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INDIA'S HEALTH WORKFORCE: SIZE, COMPOSITION, AND DISTRIBUTION*

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This note describes the size, composition and distribution of India's health workforce calculated using data from the Census. Results indicate that health workforce density in India is below the 2.5/1000 population benchmark, though there is considerable inter-state variation. The majority of the health workforce is concentrated in urban areas and works in the private sector in both urban and rural areas. The note specifically looks at female health workers and community workers and suggests policy actions for increasing the density of health workers and correcting imbalances in their distribution.

Information on India's diverse health work force is surprisingly fragmented and unreliable, despite recent efforts at quantification (See, WHO 2007, GOI 2005). None of the routine official sources on the health workforce have information on all types of health workers in the country. Professional councils carry information on only certain types of health workers such as doctors, nurses and pharmacists. Further, this information is not sourced from live registers making their accuracy doubtful.

This policy note describes the size, composition and distribution of India's health workforce. These estimates are based on nationally representative data from the 2001 Census and the National Sample Survey's (NSSO) 61st round on 'Employment and Unemployment'.[1]

INDIA'S HEALTH WORKFORCE: NUMBERS, COMPOSITION, DISTRIBUTION[2]

The Census estimates show that there were approximately 2.17 million health workers in India in 2005, which translates into a density of approximately 20 health workers per 10,000 population. Among the different categories of health workers shown in Figure 1, nurses and midwifes had the largest share in the health workforce, followed by allopathic physicians, AYUSH[3] physicians and pharmacists. Census estimates were based on self-reported occupations, which is susceptible to unqualified providers being counted as qualified health providers. When the Census estimates were adjusted for health workers who may be unqualified based on education self-reports available in the NSSO, the health worker density reduced to a little over 8 per 10,000 population. For physicians, estimates from the NSSO survey suggest that 37% (63% in rural and 20% in urban areas) had inadequate or no medical training; applying this proportion to the Census estimates, the allopathic physician density in India reduced from 6.1 to 3.8 per 10,000 population.

There are approximately 1.6 nurses and midwifes per allopathic physician; if only nurses are considered, then there are approximately 1.1 nurses per allopathic physician. Adjusting for possibly unqualified health workers using the NSSO proportions of self-reporting qualifications, the nurse-doctor ratio is 0.5. Having similar number of nurses and physicians is widely seen internationally as a significant imbalance in human resource skill mix. In comparison, advanced countries such as USA and UK have nurse-physician ratios of 3 and 5 respectively (See, WHO 2006).

There is considerable variation in the density of the health workforce (per 10,000 population) across the states in India, ranging from 23.2 in Chandigarh to 2.5 in Meghalaya. For example, states like Goa and Kerala have doctor densities up to three times as high as states like Orissa and Chhattisgarh. Similarly, for nurse and midwives, these states have densities up to six times as much as the low density states like Bihar and Uttar Pradesh. In general, the north-central states have low densities, which also include some of the poorest states in India.

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* Health workers in sufficient numbers, in the right places, and adequately trained, motivated and supported are the backbone of an effective, equitable, and efficient health care system. Success in creating and sustaining an effective health workforce in India to achieve national health goals will require sound policy and creative and committed implementation. More and better information on human resources for health in India is one element needed to achieve this. This note summarizes recent and ongoing work in support of India's health work force goals. For the full report, see *Rao, K. et al "India's Health Workforce: Size, Composition and Distribution" HRH Technical Report #1 at* www.hrhindia.org

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The distribution of health workers was heavily skewed towards urban areas with typically 60% of the health workers, including most categories, having urban residence. Because more people lived in rural than in urban areas, health worker to population ratios were even more skewed. The density of allopathic physicians in urban areas was four times that of rural areas, and for nurses and midwives it is three times that of rural areas. If the NSSO estimate of the proportion of unqualified allopathic physicians were applied, then the density of allopathic physicians in urban and rural areas was 11.3 and 1.9, respectively, reflecting the higher proportion of physicians reporting insufficient qualifications in rural areas.

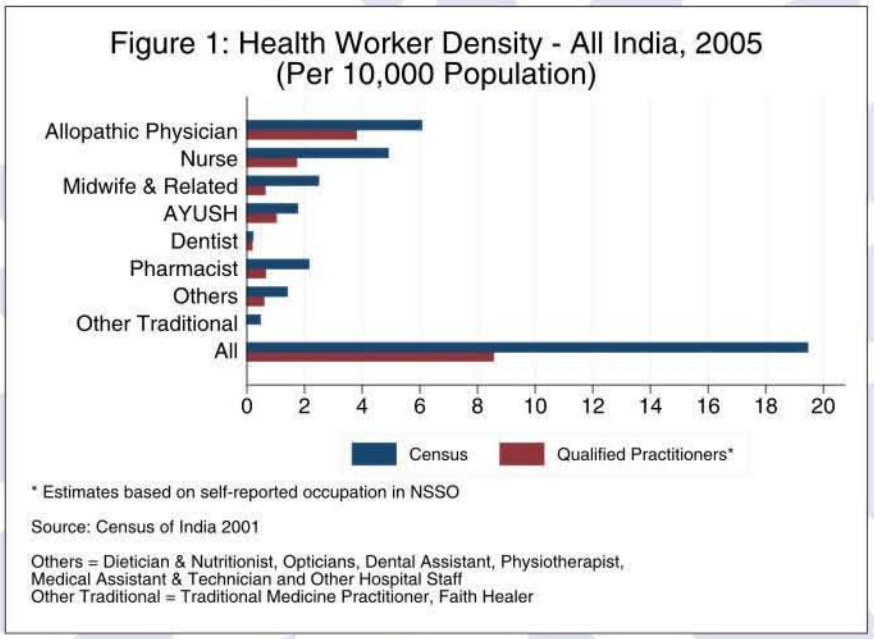


Figure 1: Health Worker Density - All India, 2005 (Per 10,000 Population)

* Estimates based on self-reported occupation in NSSO

Source: Census of India 2001

Others = Dietician & Nutritionist, Opticians, Dental Assistant, Physiotherapist, Medical Assistant & Technician and Other Hospital Staff
Other Traditional = Traditional Medicine Practitioner, Faith Healer

Only the National Sample Survey provided representative data on whether health workers work in the public or private sector. These data show that a large majority (70%) of health workers were employed in the private sector in both urban and rural areas. Significantly, the vast majority of doctors, AYUSH practitioners and dentists were employed by the private sector in both urban and rural areas. In contrast, only about half the nurses were employed by the private sector. Self-reporting of lack of formal qualifications was mainly found in the non-government sector. Adjusting the figures for physicians to account for this would modestly reduce the proportion of physicians in the non-government sector.

The proportion of women in the health workforce was low. There are approximately 7 female health workers per 10,000 population, indicating that women comprised only around a third of all health workers in the country. The share of female doctors was particularly low: only 17% of all doctors in the country. Female doctors comprised only 6% of the rural doctors. In contrast, 70% of nurses and midwives were female.

Female doctors are arguably more acceptable to female patients in traditional societies such as in the case of rural India. However, there were only around 2 female doctors per 10,000 females in the population. Figure 6, shows the variations in female doctor density across states, with the north central belt exhibiting poorest availability of female doctors. States with higher female doctor densities tend to cluster in the northern and southern and north-eastern fringes of India.

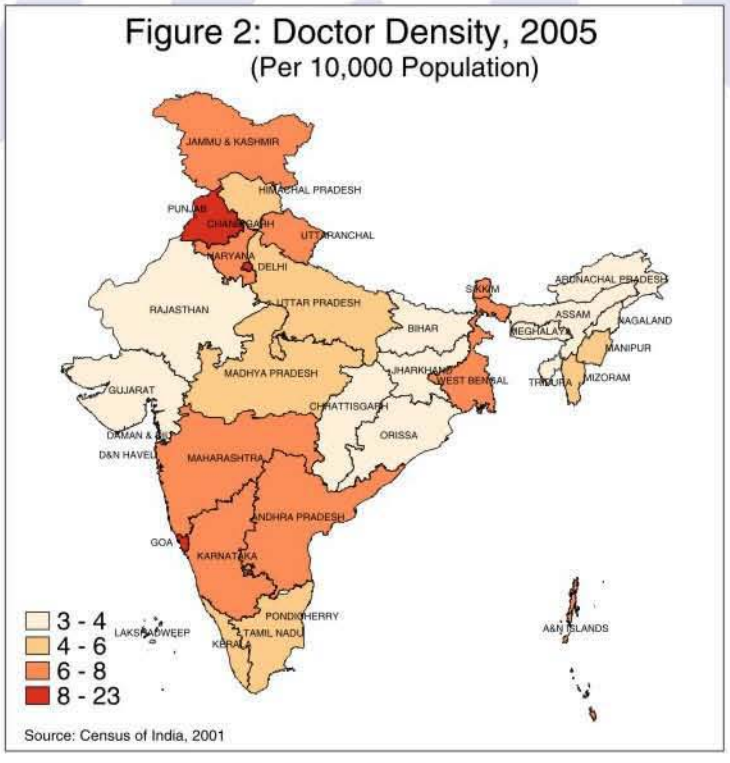


Figure 2: Doctor Density, 2005 (Per 10,000 Population)

Source: Census of India, 2001

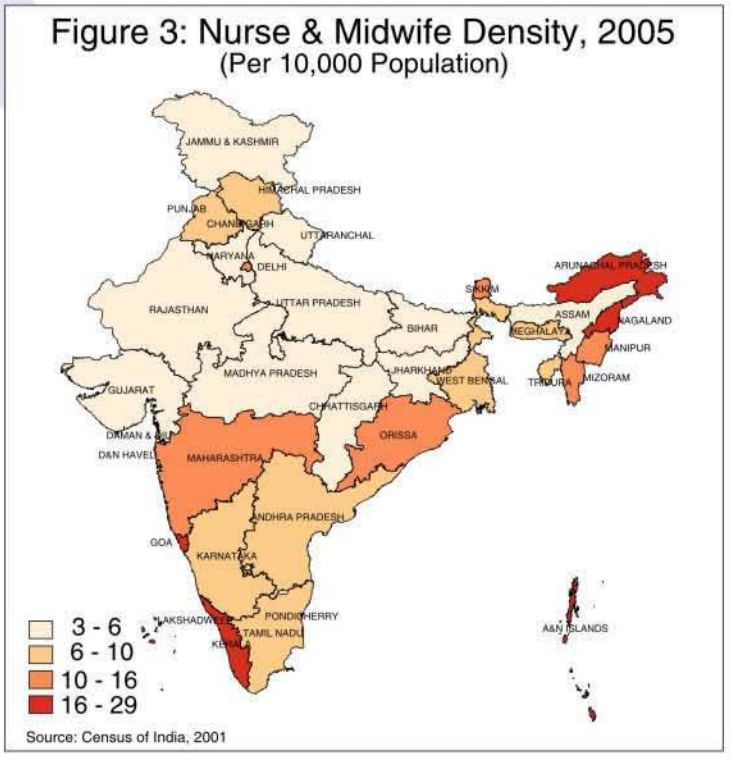
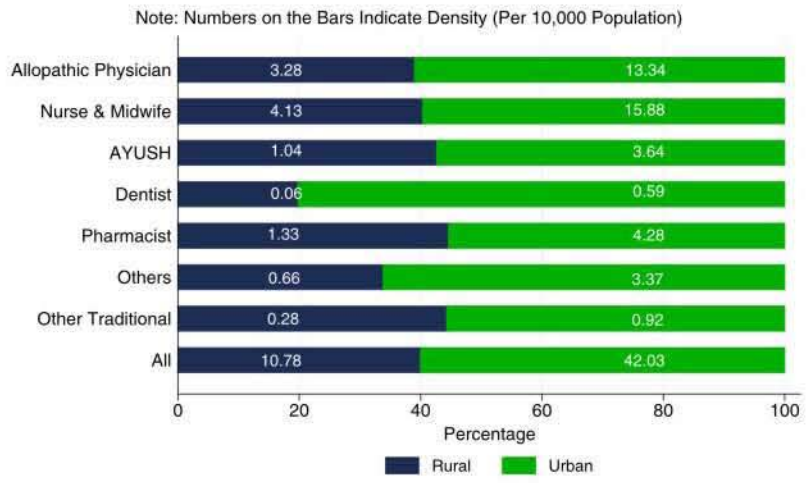


Figure 3: Nurse & Midwife Density, 2005 (Per 10,000 Population)

Source: Census of India, 2001

Figure 4: Rural-Urban Distribution of Health Workers in India, 2005



Source: Census of India 2001

AYUSH = Ayurvedic, Yoga, Unani; Others = Dietician & Nutritionist, Opticians, Dental Assistant, Physiotherapist, Medical Assistant & Technician and Other Hospital Staff; Other Traditional = Traditional Medicine Practitioner, Faith Healer

Health workforce estimates presented here do not include community workers, although these are intended in part to address the low access to more qualified workers. The Census and NSSO, which classify health workers based on international occupation codes, do not have separate classification codes for community health workers. At the time of the 2001 Census and the 2004/05 NSSO, Accredited Social Health Activists' (ASHA) were not yet introduced into the workforce. Under the National Rural Health Mission (NRHM) the Government will add about five hundred thousand ASHAs to the health workforce. Further, nearly 1 million community workers for the Integrated Child Development Scheme are also not included in the health workforce estimates. Both these groups of health workers would add a significant number to the health workforce, especially in rural areas. The inclusion of community workers would increase the size of the health workforce in India by nearly 80%.

POLICY IMPLICATIONS

Based on Census data, the estimated density of allopathic physicians, nurses and midwifes (13.4) in 2005 was about half of the WHO benchmark of 25.4 workers of these categories per 10,000 population associated on average with achieving 80% deliveries attended by skilled personnel in cross-country comparisons. When adjusted for possible inclusion of unqualified providers of these types, the level may be as low as one fourth of the WHO benchmark. Measures to increase the density of health workers, especially doctors, nurses and female health workers are urgently needed and this is already well-recognized by government in India and the National Rural Health Mission.

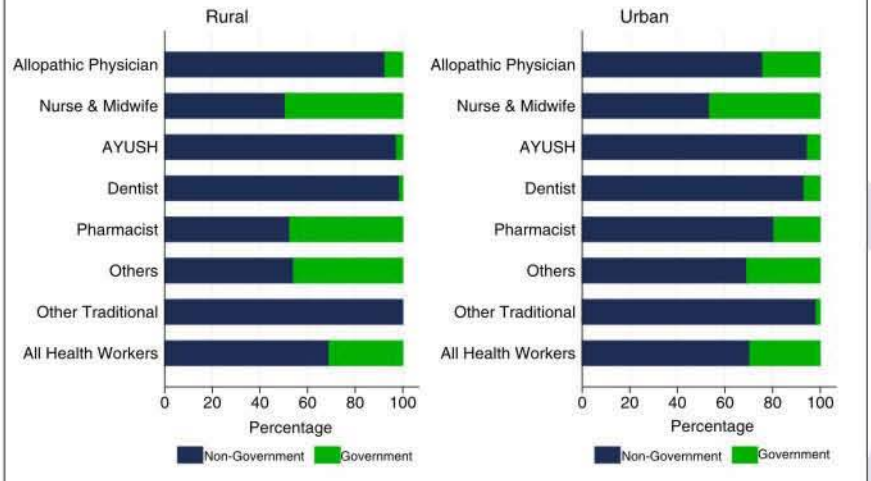
The large geographic variations in the health workforce, across states and rural and urban areas are important challenges in reforming India's health workforce policies. The disparity between urban and rural areas is particularly significant as the urban population accounts for less than a third of India's total population. Similarly, the distribution of health workers between public and private sector is also a cause of concern, mainly due to higher cost of treatment involved in the private sector.

The adverse nurse-doctor ratio has long been recognized and remains a matter for serious concern. According to the 1993 World Development Report, as a rule of thumb, the ratio of nurses to doctors should exceed 2:1 as a minimum with 4:1 or higher considered more satisfactory for cost-effective and quality care (World Bank 1993). Nurses can deliver many of the basic clinical care and public health services, particularly at the community level, at a lower cost than trained physicians. The urban bias in physician location in contrast to the more equitable distribution of nurses, suggests that expanding the supply of nurses and midwives, trained to be more self sufficient front-line workers, should be a high priority for strengthening the health workforce. Similarly, given the importance of maternal and child health in overall population health, there is an urgent need to increase the availability of female health workers, especially in rural areas.

ACTION AREAS

1. The reasons behind the geographic mal-distribution of qualified health workers needs to be better understood through focused research on the supply side (e.g. production capacity of health workers) and demand side (e.g. incentives

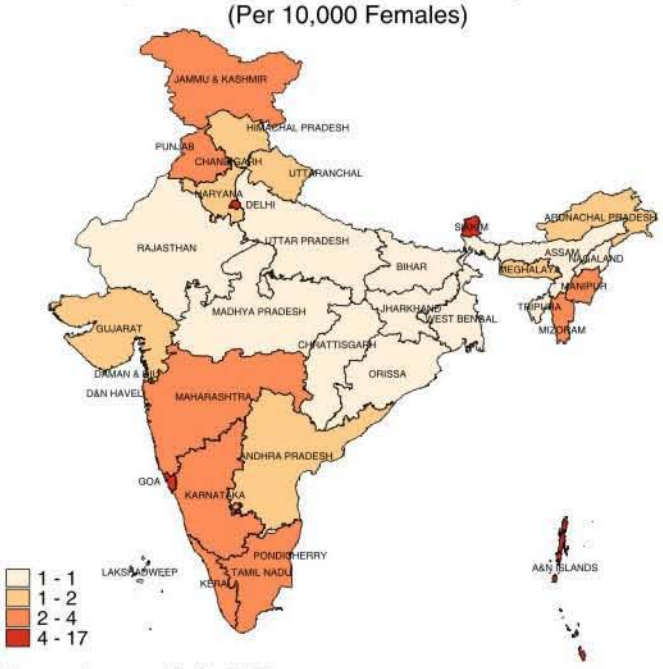
Figure 5: Distribution of Health Workforce by Sector, 2005



Source: National Sample Survey Organisation(NSSO), 2004-05

AYUSH = Ayurvedic, Yoga, Unani; Others = Dietician & Nutritionist, Opticians, Dental Assistant, Physiotherapist, Medical Assistant & Technician and Other Hospital Staff; Other Traditional = Traditional Medicine Practitioner, Faith Healer

Figure 6: Female Doctor Density, 2005
(Per 10,000 Females)



Source: Census of India, 2001

to recruit and retain, institutional factors and policy environment) factors.

2. The large urban bias in the distribution of qualified health workers can be addressed by changing the incentive environment in which health workers operate. For this a better understanding of the effectiveness of, and experimentation with, different incentives and experimentation needs to be undertaken.

3. The position of nurses in India needs to be strengthened: numerically to improve the doctor-nurse ratio, and functionally so that they can take on more diverse responsibilities. Given that nurses in government service are more likely than doctors to work in underserved areas, placing nurses with augmented skills in rural areas is an important policy initiative for providing basic health services in under-served areas.

4. The large qualified private health workforce is yet underutilized for meeting the country's health goals. Engaging the qualified private sector through public-private partnerships (such as the Chiranjeevi scheme) can potentially strengthen human resources required for improving service delivery in under-served areas and achieving national public health goals.

[1] For details on data sources and methods please see note No. 2 of this volume, entitled "Using Multiple Sources of Information to Estimate India's Health Workforce".
[2] Estimates presented in this note do not distinguish between qualified and unqualified health workers, unless specifically stated
[3] AYUSH is an acronym for the different Indian systems of medicine (Ayurveda, Yoga, Unani, Siddha) and Homeopathy.

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