health, the ministry of education, and other related ministries (e.g. finance, labour, public service), at national and/or sub-national level in the education and training of health professionals.

3.4.3 Good practice 3

A national plan to produce and retain graduates is developed in consultation with stakeholders, informed by the needs and absorptive capacity of the labour market, and aligned with the national health plan.

3.4.4 Good practice 4

The creation or strengthening of national or sub-national institutions, capacities or mechanisms to support the implementation of the reform and scale-up plan (e.g. legislation, policies, procedures).

3.5 Civil society recommendations

This section uses excerpts from the recommendations made by civil society based on the on line survey to solicit their view that drew responses of 160 out of 304 civil society organizations in low and middle-income countries. To advance the contributions of what is termed 'Southern' civil society to the transformational education initiative, the results of the above described study form the basis for the following recommendations.

1. Research findings must be translated into practice to meet the needs and encourage the support of policy-makers and civil society advocates.
2. Cost-effectiveness studies on a larger scale are needed, but equal weight should be given to assessing and building up Southern civil society capacity and ability to support the initiative.
3. Given the scope of the initiative, standard methods and metrics should be developed for transformational education research and practice.
4. The implementation of national agendas for civil society research and evaluation processes should be enabled to foster comprehensive policies that subsequently enhance the sustainability of the civil society workforce and leadership in guiding policy recommendations.
5. The inclusion of Southern civil society perspectives should be a critical step in the process of improving and scaling up health professional education.
6. The integration of Southern civil society in health population programmes should be promoted and enabled.
7. A phased/tailored approach to scaling up should be used.
8. Scaling up should be tailored to contextual circumstances, and delivery should be decentralized.
9. An integrated approach to scaling up should be adopted.

10. Strong leadership and governance are needed for the entirety of the scale-up process.
11. Local implementers and other stakeholders should be encouraged and engaged.
12. Both state and non-state actors should be used as implementers.
13. Engaged and “activated” underserved communities are key to the success of scaling up.
14. Political will should be demonstrated for national policies.
15. The critical issue of country ownership should be addressed consistently throughout the transformative process.
16. Research results should be incorporated into implementation: learning and “doing”.

4. Knowledge gaps and research agenda

By definition, the evidence in support of a transformational change in a complex field such as the education and scaling up of health professionals is not complete. Well-designed and coordinated research can help fill the knowledge gaps. In the process of developing the present guidelines, we observed that even though much has been written on the education and training of health professionals, the existing literature often lacks methodological rigour and, in most cases, research results have little external validity. Efforts are being made in this and other complex fields to develop methodological approaches that augment the strength of the evidence produced by research. Tools like the GRADE system or, STROBE (STrengthening the Reporting of OBservational studies in Epidemiology) and CONSORT (Consolidated Standards of Reporting Trials) offer useful guidance. Here we present some questions that were raised as we searched for evidence on which the recommendations could be based.

The questions outlined below deserve further investigation.

On education and training institutions

- Do health faculty development programmes increase confidence in teaching?
- Do faculty development programmes make a difference in students' learning and clinical performance? How and why?
- What is the effect of faculty development initiatives on patient outcomes and the health of populations (Couper et al. 2012)?
- Do alternative pedagogical approaches, such as problem-based learning, the increased use of simulation methods and inter-professional education, improve student learning in the long term?
- What are the training needs of educators which the utilization of innovative learning strategies generate?
- Do changes in recruitment practices impact on the retention of health workers in underserved areas (poor, isolated, rural zones)?
- What is the impact of decentralizing education and training programmes on rural recruitment and the retention of health professionals?
- What is the impact of inter-professional education on health professional practice (for example, on team work)?
- What are the effects of simulation methods on patient outcomes?

On accreditation and regulation

- What are the impacts of accreditation and regulation mechanisms of the education and training of health professionals on their quantity, quality and relevance?
- What are the factors that influence the success or failure of accreditation and regulation mechanisms of the education and training of health professionals?
- Which indicators best capture success or failure?
- What is the feasibility of creating career ladders?
- What are the benefits observed in terms of augmenting the availability of health professionals?
- What are the effects of different modalities of continuing professional development strategies on the performance of professionals, on their motivation and satisfaction, and on retention?
- What are the factors that influence their effectiveness?

On financing and sustainability

- What are the costs (and their components) and benefits of the different strategies for scaling up the production capacity of education and training institutions?
- What are the costs incurred by the entry of more professionals into the health labour market?
- What are the financial and other incentives most likely to maintain the motivation of educators?
- What are the comparative advantages of different modalities of financing the transformation and scaling up of the education and training of health professionals?

On monitoring, implementation and evaluation

- Which indicators are more appropriate to monitor and evaluate the process of transforming and scaling up of the education and training of health professionals? Which indicators have more capacity to alert implementers of the need to reform deviations from the expected course?

On governance and planning

- What constrains or facilitates the development of effective policies of transformation and scaling up of the education and training of health professionals?
- What are the effects of the active participation of representatives from key stakeholder groups in the governance structures of health professional schools on the quantity, quality and relevance of health professionals?

- Which governance structures and mechanisms contribute better to the sustainability of reform, and to maintaining political and stakeholders' commitment?

The above questions suggest a series of research activities that can help bridge the knowledge gaps identified, and support the policy and decision-making processes. These are in addition to data collection on education and training institutions (infrastructure, personnel students, financial resources), and to continuing and careful monitoring of the process of reform. Examples are:

- exploration of the advantages and disadvantages of more innovative methods to deliver CPD, such as Internet-based or use of mobile phones;
- long-term evaluation of the impact of new curricula through cohort analysis;
- longitudinal studies linking the retention of health workers trained in community and rural settings to changes in recruitment practices and in the curricula;
- assessment of the impact of decentralizing education and training programmes on rural recruitment and retention of health professionals;
- evaluation of the impact of inter-professional education on health professionals' practice;
- comparative studies on the process of accreditation, using criteria such as purpose, cost, transparency, and social accountability;
- assessment of the impact of the regulation of health professionals education on the quality and relevance of practice;
- in countries where regulation is being introduced (e.g. francophone West Africa) or strengthened, before-and-after studies comparing quality of education, professional practice, patient safety, etc.;
- economic research on the costs of: (1) training and utilizing existing categories of professionals; (2) options of mix of occupations to deliver the same services with the same quality; (3) induced costs of scaling up production; (4) fiscal space for rapid scaling up;
- expansion of research on professions other than medicine and nursing, and on low- and middle-income countries;
- case studies of governance structures and processes.

5. Conclusion (to be completed on agreement of text.

This is just a summary of the key areas in the document which will be adjusted)

The guidelines document covers a wide range of issues that pertain to health professional education and training, but the recommendations focus on those areas where it is regarded as being the most critical and fruitful for bringing about fundamental and sustainable change in countries. During the process of guideline development we have sought views across a wide variety of stakeholders both through the reference groups, the guidelines development group, civil society and from additional stakeholders at the country level through the feasibility and acceptability survey. The guidelines are also supported by policy briefs that examine important issues where at this point the core group felt there was insufficient evidence to confidently make recommendations. For this reason a number of areas for further research has been highlighted, which are drawn from the assessment of the state of the evidence.

Education and training institutions

Almost all countries have health workforce imbalances - deficits, shortages or inequitable distribution of workers. These create an urgent need to scale-up the numbers of health professionals and adapt their education and training to new epidemiological and demographic challenges. New generations of health capable of leading change must be educated and integrated in health systems in a continuous process of adaptation.

- Education institutions should regularly review and update core competencies required to meet the evolving needs of populations, health systems and health service delivery.
- They should also regularly review curricula and programme delivery to determine whether the programme prepares students to attain the necessary core competencies.
- Health professional schools should implement faculty development programmes which develop and update teaching and clinical skills, which are relevant to the evolving health care needs of communities, and support faculty involvement in service.
- Governments, funders and accrediting bodies should implement higher education policies for mandatory faculty development programmes that are aligned

with the goal of relevant health professional education (in developing teaching and clinical skills) and linked to funding, promotion and reward.

- Education institutions should be required to fund and implement programmes to develop and update teaching and clinical skills relevant to the evolving health care needs of communities. They should be linked to the promotion and rewarding of teachers and trainers.

Accreditation and regulation

Regulation is an essential part of any strategy to improve the performance of a health care system.

- Without minimum qualification requirements for entry to the health labour market, populations would be exposed to incompetent providers and to individuals misrepresenting themselves as qualified health care providers.
- Left to itself, the market would not respond to the needs of the poorer sections of the population, or to health service needs that are not financially attractive. Training institutions would have little interest in recruiting from minority groups or in training for underserved regions.
- The State should facilitate the quality of education of health professionals, because it has a responsibility to protect its citizens against unqualified or poorly-qualified health service providers.
- Regulation is needed to guarantee that health professionals are sufficiently prepared to deliver quality services to the population and do not take advantage of the relative dependency of their clients.
- Health professional regulation should be created, or if it already exists, it should be strengthened in the form of certification and licensure to ensure the quality and relevance of care provided by health professionals.

Financing and sustainability

- Producing more health workers requires training, recruiting and paying more educators and trainers, and other direct costs, which need to be estimated before defining scaling-up targets. This is the most formidable constraint on scaling up, because most of these costs are recurrent.
- The affordability of scaling-up is a political decision based on value choices as well as on economic criteria, and consideration of the benefits in terms of health outcomes. Spending more on the education of health professionals will be acceptable if

addressing the health needs of the population is considered a priority. In high-income countries, domestic resources are most likely to be the unique source of funding.

- Options include using existing public revenues and shifting resources within the health sector; efficiency gains, savings and increased productivity; generating revenue through higher taxes; private funding including student fees; or a combination of these.
- In lower income countries, the same domestic options exist, but are unlikely to yield sufficient resources; external aid will be needed. Donors will expect such countries to produce a credible plan for scaling-up and documented estimates of financial support will be needed.
- In all countries, spending more is important. But spending better is even more so in order to produce the greatest impact in increasing the quantity, quality and relevance of health workers and thereby on the services which each country needs.

Monitoring, implementation and evaluation

Implementing transformative changes in the education of health professionals is justified by clear objectives.

- To ensure that these objectives are being achieved, mechanisms to track changes and their effects must be in place so that policy-makers can see if their policies need to be adapted. This requires valid, updated, easily-accessible information.
- Monitoring and evaluation are key components of change implementation, but leaders of the transformation process will face challenging policy issues: what to monitor, how to do it and who should be responsible, and how to ensure that the information produced by monitoring and evaluation will be used.
- In most countries, basic health workforce data, including those relating to the process of being educated, is deficient.
- The introduction of transformative changes in education is an opportunity to review the strengths and weaknesses of current information systems and to build others which will make it possible to monitor and assess the effects of changes on the quantity, quality and relevance of new health professionals.

Governance and planning

The success of a radical transformation requires strong leaders and policy entrepreneurs (champions) as well as solid governance.

- It is a very political process that affects the values, objectives, power and interests of numerous stakeholders and requires important new investments.
- A strategic approach to transforming and scaling-up and some form of planning is needed, and stakeholders must commit to the plan and stay committed to implementing it.
- Resources have to be mobilized, and political support maintained. The leaders who are most needed are those who understand change and believe in it, and who can engage others.

Good practices for governance identified in the guidelines include these examples:

- Government at the highest level shows political commitment to reform and takes leadership of its implementation.
- Formal collaboration and shared accountability between the Ministry of Health, the Ministry of Education, and other related ministries in the education and training of health professionals.
- A national plan to produce and retain graduates is developed in consultation with stakeholders, with an understanding of the labour market, and aligned with the national health plan.
- National human resources for health information system are strengthened, to include data elements that support the situation analysis, monitoring and evaluation of the production, recruitment and retention of health professionals.

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Annexes

Annex 1. Definition and list of health professionals

Definition of health professionals

Health professionals maintain health in humans through the application of the principles and procedures of evidence-based medicine and caring. Health professionals study, diagnose, treat and prevent human illness, injury and other physical and mental impairments in accordance with the needs of the populations they serve. They advise on or apply preventive and curative measures, and promote health with the ultimate goal of meeting the health needs and expectations of individuals and populations, and improving population health outcomes. They also conduct research and improve or develop concepts, theories and operational methods to advance evidence-based health care. Their duties may include the supervision of other health workers (adapted from ILO 2008; WHO 2010; Gupta 2011).

List of health professionals considered within the literature review

Occupations in this sub-major group are classified into several minor groups. To facilitate the development of the WHO guidelines for transforming and scaling up health professional education and training, the literature review will focus on the following list of health professionals, as defined by the International Standard Classification of Occupations (ISCO) (ILO 2008; WHO 2010).

- Medical Doctors – both Generalist and Specialist Practitioners, including Public Health Doctors (ISCO-08 minor group 221).
- Nursing Professionals, including Public Health Nurses (ISCO-08 minor group 222, unit 2221).
- Midwifery Professionals, including Public Health Midwives (ISCO-08 minor group 222, unit 2222).
- Dentists (ISCO-08 minor group 226, unit 2261).
- Pharmacists (ISCO-08 minor group 226, unit 2262).

To simplify and streamline the literature review, this list excludes several groups under the ISCO-08 definition of health professionals, such as traditional and complementary medicine professionals (ISCO-08 minor group 223), paramedical practitioners (ISCO-08 minor group 224), dieticians and nutritionists (ISCO-08 minor group 226, unit 2265), physiotherapists (ISCO-08 minor group 226, unit 2264), and several other therapy-related occupations.

Annex 2. List of terms used for graduate entry programmes

Term	Definition	Source
Graduate entry programme	Usually used in reference to medical education where mature candidates with a relevant undergraduate degree (and sometimes post-graduate) gain access to the traditional medical training programme which is not necessarily accelerated. Some may require prospective candidates to sit a graduate entry test, some require science in first degree while others accept full range of non-science undergraduate degrees. These candidates generally enter into the second year of the traditional programme, the length of which varies. GEP identified as an innovative mechanism by (one or more?) medical schools in SSA for reducing the barriers to increasing quality and quantity of medical education.	Calvert 2010; Price 2010; Chen et al. 20012
Accelerated programmes	Accelerated nursing degree programme" means a programme of education in professional nursing offered by an accredited school of nursing in which an individual holding a bachelors degree in another discipline receives a BSN or MSN degree in an accelerated time frame as determined by the accredited school of nursing.	http://definitions.uslegal.com/a/accelerated-nursing-degree-program/
	An accelerated nursing programme is usually an accelerated bachelors in nursing programme. Some schools may refer to it as the BSN express. This programme is for those individuals that currently hold a bachelors degree in another discipline and would like to obtain a second bachelors degree in nursing.	http://www.nurses-neighborhood.com/accelerated-nursing-program.html
	Accelerated baccalaureate programmes offer the quickest route to licensure as a registered nurse (RN) for adults who have already completed a bachelor's or graduate degree in a non-nursing discipline.	http://www.aacn.nche.edu/media-relations/fact-sheets/accelerated-programs
RN To MSN	RN to MSN programme ideal for nurses who intend to work in the nursing field for a decade or longer. Experienced nurses who hold their Registered Nurse license (and RNs who also hold bachelor's degrees in other fields) can apply their associate degree toward the MSN without having to first earn a <u>BSN</u> .	
Direct entry	Direct-entry midwife: A midwife who has entered the profession of midwifery as an apprentice to a practicing midwife rather than attending a formal school programme.	http://www.medterms.com/script/main/art.asp?articlekey=40489
	Direct entry accelerated BN or MN programme: This direct-entry accelerated programme is designed for individuals who have a college degree but no nursing experience.	

Annex 3. Final list of PICO questions

Faculty development

B3a: Should continuous development programmes for faculty and teaching staff, which update and develop teaching skills be mandatory (e.g. curriculum development and instructional design) in both undergraduate and postgraduate programmes, versus no mandatory CPD programmes, and linked to funding, promotion and reward?

B3b. Should health professional schools implement faculty development programmes, which update and develop teaching and clinical skills, in both undergraduate and postgraduate programmes versus no faculty development programmes?

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

Curriculum development

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

Simulation

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

Direct entry of students

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?

Admission procedures

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?

Educational pathways and ladder programmes

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?

Interprofessional education

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

Accreditation

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