



**Transforming and Scaling up Health
Professional Education and Training**
Policy Brief on Monitoring and Evaluating
the Education of Health Professionals

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Acronyms

GNI	gross national income
NCLEX	National Council Licensing Examination
NLN	National League for Nursing
WFME	World Federation for Medical Education
WHO	World Health Organization



Introduction

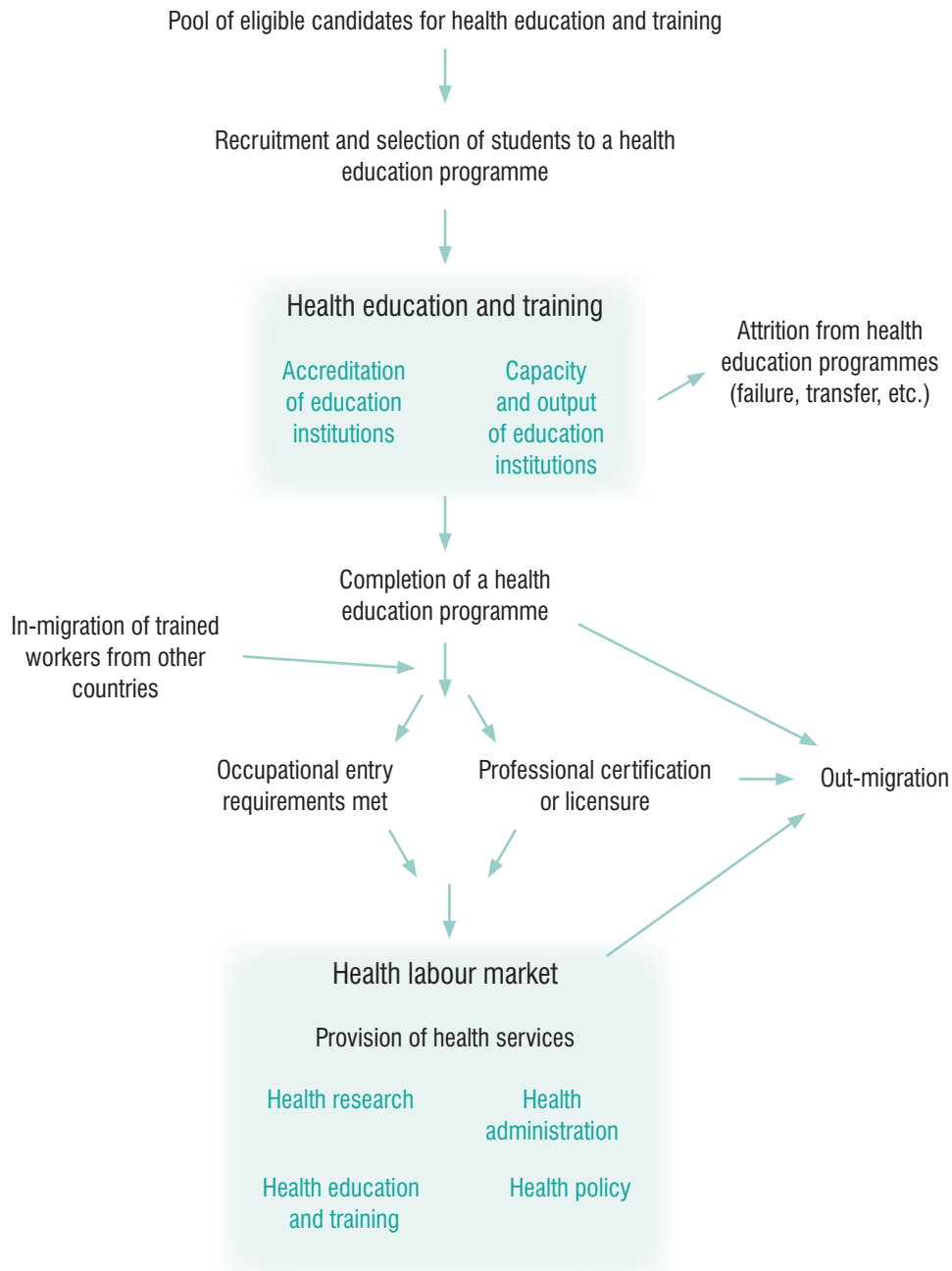
One of the main causes of shortages and maldistribution of health workers in a country is the lack of entry into the labour market of adequate numbers of persons with appropriate education and training. Yet in most countries few data on health worker entry are available for use by the education system or the Ministry of Health, impeding the ability of the health system to respond to labour market forces and to develop effective health workforce strategies (1). The aim of this policy brief is to provide guidance on ways in which entry into the health workforce can be monitored and assessed, and how the appropriate data can lead to the formulation and evaluation of policies and programmes to correct shortages and maldistribution of health workers.

Framework for monitoring entry

At **entry**, consideration should be given to all health workers who require vocational education and training in a health-related field for recruitment into a job, including clinical cadres, public health workers, community health workers and laboratory health workers (1). A conceptual framework is proposed that divides the entry process into seven distinct but interrelated components. Each component is explored and its policy implications discussed. The production and availability of health workers can be viewed as a **pipeline**, tracking the processes related to health worker training and the development of the institutions that train them, with the outputs of each component feeding into the next (Figure 1 below) (2–4). How each of the components in the pipeline can be measured, monitored and evaluated will be examined.

The seven components are: (1) the pool of eligible candidates for health education and training; (2) recruitment and selection of students; (3) accreditation of education and training institutions; (4) capacity and output of education and training institutions; (5) migration of trained health workers into the country; (6) certification and licensing of regulated health service providers (nationally or internationally trained); and (7) recruitment of trained workers into jobs. In the context of this policy brief, health worker education refers to pre-service vocational education and training in the field of health, as opposed to in-service training for upgrading skills among workers already employed in the health-care industry. Each component is associated with a set of indicators that are detailed in Table 1 below with a brief description of potential data sources.

Figure 1. Framework for monitoring entry into the health workforce



Sources: Adapted from (2), (3) and (4).

Seven components of monitoring

1. Pool of eligible candidates

Within each country, the size of the pool of eligible people from which health training institutions recruit their students depends primarily on the admission criteria for each training programme and the strength of the primary and secondary school system. For tertiary-level programmes producing the most highly skilled health service providers, this pool traditionally consisted of students having graduated at the upper secondary level (equivalent to level 3 of the International Standard Classification of Education) (5) and with strong science backgrounds. The pool of eligibles has been widened to include those without upper secondary diplomas or strong science backgrounds. For example, to increase retention of nurses in rural areas of Pakistan, the Aga Khan School of Nursing developed a programme that recruited young women who had graduated from rural secondary schools but essentially, due to the weakness of their under-resourced schools, at only the lower secondary level. The remedial programme quickly brought their knowledge level up to meet the qualifications for entering nursing school, and they then joined the regular nursing programme along with their counterparts who had graduated from urban secondary schools (6).

Recommendation 1: Start outreach programmes to interest high school students or others to become health workers; and set up training programmes within high schools. An analysis should be conducted to determine if more sweeping changes are needed in the primary and secondary curricula to properly prepare students for health careers.

2. Recruitment and selection of students

In most low- and middle-income countries there is a need for **active** recruitment to correct gender, economic, ethnic, urban/rural and regional imbalances. Also, to be considered is the provision of assistance to potential students in their choice of institution and in filling out application forms, which may be especially daunting to those from disadvantaged socioeconomic groups or underserved communities who may be the first in their family to apply for higher education.

Recommendation 2: Recruiting students based on their motivations for pursuing a health career can help improve worker retention. Evidence from an observational study of Ethiopian nurses and physicians revealed that students with higher reported rates of altruism (measured as willingness to help the poor) were willing to work in rural areas for a lower rural bonus, and were more likely still to be practising in a rural area when followed up two years later (7). A study on the migration of health workers from Ghana to the United Kingdom and the United States of America found that many nurses and physicians had entered the health field with the intention of migrating, and that a health career was often seen as a “ticket” out of Ghana (8).

3. Accreditation of health education institutions

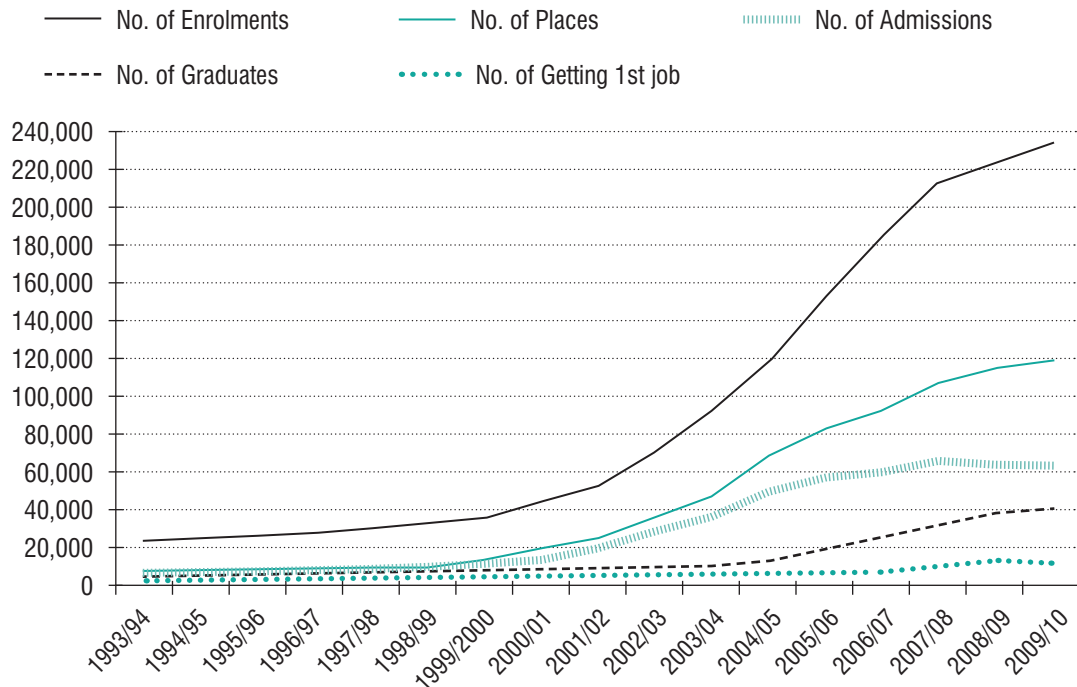
Accreditation is a mechanism that consists of initial formal recognition of training institutions by a representative body (usually at the national or sometimes subregional level) that certain predetermined educational requirements have been met (covering such aspects as instructors' qualifications, curricula and clinical rotations) followed by periodic assessments to ensure maintenance of standards. Elements of proper accreditation and quality assurance processes of health education institutions include: authoritative mandate and decision of the accreditation agency; social accountability; independence from government and providers; transparency; predefined general and specific criteria for education standards; procedures using a combination of institutional self-evaluation and site visits by external reviewers; and publication of reports and decisions (9). Potential uses of accreditation data to support decision-making include identifying practices from high-performing training institutions that can be replicated at other institutions, and identifying poorly performing institutions in need of increased attention. A large number of institutions failing to meet accreditation or reaccreditation standards could indicate that institutional management may need to be improved, that the standards are unrealistically high or that education institutions are under-resourced.

Recommendation 3: All health professions' education institutions, public or private, should be accredited to assure the match of health workers and their skills with the country's health-care needs, and to ensure the quality of education provided. The accreditation process should be driven by the national health policy and be conducted in a manner that makes it socially responsible, while maintaining the independence of the accreditation agency (10, 11).

4. Education and training capacity and output

Capacity in pre-service training includes physical infrastructure (for example classrooms, laboratories, libraries, clinics for internships, campus residencies), human resources (quantity and quality of instructors and auxiliary staff), financial resources, organizational and operational capacity (managerial structure and processes) and other non-infrastructure physical inputs (pedagogical tools, reference books and journals, computer equipment) (4). Health worker training institutions, accredited or not, can vary greatly in capacity, and in many cases the training institution may not be aware of its own capacity or potential capacity. As a demonstrative example, figure 2 describes 5 measurable dimensions around entry, which are: the number of enrolments sought, places offered, actual admissions, graduates and those finding first jobs. The curve of the number of enrolments shows the demand for nursing training is consistently rising and exceeds the training capacities as shown by the number of places available. When more places are brought on offer, a clear drop-in the number of admissions occurs in the period after 2004 which may be happen for a number of reasons such as constrained resources in these training institutions. Another deficiency is shown by the significant down trend in the numbers graduating which could be in part due to an early realisation of restricted job opportunities evidenced by the low numbers finding a first job placement. Strikingly, the demand for the demand of employers for qualified nurses to employ have hardly changed in the two decade period as shown by the near flat-line variant of the numbers getting a first-job.

Figure 2 Number of enrolments, places, admissions and graduates of nursing schools, and those finding a 1st job - Brazil, 1993 2010.



Sources: 1. Censo of Higher Education (MEC / INEP, 1993/2009).
2. Annual List of Social Information (RAIS, 1993/2010).

Recommendation 4: 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 specific bottlenecks in capacity, so that if rapid increases in production are required, capacity can be increased as rapidly as possible.

5. In-migration of trained health workers

Countries with better wages, working conditions and quality of life tend to attract health workers from other countries, who have to receive working visas and, for certain skilled health service providers, be licensed or certified by the appropriate regulatory body.

Recommendation 5a: In the case of destination countries, options may include adjusting the number of visas earmarked for health workers, the degree to which their visa applications are facilitated and expedited, and how actively the government allows the public or private sector to

recruit internationally (12). Policies and practices can be active, for example when the government posts advertisements in other countries, sends recruiters or negotiates bilateral arrangements with other countries; or *passive*, that is, simply considering health workers like all others who apply for visas on their own accord.

Recommendation 5b: In the case of sending countries, options may include increased funding for the production of health workers to meet demand abroad, and policies of return (13). Of note is the Philippines' policy on assistance of international migration for its nurses to many receiving countries. As part of its managed migration strategy, the Philippines negotiates the number of workers the destination countries will receive and the terms of their service (the agreements signed with the United Kingdom in 2003 and with Japan in 2006 are examples). This may be considered a mutually advantageous process for both countries, as it allows both the Philippines and the receiving country to conduct long-range nurse workforce planning and to minimize sudden shocks (14). On the other hand, unexpected (and undesirable) side-effects of this strategy may include encouraging nursing teachers and trainers to leave, encouraging physicians and other health professionals to retrain as nurses to improve their chances to emigrate (15) and weakening of the health system, particularly in rural areas.

Note: Countries should recognize the right of individual workers to migrate, and denounce unethical recruitment practices that exploit health workers or mislead them into accepting job responsibilities and working conditions that are incompatible with their qualifications, skills and experience (16, 17).

6. Certification and licensing of health service providers

Certification and licensing are used by countries to control the quality of health-care workers practising in their country and to control the size of the health labour market. The two aspects vary in their potential in monitoring and evaluation terms: certification to practise a profession usually does not need to be renewed, while a licence usually needs to be periodically renewed based on certain criteria such as passing a renewal exam, demonstrating continuing learning, being employed in the field or simply paying a fee (18).

Recommendation 6: 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 may indicate deficiencies 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 between the degrees of proficiency expected at the institutional and at the association levels.
- 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 will therefore represent the system at the community level, guaranteeing the quality of the workers through proper certification is of extreme importance.

7. Recruitment into the health labour market

Monitoring the recruitment of newly trained health workers into the national health labour market is critical in order to reduce inefficiencies in the hiring system, to identify potential gaps between supply and demand for health workers, and to monitor achievements in health workforce planning. Countries with only government-operated education institutions and few health-related private sector jobs have simple health labour markets; active recruitment of workers to health-care service is not needed since all graduates are directly employed by the government, or do not work if posts are not available. But countries with private training institutions or a significant formal private health sector have more complex health labour markets, requiring active recruitment to fill job vacancies. Health systems, including their educational components, must look for ways to reduce the wastage of human resources in order to increase the efficiency of the system as a whole; this should be considered a social imperative (Box 1, 19)

Recommendation 7: It is important to ensure the application and posting process is as transparent and timely as possible. Health workers should be able to apply to specific posts and the criteria for selection should be clear. Governments can improve the efficiency of the health labour market by establishing free, easily accessed job boards on which all job seekers and employers can post. In some contexts, offering incentives (monetary and non-monetary) may be needed to encourage workers to apply for posts in underserved areas. Establishing early links between potential employers and educational institutions is also an option that enlarges students' knowledge of their future career trajectory.

Box 1: Mexico case study to measure labour wastage (19)

Answers to the questions in the Mexican census and employment survey on education and labour activity enable triangulated estimates to be made from both sources of the numbers of physicians, nurses and other health professional groups across the country, and their employment status. Among those currently employed, it is possible to assess the *type* of activity they perform and whether it is related to the academic field in which they were educated. From a health systems strengthening perspective, failure of qualified persons to put into practice the specific skills stemming from their education implies wastage of a social, public or private investment that yields no benefit for the population, or for the workers themselves. Those trained in health services provision who remain outside it due to various reasons (inadequate market absorption capacity, personal motivation) fall into various categories:

- Underemployed: individuals who have completed their formal education and are currently employed but perform activities not related to their training. This includes trained health professionals working outside the health services, signifying a mismatch of occupational skills. The concept is consistent with the International Labour Organization's definition of underemployment as encompassing individuals whose "employment is inadequate, in relation to specified norms or alternative employment, account being taken of [their] occupational skill" (20).
- Unemployed: individuals who actively place pressure on the labour market in searching for a job or awaiting the outcome of a job application (during a referenced period of time, such as the week prior to data collection). The definition may also extend to those looking for work outside the formal economic sector.
- Inactive-eligible: individuals not currently seeking employment but who would be eligible for work by virtue of their skills, age and ability. This encompasses those who have chosen to withdraw from the labour market as a personal option (in the short or long term), including those dedicated to domestic labour.
- Inactive-ineligible: individuals unavailable for or unable to work, for example due to retirement, studies, work-limiting disability or another reason.

Table 2 shows selected findings from the triangulation of data from the two sources on indicators of health labour wastage in Mexico (19). Estimates are provided for those currently employed, underemployed and unemployed. There are also challenges in the accuracy of measurement of these concepts. Despite the similar methodology used, important differences are found in the total number of physicians (results from the survey being some 20% higher than those from the census). Regarding nursing professionals, estimates of the total stock are lower from the survey source than from the census (7% lower) and the indicators of labour force participation show a greater asymmetry. For example, the difference in the employment rate among nurses is nine percentage points across sources and for the underemployment and unemployment rates some six percentage points each.

Table 2: Stock and distribution of the physician and nursing workforce by labour force status, based on census and survey data, Mexico, 2000

Data source Indicator	Census		Employment survey	
	Number	%	Number	%
<i>Physicians</i>				
Employed	142 923	70	189 930	74
Underemployed	26 733	13	28 457	11
Unemployed	10 892	5	7 036	3
Domestic labour	7 895	4	14 556	6
Not available for work	16 335	8	17 509	7
Total	204 778	100	257 488	100
<i>Nursing professionals</i>				
Employed	57 834	55	62 406	64
Underemployed	16 128	15	7 666	8
Unemployed	7 143	7	1 254	1
Domestic labour	16 971	16	19 530	20
Not available for work	6 659	6	7 124	7
Total	104 735	100	97 980	100

Note: Underemployed includes those who have completed university-level training in medicine or nursing but perform work activities not related to their education. Not available for work includes those who are retired, studying or have a work-limiting disability. Percentages may not sum to 100% due to rounding.

Source: Instituto Nacional de Estadística, Geografía e Informática (21).

Conclusion

Monitoring entry into the health workforce requires a high level of collaboration between key stakeholders, including ministries of health, education and finance, individual training institutions, professional regulatory bodies and the private sector (for example associations of private providers and nongovernmental or faith-based organizations that provide health services) (1).

Timely and accurate data on entry into the health labour market are essential for evidence-informed planning and management of health systems. The labour or educational market may change quickly as the economy changes, positively or negatively affecting the quality of candidates for health occupations. The population size and structure, immigration patterns and burden of disease may also change, necessitating a change in training curricula or workforce size or skill mix. All these changes have to be taken into account in the policy-making process. Health sector actors must actively monitor the whole situation to be able to respond appropriately, and to be able to gauge the success of interventions.

Seven components of the health worker production pipeline were identified for which data are needed. At certain critical points of HRH planning and monitoring, special surveys or studies may be needed to validate or gather additional entry data which it is not feasible to gather on a routine basis. It is important for the Ministry of Health to partner with other responsible ministries, education and training institutions, and stakeholders to work together to ascertain the real numbers of appropriately trained health-care workers.

Recommendation 8: Investing in strengthening human resources for health information systems (HRIS) is imperative for low- and middle-income countries, (22) developed to link all human resources data from the time health professionals enter pre-service training to when they leave the health workforce. In foresight, it is important to sustain a broad bandwidth of stakeholders' involvement (including development partners, the beneficiaries and contributors to the system) at the earliest possible stage in developing a national HRIS (23). There is a need to establish an explicit commitment to information development so that the information base will once and for all fully support evidence-based decision-making at all levels in the health services.

Table 1 Key indicators and means of verification for measuring entry into the health workforce

Indicators	Potential data sources	Complementary dimensions
<i>Pool of eligible candidates</i>		
<ul style="list-style-type: none"> • Number of students graduating from primary school, e.g. expressed as % of all children of primary schooling age. • Number of students graduating from secondary school, e.g. expressed as % of all children of secondary schooling age. • Number and % of students graduating from secondary schools with science concentrations (or other entry requirements for health vocational training). 	<p>Ideally assessed through routine administrative records submitted by individual primary and secondary schools (ministry of education). Can also be assessed by interviews with key informants (e.g. district school managers).</p> <p>Information on the total number of children belonging to the age group that officially corresponds to primary and secondary schooling should be periodically validated against data from a population census or other nationally representative source (central statistical office).</p>	<p>Data on eligible students ideally disaggregated by age, sex, urban/rural or other characteristic that would lend them to serve underserved communities. Additional qualitative information may be required on the quality/relevance of the secondary science curriculum.</p> <p>Further information may also be needed on requirements to enter training for lower-skilled occupations (such as community health workers).</p>
<i>Recruitment and selection of students</i>		
<ul style="list-style-type: none"> • Number of applicants per training place, per cadre. • Number and % of applicants meeting entry requirements per place, per cadre. • Number and % of applicants accepted for training programmes, per cadre. • Number and % of accepted applicants who register for training, per cadre. 	<p>Ideally assessed through routine administrative records submitted by individual health training institutions (ministry of health, ministry of education).</p> <p>Can also be assessed through a quantitative survey of training institutions or interviews with key informants (e.g. managers of training programmes).</p>	<p>Data on applicants ideally disaggregated by age, sex, urban/rural or other characteristic that would lend them to serve underserved communities.</p> <p>Additional qualitative information may be useful on recruitment strategies (especially targeting certain population groups), reasons applicants did not qualify for training and reasons accepted applicants did not eventually register for the programme.</p>
<i>Accreditation of training institutions</i>		
<ul style="list-style-type: none"> • Existence of an accreditation agency of health education and training institutions. • Number and % of health training institutions meeting accreditation and reaccreditation standards. 	<p>Can be assessed through document reviews (e.g. evaluation reports) or interviews with key informants (ministry of health, ministry of education, national or subregional experts of accreditation processes and education standards).</p>	<p>Data on accreditation results ideally disaggregated by type of institution (public/private) and region.</p> <p>Additional qualitative information may be required on the authority of and resources available to the accreditation agency, and on the main barriers to institutional accreditation (e.g. reasons for failure to obtain accreditation, most commonly missed criteria).</p>

Indicators	Potential data sources	Complementary dimensions
<i>Education and training capacity and output</i>		
<ul style="list-style-type: none"> • Number of education and training places per cadre. • Number of places in laboratories or clinical internships, per cadre. • Number of students per qualified instructor, per cadre. • Number of students per personal computer, per cadre. • Number of library books and journals per student, per cadre. • Attrition (drop-out) rate per student cohort, per cadre. • Attrition (turnover) rate among instructors, per cadre. • Number of students graduating each year, per cadre. • Government expenditure on health vocational training, per cadre. • Private expenditure on health vocational training, per cadre. • Total cost per graduate for health vocational training, per cadre. 	<p>Indicators on training capacity and output ideally assessed through routine administrative records submitted by individual health training institutions (ministry of health, ministry of education). Can also be assessed through a quantitative survey of training institutions.</p> <p>Data on government expenditure ideally available from ministry of finance.</p> <p>Additional data on training costs required to take account of private expenditure (e.g. tuition fees, budget of private institutions, household expenditure survey).</p>	<p>Data on training capacity, attrition rates, output, expenditures and costs disaggregated by type of institution (public/private) and region. Data on graduates should be disaggregated by age, sex, urban/rural or other socio-demographic characteristics.</p> <p>Additional qualitative information may be required on main bottlenecks in training capacity (e.g. recruitment, qualifications and retention of instructors), opinions on accessibility to clinical environments and other resources, career expectations (for both instructors and students), career counselling/mentoring programmes for students, and reasons for student attrition (e.g. failure, transfer to a non-health programme, migration).</p>
<i>In-migration of health workers</i>		
<ul style="list-style-type: none"> • Number of non-national health workers applying for entry visas, per cadre. • Number of entry visas issued to non-national health workers, per cadre. 	<p>Ideally assessed through routine administrative records (ministry of foreign affairs).</p>	<p>Data on in-migrants ideally disaggregated by age, sex and country of origin. Additional follow-up data could be useful, including eventual posting (urban/rural) and length of stay in the destination country.</p> <p>Qualitative information on special visa programmes for trained health workers and bilateral agreements for managed migration may also be required.</p>

Indicators	Potential data sources	Complementary dimensions
<i>Certification/licensing of health service providers</i>		
<ul style="list-style-type: none"> • Number and % of new nationally trained health workers granted professional certification/licensure, per cadre. • Number and % of new internationally trained health workers granted professional certification/licensure, per cadre. 	<p>Ideally assessed through routine administrative records (professional regulatory bodies).</p>	<p>Additional qualitative information may be required on main reasons for unsuccessful certification/licensing.</p>
<i>Recruitment into the health labour market</i>		
<ul style="list-style-type: none"> • Existence of job boards to facilitate recruitment of newly trained health workers. • Number of newly graduated health workers who are employed in the health labour market within 3 months of graduation (or other nationally defined time period), per cadre. • Number of newly graduated or licensed health workers who are diverted from the national health labour market (e.g. unemployed, migrate, choose not to work, or work in a non-health job), per cadre. 	<p>Ideally assessed through routine administrative records (ministry of health, ministry of labour, ministry of foreign affairs, professional regulatory bodies, associations of private providers).</p> <p>Information on labour market participation should be periodically validated against data from a national labour force survey</p>	<p>Data on new entrants to the health labour market ideally disaggregated by age, sex, urban/rural, and place of work (public/private).</p> <p>Additional qualitative information may be required on regulations and practices for internal and external recruitment, such as transparency of government practice, offering incentives to serve in rural areas, and ethical recruitment of foreign workers.</p>

Note: Underemployed includes those who have completed university-level training in medicine or nursing but perform work activities not related to their education. Not available for work includes those who are retired, studying or have a work-limiting disability. Percentages may not sum to 100% due to rounding.

Source: Instituto Nacional de Estadística, Geografía e Informática (21).

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Notes

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