

Human Resource for Health Production Capacity in Nepal: A Glance

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ABSTRACT

Background: Shortage of human resources for health is apparent in Nepal. The current HRH strategy has tried to address the demand for skilled birth attendants, MDGPs, Gynecologists, Anesthetists, Radiologists and other health workforce. Despite the increased number of institutions, there is still shortage of health workforce due to ineffective monitoring. This study was undertaken to find out the situation of HRH production in Nepal.

Methods: This cross sectional study was conducted from September 2012 to February 2013. The primary focus was on the quantitative method by using the format for the data collection. The main study samples were the academic institutions of Nepal. The finding was analyzed and tabulated in the summary form.

Results: There were a total of 294 institutions to produce different cadres of health workforce in Nepal. Staff nurses (101) and CMAs (76) have been produced by the maximum number of institutions. The result revealed that the institutions were not producing the graduates upon their capacity, only 1,451 staff nurse graduated annually against the capacity of producing 4,017 per annum. Although Nepal has a capacity to produce 1,760 MBBS, 267 MD and 116 MS doctors, only 1,074 Nepali MBBS, 222 MD and 95 MS doctors graduated per year.

Conclusions: The health institutions performance is lower in producing HRH compared to their capacity in the country. A long-term effort is now required to match demand and supply of the HRH in the country.

Keywords: health; human resource production; medical education.

INTRODUCTION

Globally it is acknowledged that human resources for health (HRH) are an essential part of health care system. There should be at least 23 health workers per 10,000 people.¹ Based on this, Nepal is identified as having a critical shortage of health workers.

There is still shortage of qualified health workers overall. However, nurses are oversupplied, specialized health workers like physiotherapists are undersupplied. The HRH Strategic Plan 2011-2015 has spelled out to need for skilled birth Attendants (SBAs), MDGPs, gynecologists, anesthetists, radiologists, psychiatrists, radiographers, and more to enhance skill mix.²

Nepal has good capacity to produce a variety of health workers each year through the medical schools, nursing and other health science institutes in recent years. However, there is lack of information regarding the exact number of health science students enrolled and graduated per annum. The objective of the study is to find out the situation of HRH production in public, private, academic, and other related institutions.

METHODS

This cross sectional study was conducted to collect information regarding the production of HRH in Nepal.

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The information on production was collected from all the institutions affiliated to Technical and Community Schools/Colleges of Council of Technical Education and Vocational Training (CTEVT), Tribhuvan University (TU), Kathmandu University (KU), Pokhara University (PokU), Purbanchal University (PU), Nepal Sanskrit University (NSU), BP Koirala Institute of Health Sciences (BPKIHS), National Academy of Medical Sciences (NAMS) and Patan Academy of Health Sciences (PAHS). The most recent three years data for each category of HRH enrolled and graduated was collected, and the mean was calculated in order to reflect the situation of enrolled and graduated students per annum. Similarly, annual production capacity for each type of HRH was also calculated. Written informed consent was obtained from the study participants prior to the interview and discussion. The overall protocol was approved from the national ethical review board of the Nepal Health Research Council (NHRC).

RESULTS

Academic institutions play an important role in producing HRH in Nepal. There are 294 institutions that offer health programs in the country. The majority of them are under CTEVT followed by PU (11%) (Table 1). It was found that staff nurses (101, 34%) and community medical assistants (CMAs) (76, 26%) were produced by the maximum number of health institutions in Nepal, whereas auxiliary nurse midwife (ANM), health assistants (HAs), and Lab Technicians have been produced by 15-16% of institutions only. There are 18 medical colleges that are running MBBS program, while four colleges are running MD/MS programs. Twelve medical colleges run the bachelors' in dental surgery (BDS) program, while only one college runs Bachelors' in Ayurvedic medicine and surgery (BAMS) and bachelors' in Homeopathic Medicine and Surgery (BHMS) programs. As per 2010/11, the BSc nursing program is run by 28 colleges, while 25 colleges run the Post basic bachelors' of nursing (PBBN) program. There are 21 colleges running bachelors' in public health (BPH) programs, whereas Bachelors' in Pharmacy (B. Pharm) programs are found to be run by 11 colleges. Four health institutions are running masters' of public health (MPH) program, the masters' in nursing (MN) program is run by two institutions and Masters' of Pharmacy (M. Pharm.) by only one institution. Not only master's programs but also doctorate in medicine (DM) and Masters' in Chirurgical (MCh) level programs have also been found to be conducted by three medical colleges, while doctorate of philosophy (PhD) programs in health sciences are also run by two health institutions.

Although there are 76 institutes capable to produce 3,036 CMA per annum, only 2,677 are found to be graduating per year. Similarly, 1,133 ANMs and 572 Laboratory

Assistants are produced every year. In Nepal, the production capacity of auxiliary ayurved health workers (AAHW) per year is 240, while only one institution is capable of producing 40 Aamchis. Although the annual capacity to produce oral hygienists is 80 in Nepal, only 23 are found to be graduating per annum (Table 2).

Table 1. Institutions that offer health science programmes in Nepal.

SN	Names of Institutions	Number of Institutions	Level
1	CTEVT	224 (76.2%)	T-SLC, PCL and Diploma level
2	Purbanchal University (PU)	32 (10.9%)	Bachelor's level only
3	Pokhara University (PokU)	6 (2.0%)	Bachelor's level only
4	Patan Academy of Health Sciences (PAHS)	1 (0.3%)	Bachelor's level only
5	Nepal Sanskrit University	1 (0.3%)	Bachelor's level only
6	BPKIHS	1 (0.3%)	PCL to Master's level
7	NAMS	1 (0.3%)	PCL to Master's level
8	TU	18 (6.1%)	PCL to PhD level
9	KU	10 (3.4%)	PCL to PhD level
	Total	294 (100%)	

Table 2. Production Capacity, Enrollment and Graduation per Annum for HRH with technical SLC in Nepal.

S N	HRH Categories	Production Capacity per Annum	Enrolled per Annum	Graduated per Annum
1	Community Medicine Assistant (CMA)	3,036	2,677	2,677
2	Auxiliary Nurse Mid-wife (ANM)*	1,910	1,680	1,133
3	Laboratory Assistant	1,240	680	572
4	Auxiliary Ayurved Health Workers (AAHW)*	240	200	61
5	Oral Hygienist	80	80	23
6	Aamchi	40	40	40

In Nepal, although there are 101 health institutions capable to produce 4,017 staff nurses each year, only 1,451 are found to be graduated annually. Similarly,

although yearly production capacity for HAs and Lab Technicians are 1,902 and 1,320 respectively, only 631 HAs and 102 Lab Technicians are found to be graduated each year (Table 3). Such scenarios are observed in others areas such as pharmacy, radiology, dental, ophthalmic sciences and Ayurved and homeopathy. This must be due to program phase-out in various institutions. It was found that anesthesia assistant course (AAC) is the newly initiated program in Nepal.

Table 3. Production Capacity, Enrollment and Graduation per Annum for Diploma and Proficiency Certificate Level HRH in Nepal.

S/N	HRH Categories	Production Capacity per Annum	Enrollment per Annum	Graduation per Annum
1	PCL Nursing (Staff Nurse)	4,017	1,756	1,451
2	General Medicine (Health Assistants)	1,902	820	631
3	Laboratory Technicians	1,320	580	102
4	Pharmacy	1,000	850	490
5	Radiology / Radiography	438	120	44
6	Dental	200	160	102
7	Ayurved	120	40	30
8	Homeopathy	40	10	10
9	D Ophthalmic Science (DOS)	40	30	20
10	Anaesthesia Assistance Course (AAC)	10	8	8

Although Nepal has a capacity to produce 1,760 MBBS and 370 BDS doctors each year, only 1,074 Nepali MBBS doctors and 296 BDS doctors graduate. Various seats are reserved for foreign nationals (primarily from India) to study MBBS in Nepal. In Nepal, 21 colleges are capable of producing 752 BPH, 11 colleges producing 495 B Pharm., and three colleges are producing 115 BSc MLT per annum. Each year, 632 BPH, 368 B Pharm., and 69 BSc MLT graduate in Nepal. Nepal has a capacity to produce 666 PBBN and 610 BSc nurses each year, but only 461 PBBN and 607 BSc nurses graduate. Although Nepal has the capacity to produce 83 BAMS doctors and 20 BHMS doctors each year, only 68 Nepali BAMS doctors and 3 BHMS doctors graduate each year.

Nepal has introduced some new areas of subjects as well, such as B Optometry, B Audio Speech Laryngeal (BASL), BSc Magneto Imaging Technology (BSc MIT), BSc Operation Theatre & Allied Sciences (BSc OTAS), and

Bachelor in Physiotherapy (BPT). In these subjects also each year seven B Optometry, four BASL, 21 BSc MIT, one BSc OTAS, and four BPT have been found to be graduated. Apart from these, 36 Biomedical Engineers and 20 BSc Biochemistry graduated each year (Table 4).

Table 4. Production Capacity, Enrollment and Graduation per Annum for Diploma and Bachelors' Level HRH in Nepal.

SN	HRH Categories	Production Capacity per Annum	Enrolled per Annum	Graduated per Annum
1	MBBS	1,760	1,074	1,014
2	BAMS	83	68	68
3	BHMS	20	3	3
4	BDS	370	321	296
5	BPH	752	632	632
6	B Optometry	7	7	7
7	B Pharm.	495	368	368
8	B Audio Speech Laryngeal (BASL)	4	4	4
9	BN/PBN/PBBN	666	530	461
10	BSc Nursing	610	607	607
11	B Medical Laboratory Technology (MLT)/BSc MLT	115	105	69
12	BSc Biochemistry	40	24	20
13	BE Biomedical Engineer	40	36	36
14	BSc Magneto Imaging Technology (MIT)	26	21	21
15	BSc Operation Theatre & Allied Sciences (OTAS)	1	1	1
16	B Physiotherapy (BPT)	5	4	4
17	D Gynaecology Obstetrics (DGO)	10	5	5

Although Nepal has a capacity to produce 267 MD doctors, 116 MS doctors and 32 MDS each year, only 222 Nepali MD doctors, 95 MS doctors and 32 MDS doctors are graduated per year. There are some seats reserved for foreign nationals who studied MD/MS in Nepal. In Nepal, three medical colleges are capable to produce 14 MDGP, 13 MCh, and 18 DM doctors. However, 10 MDGPs, seven MCh, and eight DM doctors graduated every year in Nepal. These MCh and DM programs are newly initiated

programs in Nepal. Each year 14 M Pharma and six MN graduated in Nepal (Table 5). Nepal has also started a PhD program in health sciences particularly in public health, microbiology, and pharmacy.

Table 5. Production Capacity, Enrollment and Graduation per Annum for masters' or higher Level HRH in Nepal.

SN	HRH Categories	Production Capacity per Annum	Enrolled per Annum	Graduated per Annum
1	MD	267	228	222
2	MDGP	14	14	10
3	MDS	32	32	32
4	MS	116	95	95
5	MCh)	13	13	7
6	MPH	49	46	46
7	M Pharm.	15	14	14
8	M Nursing	6	6	6
9	MSc Health Sciences*	20	20	20
10	M Phil	1	1	0
11	DM	18	14	8
12	PhD	3	2	0

*Includes MSc Biochemistry, Clinical Biochemistry, Medical Microbiology, MLT Microbiology, and Medical Pharmacology, Medical Anatomy.

By the fiscal year 2010/11, the total production of CMAs was 55,152, ANMs 18,142, staff nurses 18,391, 3250 AAHWs, 2704 HAs, 2150 SBAs, 15,105 paramedics, 12,194 MDs, and 106 MDGPs (Table 9). The consumption of these in the public sector is found to be maximum among paramedics (50%), HAs (46%), and SBAs (46%), followed by MDGPs (32%), MDs (12%), ANM (10%), and staff nurses (6%). However, the consumption of CMA and AAHW in the public sector is not known now (Table 6).

Table 6. Distribution of total Production of various Categories of HRH in Nepal and percentage of these working in Government Health Sector

S	HRH Categories	Production till 2010/11	Working in Public Sector
1	CMA	55,152	*
2	ANM	18,142	9.8%
3	Staffs Nurses	18,391	6.5%
4	Auxiliary Ayurved Health Workers (AAHW)	3,250	*
5	HA	2,704	46.0%
6	Paramedics	15,105	50.6%
7	Medical Doctors	12,194	11.8%
8	MDGPs	106	32.0%

* Data not available

DISCUSSION

Human resources are the central component of all health systems and consume a major share of resources allocated to health systems.¹ Efforts to improve the availability and effectiveness of the health workforce are central to improving health system performance.³ Despite significant health gains over the last few decades,^{4, 5} the challenges facing the health workforce are great.

The current organization structure and delivery of health services are inadequate for addressing the new challenges due to emerging and re-emerging diseases which demanded more number of different cadre of HRH.^{2,6} Looking at the study findings, it is clear that there are large numbers of institutions for the production of different cadre of health professionals regulated by professional councils. There is overproduction for some cadres while underproduction of some important cadres with critical shortages due to limited capacity of those institutions and lack of national policies. There is also the problems of motivation and retention of the health professional produced so far to serve the country. The higher level health professionals such as doctors, and nurses are going to foreign countries for higher education or the better employment opportunities.^{7, 8}

The findings also reveal that there is huge gap in the production capacity and the number of graduated health professionals for most of the cadre. The reasons behind might be the less number of student enrolled or a large number of students could not pass the exam of the course. A SWOT analysis of medical education in Nepal also reveals that fair percentage of students miss classes which is related to their motivation towards the course and it ultimately impacted the teaching learning activities and the results of the students.⁷ The fundamental reason for incompetency of HRH and poor result behind might be the poor quality of academic institutions and their practicum sites.

The prevalence of imbalances between supply and demand of health workers has resulted in negative effects on the delivery of health care services in Nepal creating mal-distribution of HRH, especially in rural and remote areas. Because of shortages in skilled HRHs, some technical and clinical work is being done by less-skilled HRHs,^{2, 8} with potential poor effects on quality of care. Moreover, determining and achieving the right mix of health workers, who are productively efficient, are a major health care system challenge and challenge of HRH production in Nepal.

Though more than 290 health institutions are producing large number of health professionals of different

cadres, their absorption in public sector is very poor. The absorption is highest for paramedics and health assistants while for the rest of other cadres, it is very poor. A situation analysis of national HRH shows that there are nearly 23% vacant positions of medical doctors including the specialists, 11% for staff nurse and ANM and nearly 14% for paramedics.⁹ One of the reasons for vacant positions is the late approval of the inclusiveness criteria in health service act and regulations which acted as a barrier to recruit health professionals through public service commission (PSC).¹⁰ The health service act and regulation further created problems in recruitment of health cadres.

CONCLUSIONS

An effective HRH has an important contribution to make to the improvement of health system performance and enhance the quality of care. A long-term effort is now required to match demand and supply of HRH in Nepal. This will require major support from the MoHP, Ministry of Education, CTEVT, and universities. To enhance the quality of HRH production, and enhance the result of graduated health professionals, there is an urgent need for improving the monitoring and evaluation system by MoHP, MoE, CTEVT and professional councils and associations. Further, MoHP should properly implement the HRH strategy of 2011-2015 to increase the skill mix among the health workforce in the country not only in public sector but also in the private sector.

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