TASK SHIFTING IN HEALTHCARE: Reframing the AYUSH Debate

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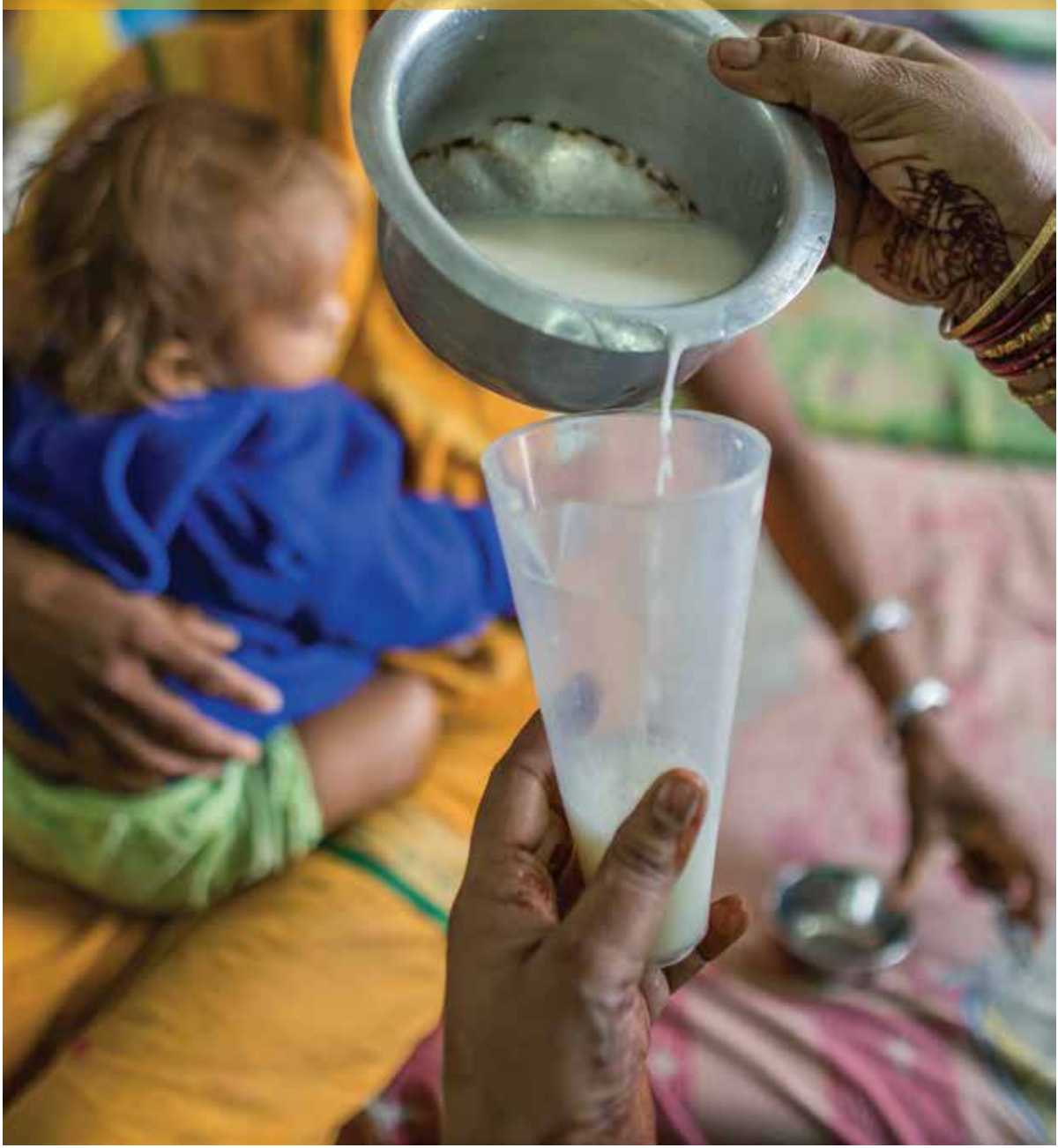

Cover Picture: The Government of Maharashtra works closely with UNICEF to implement Community Based Management of Acute Malnutrition (CMAM), with the goal of reducing related mortality by 50%
Courtesy: Unicef Mumbai

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Arts Program Consultant,
Harvard University South Asia Institute

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Harvard University South Asia Institute
1730 Cambridge Street, 4th Floor
Cambridge, MA 02138, USA
southasiainstitute.harvard.edu
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The scarcity of trained, qualified healthcare providers in rural India is well known, and has been addressed through a range of solutions administered by the state and by non-governmental actors. The National Rural Health Mission's ASHA program and local initiatives started by SEARCH and MAHAN in the remote tribal belts of Gadchiroli and Melghat, for example, have been hugely successful and influential in defining the merits of community based care globally. What is more contentious, however, is the role of India's AYUSH providers in healthcare delivery in rural India. Cross-practice - where AYUSH providers prescribe allopathic medicine - is rampant, unchecked and of poor quality. Yet, there is both urgent need and local and global precedence for allowing certain tasks to be shifted away from MBBS trained doctors to other providers. When states have tried to legislate to allow AYUSH providers to expand their scope of practice to (select) allopathic medicine, the Indian Medical Association and other professional societies have raised counter challenges, with legitimate concerns. We seek to address these concerns by reframing the AYUSH debate as one of task shifting, and examine factors that have allowed task shifting initiatives to succeed or fail in globally.

This report is based on interviews conducted with community health workers, health care providers and policy makers in some of the remotest regions of Maharashtra, and on an extensive (but surely not exhaustive) review of task shifting literature from around the world.

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Dr. Satchit Balsari, MD, MPH
Harvard FXB Center for Health and Human Rights
Chief, Weill Cornell Global Emergency Medicine Division

Harvard SAI Research Team:
Field interviews: Raghav Goyal
Research and writing: Greg Simon, MD, Ian Mulholland, Raghav Goyal

Advisors
Professor Tarun Khanna
Director,
Harvard South Asia Institute
Jorge Paulo Lemann Professor,
Harvard Business School

Dr. Mrudula Phadke
MD, DCH, FIAP, MRCP (Hon),
FRCP (CH U.K. Hon), MNAMS, FNAMS
Senior Advisor, National Health Mission
Ex Vice Chancellor, Maharashtra University of Health Sciences

CONTENTS

ABBREVIATIONS

ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AWW	Anganwadi Worker
AYUSH	Ayurveda, Unani, Siddha, and Homeopathy
BRMS	Bachelor of Rural Medicine and Surgery
BSc.	Bachelor of Science in Community Health
CABG	Coronary Artery Bypass Graft
CAD	Coronary Artery Disease
CAP	Counseling for Alcohol Problems
CCM	Chattisgarh Chikitsa Mandal
CEmOC	Comprehensive Emergency Obstetric Care
CHC	Community Health Center
EmOC	Emergency Obstetric Care
FOGSI	Federation of Obstetric and Gyn-cological Societies of India
HAP	Healthy Activity Program
ICDS	Integrated Child Development Scheme
IMR	Infant Mortality Rate
LSAS	Life-Saving Anesthetic Skills
MBBS	Bachelor of Medicine, Bachelor of
M&E	Monitoring and Evaluation Surgery

MCI	Medical Council of India
MDG	Millennium Development Goal
MMR	Maternal Mortality RAte
MO	Medical Officer
NH	Narayana Health City Cardiac Hospital
NP	Nurse Practitioner
NRHM	National Rural Health Mission
OA	Ophthalmic Assistant
PA	Physicians Assistant
PG	Post-Graduate
PHC	Primary Health Center
PREMIUM	Program for Effective Mental Health Interventions in Under-Resourced Health Systems
RMA	Rural Medical Assistant
RMP	Rural Medical Practitioner
SEARCH	Society for Education, Action, and Research in Community Health
VHSNC	Village, Health, Sanitation, and Nutrition Committees
VHW	Village Health Worker
WHO	World Health Organization

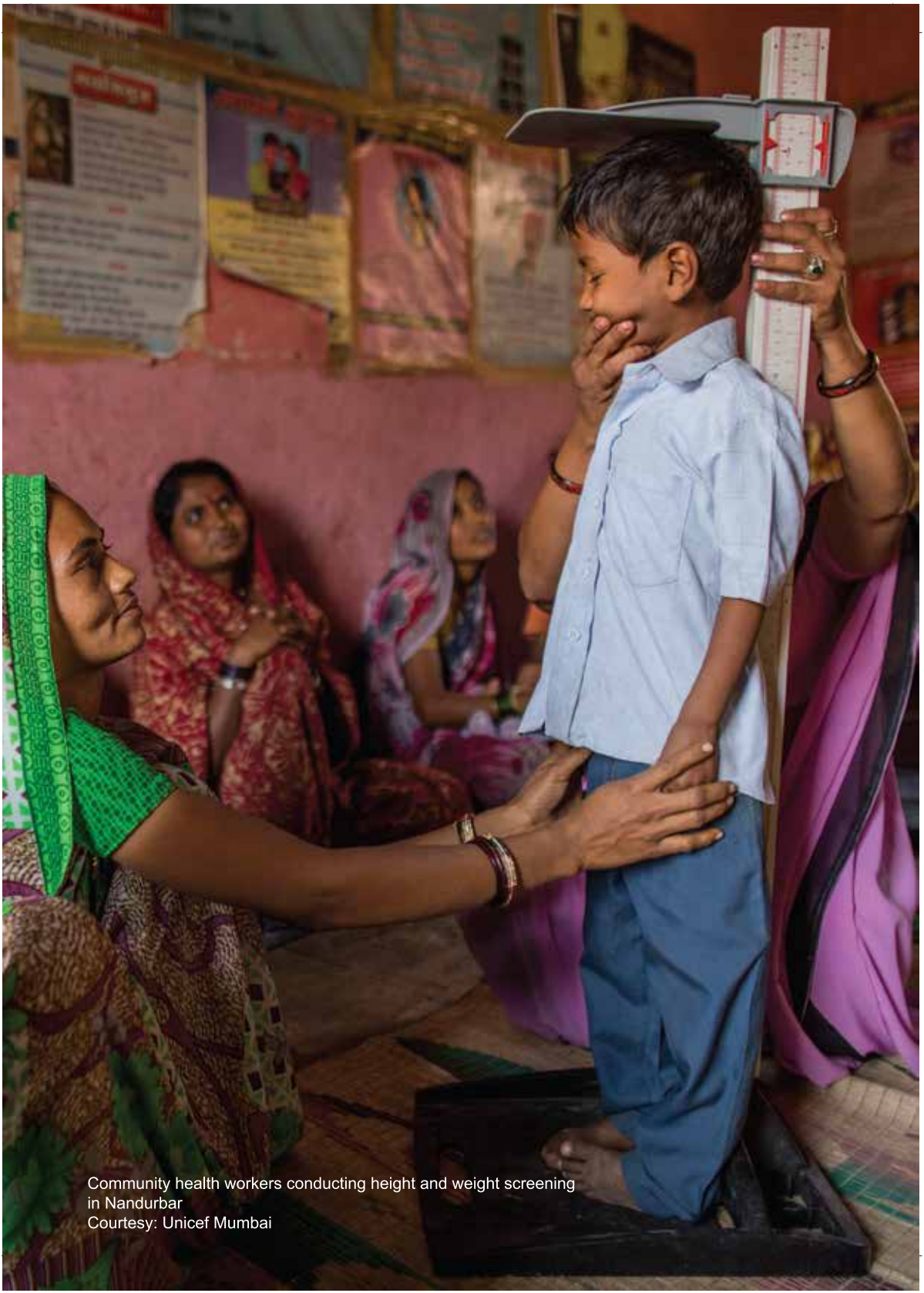
EXECUTIVE SUMMARY

India faces chronic workforce shortages that pose significant challenges to health care delivery in rural regions. As MBBS doctors are in marked scarcity, particular attention has been paid in recent years to the expanded role of non-allopathic practitioners to fill vast workforce gaps. The expansion of the scope of practice for Ayurvedic doctors has been the center of multiple governmental policy proposals, and has been viewed as particularly controversial. As a result, multiple, highly publicized legislative actions citing illegalities of institutional encroachment and risk of care quality dilution have subdued the effort.

This report seeks to reframe the debate of allowing non-MBBS healthcare practitioners to practice allopathic medicine as a matter of task shifting and not one of practice overreach. The WHO defines task shifting as “a process of delegation whereby tasks are moved, where appropriate, to less specialized health workers,” a phenomenon India has successfully engaged in, at scale. We examine here seminal events in healthcare task shifting in India, and study key examples from around the world, to understand determinants of success, sustainability and failure.

Examining Ayurvedic practice expansion as a process in task shifting allows for evaluation of its merits against a standard framework. It also provides important insights into how this task shift, perhaps one of the largest in India’s history, could be best guided in order to improve accessibility, equity, and quality of care.

The report ends with a call for the recognition and promotion of existing cadres of non-MBBS healthcare providers, and a proposal for creating several new cadres of healthcare professionals to meet demand in both rural and urban India. It encourages early stakeholder consensus, implementation of rigorous training, monitoring and evaluation programs, and the judicious use of digital health technology to support task-shifting initiatives.



Community health workers conducting height and weight screening in Nandurbar
Courtesy: Unicef Mumbai

BACKGROUND

Severe workforce shortages exist in India

India faces severe workforce shortages, especially in rural regions where disease burden is high. While reliable figures of numbers of health workers, their qualifications, and their locations are difficult to quantify [1], various estimates consistently reveal profound health worker deficits across the country.[2 , 3] With only about 44,000 doctors for over 833 million people, the shortage of doctors in the public sector in rural regions is so severe that each doctor serves a community averaging close to 19,000 people.[4] India's most recent Five Year Plan confirms government's expectation of extremely large shortfalls across all professional categories in the near future, as much as 49% for doctors, and 177% for nurses and midwives.[5] One report suggests that India needs 100,000 doctors until the year 2034 to meet the healthcare requirements of the country's growing population [3]; in addition to doctors and nurses, other estimates suggest almost 6.4 million extra trained health professionals are needed.[6] Though approximately 70% of India's population lives in rural areas [7], less than one fourth of the country's allopathic doctors practice outside of urban regions. Furthermore, the majority of these health workers practice in the private sector beyond the financial reach of most rural villagers [7], as it is estimated only 3.3% of all allopathic doctors work in public health facilities in rural areas.[6]

The service gap in rural areas has been attributed to the lack of effective training and recruiting strategies, misdistribution of personnel, and the failure to retain labor force in necessary areas [1] In an effort to combat workforce shortages, key stakeholders have offered monetary incentives, introduced postgraduate (PG) admission benefits, made efforts to improve physical infrastructure, and introduced career progression and educational advancement opportunities.[7] Yet these efforts have not proven to motivate health professionals to serve in rural areas effectively for two main reasons. Firstly, there is a lack of money and centralized policy to monitor and implement

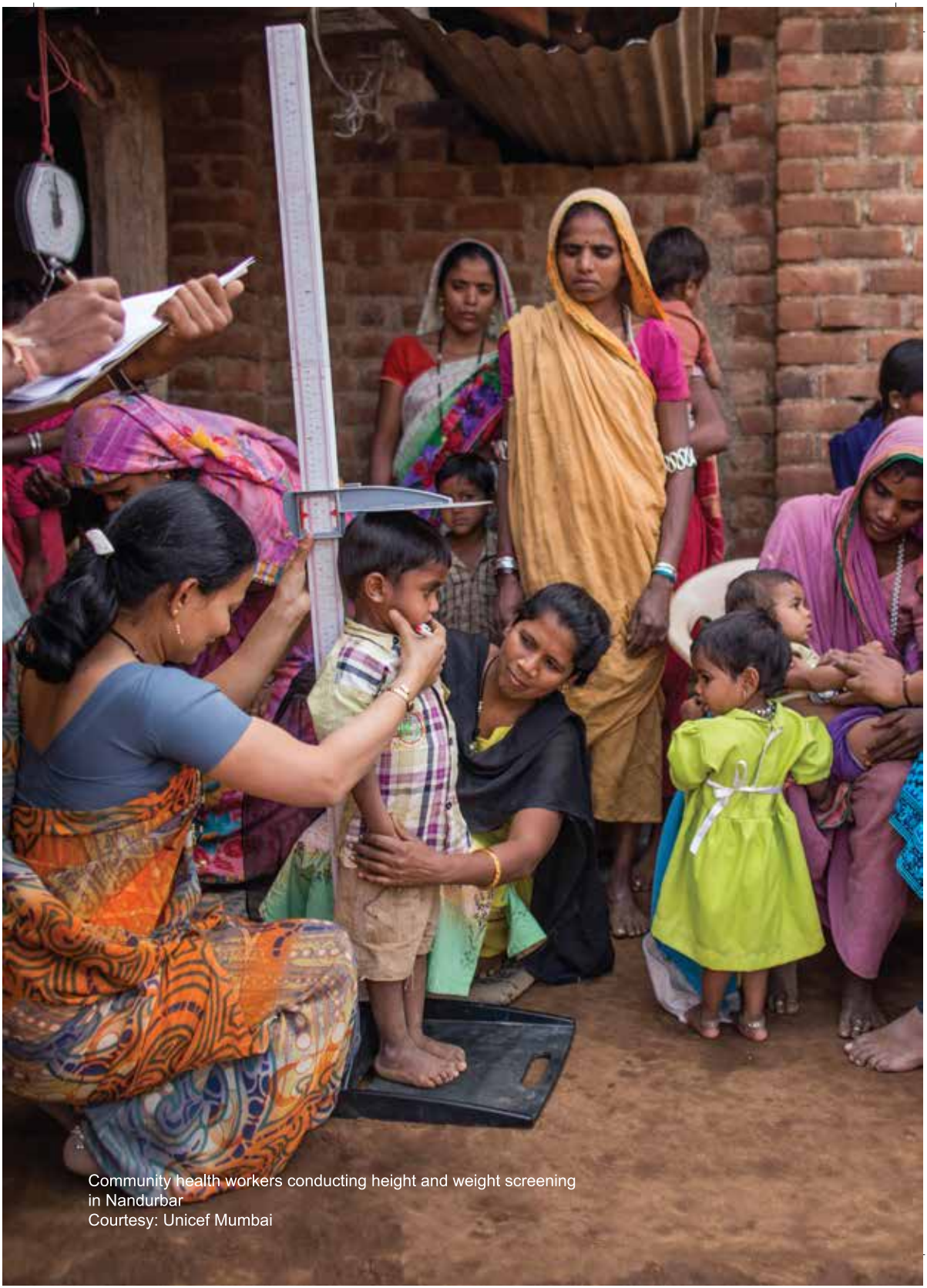
interventions [8]; second, solutions are often implemented in silos and are not complementary or harmonized.[9]

Workforce shortages contribute to public health detriment

In 2006, India was estimated to have a “critical” shortage of health workers and unlikely to be able to provide essential health interventions to its people.[7] According to a WHO report, “There are convincing data that demonstrate a correlation between the density of health workers (medical doctors and nurses per 1000 population) and the coverage of a range of health services and health outcomes (e.g. immunization coverage and infant, child and maternal survival)”.[10] Additionally, the distribution of health workers is highly skewed towards urban areas. Although rural population of India accounts for 72% of the total population, only 26% of doctors are concentrated in rural areas.[11] The quality of the workforce in rural areas is also of concern. By one report, 83.4% of allopathic doctors in urban areas had schooling higher than secondary level compared to 45.9% in rural areas and only 18.8% of rural allopathic doctors were medically qualified, compared to 58.4% in urban areas.[12] The growing imbalance of health services between cities and villages continues to strain the country’s public healthcare system and contributes to increasing disease burden within rural communities, such as dysentery, respiratory problems, tuberculosis, and gynecological complications.[11,13]

Across India, governments, healthcare institutions, and non-profit organizations have responded to this workforce gap through creation of additional cadres of healthcare workers drawn from local rural communities. Many of these task shifting initiatives have been tremendously successful, and have demonstrated population level impact positively influencing critical health indices including infant mortality rates, maternal mortality rates, survival rates of children with several acute malnutrition, and survival from childhood diseases. Others have failed to survive beyond their initial pilots, and it is equally important to learn from their missteps. But each of these task shifting initiatives essentially overcame a clinical milestone –

healthcare providers to conduct tasks that may have typically been considered the exclusive domain of physicians, but are now universally accepted as tasks appropriate for other cadres of providers. We list below examples that have had the greatest impact (or had the potential to do so, but failed) with the goal of understanding the planning, programming, execution and legal hurdles they have had to overcome. The subsequent section makes a deep dive into the case of Ayurvedic doctors to re-examine the legality and feasibility of framing their expanded scope of practice as a task shifting undertaking.



Community health workers conducting height and weight screening in Nandurbar
Courtesy: Unicef Mumbai

HEALTH CARE TASK SHIFTING: LESSONS FROM INDIA

Community Health Workers

The WHO recognizes community health workers as those chose from, by and accountable to the community they serve.[14] CHWs received abbreviated, goal directed medical training and serve as important linkages between underserved communities and larger health systems.[14] The world over, they play largely two sets of roles – they serve as extension of the existing workforce, or they serve as social or cultural intermediaries strengthening community participation in accessing, demanding and engaging with health systems and with social determinants of health.[15 , 16]

Community health workers have had a long successful run in India, where when properly trained and supervised they have served as critical and effective access points for healthcare in otherwise underserved populations.[10, 17-19] In this section we examine the role of community health workers in driving health care task shifting in India. The first two examples are community-driven initiatives that originated in the non-governmental sector. Both employed village women with low levels of literacy to administer several tasks that are otherwise squarely within the domain of the licensed medical practitioner. The programs have met with resistance from the medical establishment and faced legal challenges. They have also been recognized by both the scientific community and the government for their efficacy, and have been replicated at scale.

Society for Education, Action, and Research in Community Health (SEARCH) (1985)

SEARCH, a non-governmental organization based in Gadchiroli, is world renowned for its pioneering work in home-based neonatal care. SEARCH's model is almost entirely dependent on members of the community performing health interventions that are specific to issues identified by the community.[20] SEARCH

programs typically begin by convening members of the community who identify and articulate the problems that affect the wellbeing of people residing in the area. One of SEARCH's earliest interventions was the care of newborns at home by trained village health workers, where access to institutional care was near impossible and at a time where high mortality was considered a given among these remote tribal populations (anywhere in the world). Through two years of field-based study, SEARCH and the communities were able to identify several treatable factors that related to high death rates of newborns, and pneumonia was recognized as one of the leading contributors to the high infant mortality rate of 121.[21] Through a rigorous training program designed for women selected from the village, SEARCH demonstrated a drop in IMR to 39. This landmark paper, published in the Lancet, changed the medical community's perception of community health workers and the power of home based care for neonates forever. Having met with resistance from the medical community in its early years, the HBNC program laid the foundation for similar programs around the world.[20] By 2005, the success of the HBNC program spawned the creation of over 800,000 "ASHA" workers through India's National Rural Health Mission.

At SEARCH, selected female village health workers (VHWs) are trained for six-months in identifying and treating symptoms of preventable new-born death. The VHWs use diagnostic algorithms; identify and refer high risk pregnancies to health centers; prescribe a variety of medications including antibiotics (such as gentamicin, ampicillin and trimoxazole) track the child's weight from birth; and educate mothers, essentially administering many tasks traditionally thought to be the work of more highly trained health workers.[22 , 23]

MAHAN

The NGO MAHAN, started in 1998, is based in the tribal community of Melghat with the stated aim of providing health care service to the people of Melghat at beyond. Influenced by SEARCH, MAHAN leverages community health workers to deliver

care to these tribal communities with little to no access to higher institutional care. MAHAN's programs now include a rural hospital (the Mahatma Gandhi Tribal Hospital), home based child care, community based management of malnutrition, mortality control program for chronic diseases, blindness control program, and a counselor program.

The home based childcare program, similar to the HBNC program, trains lay tribal women to diagnose and treat the leading causes of under-5 mortality, including diarrhea, malaria, pneumonia and severe malnutrition. The village health workers undergo two years of training for four days a month, followed by a two-day refresher course every two months. This sustained training is a hallmark of all its programs. Village workers managing the leading causes of illness in the 16 to 60 year age group are trained to recognize and treat cases of hypertension, pneumonia, malaria, asthma, COPD. The village health workers are trained in recognizing cases of CAD and Tuberculosis of early referral. These interventions have brought down mortality in the 16-60 year study group by 50%. MAHAN's community based therapeutic feeding interventions have resulted in a drop in severe acute malnutrition by 79% bringing down case fatality to less than one percent (as against the WHO benchmark of 4%).

MAHAN's Counselor program transfers the role of auditing to their community workers. MAHAN's "counselors" are posted at local government healthcare centers to monitor compliance: staff attendance, inventory and drug availability, hygiene, etc. When contested in court, the counselor program was deemed useful and the state was asked to replicate the program elsewhere. Community counseling and aspects of quality control (audit) were essentially recognized as legitimate roles for non-physician members of the health care workforce.

SEARCH and MAHAN's village health workers, none of whom have any traditional medical training (in college), and many of whom have low levels of literacy, are not only trained in diagnosing diseases, but also allowed to treat their "patients" with medications, including antibiotics. While strictly protocolized, this practice is a break from tradition, and certainly

outside the legal boundaries of allopathic practice in India. On more than one occasion, these practices have been challenged in court. The courts have, to date, continued to recognize (and applaud) the vital role the community health workers have played in delivering care to these tribal communities and have encouraged the government to adopt and scale their model.[24]

The ability of both organizations to recruit workers from the villages they serve has been critical to the women's acceptance in the village.[10, 20] Facing resistance at first, village health workers have been known (across India, including in the ASHA program) to have eventually seen an improvement in their "status" both at home, and in the village. MAHAN's village health workers, for example, have gone on to become gram panchayat members, ASHA workers, and served on government committees. Retention has been attributed not only to this improvement in social status and perceived value in their own work, but also to fair incentives, in line with similar recommendations made by the WHO.[10] These NGOs have even conducted time-motion studies to assign value to the various tasks performed (and the various diseases treated) by their village health workers.

While interventions in the NGO sector have demonstrated tremendous efficacy and staying power, they have been critiqued for their inability to scale or dependence on the organization's influential leadership. Yet, task shifting initiatives have hardly been the prerogative of NGOs. Governments, both central and state, have undertaken a wide variety of task shifting initiatives to meet healthcare demands in rural India.

State Sponsored Task Shifting Initiatives

The backbone of India's community based healthcare includes the "triple As" – the Anganwadi worker, the Auxiliary nurse midwife and the ASHA worker. Each of these national programs have leveraged women from the community to close delivery gaps, especially for maternal and child health. While there is

significant overlap in their training, their roles are complementary and have continued to evolve over time.

Auxillary Nurse Midwife (ANM)

Started, as the name suggests, as community based health workers trained in midwifery, the role of the ANM was incrementally modified by various national committees (Mukherjee Committee, 1966; Kartar Singh Committee,1973; Srivastava Committee,1975)to their current expanded role as multipurpose workers attending to child health and basic curative care for villagers. In 1986, the Ministry of Health and Family Welfare recommended that ANM training be expanded to two years of vocational training after Tenth Standard.

ANMs are trained in a variety of clinical skills including recognizing high risk pregnancies, conducting normal deliveries, assessing and caring for newborns, contraception counseling, IUCD insertion, cervical cancer detection, and basic care and resuscitation of the newborn, among others. However, the long list of ANM responsibilities have found that their current role in largely focused on family planning and preventive interventions, away from midwifery.[25] A 2013 paper from the National Institute of Health and Family Welfare concluded that there were significant gaps in ANM training where the syllabus has not been upgraded to meet the current expanded and expected role of the ANM, as prescribed by the Govt. of India's Indian Public Health Standards (IPHS) in 2007.[26]

Anganwadi Worker

The Integrated Child Development Scheme (ICDS) introduced, in 1975, a cadre of community health workers called Anganwadi workers (AWW's) to address child health needs in the 0-6 age group.[27] AWWs work through a network of over one million Anganwadis, government sponsored child-care (and mother-care) centers across rural India, serving a population of 58 million children and over ten million pregnant or lactating women.[28] Each Anganwadi covers a population of 1000.[29]

AWW's provide supplementary meals to children and pregnant women, refer malnourished children to public hospitals, provide women and families with information on maternal and reproductive health, and administer treatments including oral rehydration salts and anti-pyeretics, anti-helmenthics and limited antibiotics (like co-trimoxazole).[30]

The Anganwadi program, though one of then most expansive public health initiatives undertaken by the government, has had mixed results, with wide state to state and inter-district variation. Studies have attributed poor performance to poor facilities, insufficient training materials and medical kits, inadequate guidelines, lack of incentives, lack of a career path and uncommitted personnel.[28]

In contrast to the ANM, the AWW has no formal education requirements. Women from the community undergo four months of training and are now paid a stipend of Rs. 7000 (Pondicherry provides the highest wage, Rs. 15,000 per month). There have been, for some time now, demands to expand the Anganwadi program to cover more children. Though the largest program in the world for children the ICDS's budget has been cut by the central government from Rs 18,108 crore in 2014-15 to Rs 8,245 crore in 2015-16 (from approx. 2.6 billion USD to 1.2 billion USD), resulting in public outcry.[31] The budget was subsequently restored to Rs. 15,483.77 crores when the revised estimates were released.[32] Against ICDS's target in 2016-2017 of Rs. 30,325 crores, the budget estimate was Rs. 14,000 crores, a 68% increase from that in the previous year, but Rs. 20,000 crore short of the stated need. In addition to several civil society actors, the All India Federation of Anganwadi Workers and Helpers continues to rally for a larger ICDS budget, and greater wages.

Accredited Social Health Activist (ASHA)

The success of the HBNC program (and its subsequent global recognition) contributed to the government's 2005 National Rural Health Mission (NRHM) launching the Accredited Social Health

Activist (ASHA) program. ASHAs are women volunteers who serve as health activists, community mobilizers, and basic care providers.[33]

ASHAs participate in a 23-day nationally endorsed training course that provides them with the basic core competencies to educate communities on health practices, mobilize communities to use existing health services, conduct home visits to identify complications and illnesses, and distribute vitamins, dietary supplements, and certain medications.[34,34] Initial success with the ASHA model led to rapid role expansion with several national campaigns depending on the ASHA worker for delivery, including the Home Based Newborn Care training (HBNC), the National Deworming Day, and Mission Indradanush, among many others.[35 - 37] ASHAs work closely with ANMs and local health centers to collaborate on mobilization and awareness raising campaigns. They receive assistance from medically trained personnel to guide their work.[34] States are provided the flexibility to amend the national guidelines and customize training and roles to meet local needs.[34] In Maharashtra alone, ASHA workers participate in as many as 40 different programs.

In sharp contrast to the Anganwadi worker model, ASHAs were provided target-based monetary incentives. For example, ASHA workers are paid a unit fee for each pregnant woman that is safely brought to health centers for delivery or for malaria cases identified and confirmed with a positive blood test.[35]

A 2010 report showed that though the ASHA program had an overall positive impact on rural healthcare utilization, there was great inter-district and interstate variation largely due to differences in buy-in from various stakeholders.[38] The program's training and monitoring components have been deemed weak and inconsistent. Measuring competency and knowledge retention has been a continuing challenge.[35,39] In many states, the program failed to engage Village, Health, Sanitation, and Nutrition Committees (VHSNC) or increase public participation in health facilities at the scale that the NHRM originally envisioned.[39] With firm commitment from the local

government and investment in early planning stages, a few states, such as Chhattisgarh and Odisha, succeeded in integrating the VHSNC, ASHA, and local support structures at scale.[39]

Both the role and number of ASHA workers has rapidly expanded since the introduction of the program in 2005. As of 2013, there are 875,000 ASHA workers across the country, over a 50% increase since 2009.[39] Notable successes included a significant increase in institutional delivery in rural districts, increased immunization rates, home-based treatment and diagnosis and management of conditions like malaria and diarrhea.[35] In their social activist role, ASHA workers have also been effective in raising community awareness. ASHA workers in Punjab, for example, were trained and sent door to door in their communities to increase cancer awareness, promote self-detection practices, and refer anyone in high-risk populations (i.e. heavy smokers) to community centers. The ASHAs were able to reach 96% of the target 27,067,539 households and were able to lead to the identification of 87,403 suspected cases.[39]

In significant departure from many state sponsored programs, the incentive-based design allowed rapid uptake, expansion and retention. While large number of target beneficiaries are reached, efficacy of the many interventions assigned to ASHA workers varies widely - once again demonstrating the importance of robust monitoring, continued support and continued training, when task shifting.

Learnings from CHW models

The limitations of the CHW model in India as a task shifting solution to the lack of maternal and primary care in rural areas are underpinned in systematic and programmatic inefficiencies. The lack of consistency in monitoring and training compounded with unclear definitions and objectives of ASHA roles [35], lead to poor outputs and underachieved goals.[35] The WHO recommends that a strong commitment by the government and

involvement of multiple stakeholders in the public, private, and community spheres will serve to stabilize and incentivize CHW programs to succeed. We have observed this to be true in districts where CHWs have been highly effective.[11] Greater investment needs to be made into consistently monitoring training, measuring outputs, incentivizing workers, and developing a career path for them, to make the CHW programs uniformly effective.[35]

Mid-Level Providers: New Cadres in India

The government has been directly involved in encouraging task shifting of higher level skills, through the creation of a new cadre of mid level providers, and through the re-training of existing cadres in specialized skills. Mid-level caregivers typically need less training than new specialists would require, making them a more quickly deployable force and a less expensive option to train, while not sacrificing quality of care. The creation of cadres of physician assistants and nurse practitioners in the United States (see below) was in response to similar demands for providing a large number of healthcare workers in short periods of time.

Rural Practitioners

The case of Rural Medical Assistants in Chhatisgarh sheds light on the importance of sound stakeholder analysis, proper planning and the creation of career paths while launching new cadres of health workers.

In 2001, the newly formed state of Chattisgarh launched a three year diploma course to create a new cadre of “Practitioners in Modern Medicine & Surgery” to address the workforce shortages in the state. Anticipating opposition, the government initially chose to bypass the Medical Council of India (MCI) and Indian Medical Association (IMA) [39] and created the Chattisgarh Chikitsa Mandal (CCM), by fast-tracking an Act in the state legislature. The speed of implementation did not allow time for considering potential weakness unearthed later. Constant legal

challenges from the IMA forced several changes in the name of the course, first to Diploma in Alternate Medicine, and then to Diploma in Holistic Medicine and Paramedical Course in order to register the graduates with the State Paramedical Council - where the IMA was less likely to mount a challenge.

The government, however, faced new and unanticipated challenges instead. Students enrolling into the three year diploma course were given the impression that they would receive government jobs in rural and tribal areas. They had paid hefty fees as the course was only offered through private institutions that the government had partnered with. When the course name was changed, and when they realized that the government jobs may not be forthcoming, they led a series of agitations that eventually led the government to reach a compromise with the IMA. The final strike was aimed at changing the course name to Practitioner in Modern and Holistic Medicine and to be registered on the State Medical Council, so they would now be allowed to prescribe allopathic medication as permitted by the federal MCI Act of 1956, and affirmed by the 2003 Supreme Court ruling.

The problem of finding jobs for the graduates was solved by using funds from the NRHM to create posts called Rural Medical Assistants which were filled by these graduates. In 2009 change in government and subsequently a change in priorities (and commitment) led to the course being discontinued, after graduating 1391 practitioners.[11] A World Bank supported case-study on RMAs in Chhatisgarh emphasised the need for planning clear career pathways and employment opportunities while introducing such courses, the importance of quality control and the importance of nuanced stakeholder analysis. The most important lesson, according to the report, that graduates from the program have been recruited and posted to remote tribal PHCs where no medical officers have previously been willing to serve.[40] A similar PHFI study also observed that RMAs were more inclined (and expected to) work in rural tribal settings than MBBS medical officers.[40]

Assam, facing similar rural workforce needs as Chhattisgarh, implemented the Rural Health Practitioner program in 2004 through the establishment of the Assam Rural Health Regulatory Authority (ARHRA). Challenged by the IMA, the Act was struck down by the Gauhati High Court in 2014.[41] By then hundreds had graduated from the three year diploma program and their fate was uncertain.

In 2015, after many years of deliberation on the Ministry of Health and Family Welfare's proposal to create a national cadre of rural practitioners, and after initial opposition from the RajyaSabha, the government - in consultation with the MCI - approved the creation of a B.Sc. degree in community health and offered support to states willing to accept it.[42,43] In response, the Assam government introduced the Assam Community Health Professionals' (Registration and Competency) Bill, in 2015, to make the existing Diploma in Medicine and Rural Health Care course equivalent to the BSc. in community health.

Opposition to this cadre continues to cited the same concerns that faced the Assam and Chattisgarh initiatives: the "injustice" of separate standards of care for rural and urban populations, the danger of producing "half-baked" healthcare practitioners, difficulty in preventing migration to urban areas, the need to better incentivize existing MBBS doctors, and potential of expanding training for cadres like nurses and AYUSH doctors.[44]

CeMoc

At the turn of the century, infant and maternal mortality rates were 64.9 and 3.74 per 1000 live births respectively in India, far behind the Global Development Goals. India continues to remain far behind global standards for deliveries. 20% of the world's maternal deaths occur in India--and 80% of those deaths are due to preventable and treatable complications during childbirth and pregnancy.[11] In an effort to reduce both IMR and MMR, the NHRM employed an internationally endorsed avenue for addressing IMR and MMR with the provision of Emergency Obstetric Care (EmOC) centers.

Provision of emergency obstetric care is severely limited in rural India where as many as 46% of sanctioned posts for specialists such as surgeons, gynecologists, and pediatricians are vacant in rural health centers.[45] There is a significant body of international research that suggests that, in such low resource settings, Task Shifting of emergency obstetric care to non-specialized cadres can be an effective method of addressing both MMR and IMR [46 -48], and that “the quality of emergency obstetric surgeries is not at risk when performed by a less-skilled health worker.” [49] The need to address this specialist gap was highlighted in a 2006 Ministry of Health and Family Welfare report which stated the difference in MMR between rural and urban settings to be 619 and 267 per 100,000 live births respectively.[50]

The Federation of Obstetric and Gynecological Societies of India (FOGSI) decided to expand obstetric services in rural India by offering targeted Comprehensive Emergency Obstetric Care (CEmOC) training to rural allopathic (MBBS) physicians. This task shifting initiative was based on a successful pilot study conducted by Columbia University’s Averting Maternal Death and Disability Program (2004-2006). The 16-week training included six weeks of didactic learning followed by 10 weeks of clinical training with obstetricians in district hospitals.[51] The MBBS trained medical officers were now given the skills and license to perform cesarean sections and manage birth-related complications. Since EmOC care requires complementary anesthetic services, a Life Saving Anesthetic Skills (LSAS) training was also developed by the government in 2002, and was first implemented in Gujarat in 2006. By 2008, 21 other states had also implemented the course.[11] The18 week LSAS training (12 weeks of didactics followed by 6 weeks of practical training) was offered to rural allopathic doctors with the goal of enriching the number of facilities capable of providing comprehensive EmOC care. While the LSAS program has expanded alongside CEmOC through the NHRM, there has been dissonance in the coordination between the two initiatives, and the two sets of trainees have not been deployed to the same sites.[31]

The overall impact has been poor. From the initial cadre of 18 MOs, only a third performed cesarean deliveries in the 15-22 months after the training.[11] While MOs were able to perform emergency cesarean deliveries on completion of their training, a number of factors stalled their ability to do so consistently. The failure of the CEmOC initiative is attributed to poor infrastructure, lack of equipment, and lack of anesthetists; poor selection of candidates; and inadequate supervisory and monitoring.[11]

MPH (N) for AYUSH doctors

The Maharashtra University of Health Sciences (MUHS) is an autonomous body created by an Act of the state Legislative Assembly in 1998. Deans of the faculties of medicine, dentistry, nursing, physiotherapy, Ayurveda, homeopathy and Unani serve as key elected stakeholders on the Academic Council, the approving authority for curricular changes. Building on regular workshops on infant and child health nutrition conducted by MUHS, and supported by UNICEF, the university launched a master's program in Public Health Nutrition to enhance knowledge and skills for improved program planning, management, evaluation and research in public health nutrition.

The two-year program enrolls graduates from all streams of health sciences who have passed an admission test. These include medical and allied health graduates, science graduates with a nutrition major, and graduates from Ayurveda and homeopathic systems of medicine. The modular curriculum based on WHO guidelines is delivered by faculty experts from medicine, pediatrics, obstetrics and gynecology, community medicine, biochemistry and nutrition. The curriculum is a unique combination of classroom didactics and community-based training, where community nutrition is taught through home visits and staying with families. Community health workers and identified 'champions' from the local community help students understand the problems in the community.

Graduates from the first cohort were offered a paid UNICEF internship to work in underserved regions in state and national level mission programs.

Learnings from Mid-Level Task Shifting

The scope and potential of the trainings to address the need for emergency obstetric services in rural settings nationwide, but made certain key common recommendations to better activate these unique cadres. Chief among these recommendations were: the importance of leadership and a policy environment that allows doctors to be appropriately skill-matched, the need for essential resources such as blood banks, increasing clinical training and refresher training to improve confidence, effective monitoring and evaluating mechanisms, and voluntary recruitment and incentive programs.[52] Additionally according to the WHO recommendations, a harmonized and complete needs based assessment is important to task shifting implementation.[10] The LSAS program was started to address the need of anaesthetic specialists in rural areas however did not manifest itself in a cohesive strategy and was not identified as a necessary intervention early.[10] Finally, while the RMA program did seek to provide quality and standardized care, it received a lot of friction in terms of legal and judicial support necessary for a successful intervention, which the WHO highlights as necessary to sustainable and long-term intervention.[10]

The MPH (N) a resource intensive program. Supportive leadership and external funding played an important role in implementation. The program has however been recognized as a successful model for scaling up inter-professional training and capacity building in tune with real health service needs.

Hospital-based Task Shifting Models

Task shifting has been optimized in private healthcare institutions to increase the scale of services by decreasing the costs of operations and care. Hospitals such as Aravind in Tamil Nadu have been able to expand their reach through task shifting methods and serve areas that do not have access to specialized care.

Aravind

Private healthcare organizations have also used task shifting to address the need for specialized care and have been able to expand operations through technical division of labor. The Aravind Eye Care System has used task shifting methods to expand business operations and increase reach. Founded in 1976 as an 11-bed hospital in Tamil Nadu, Aravind has since grown into a hospital network of over 4,000 beds and performed over 3.7 million outpatient visits and over 400,000 surgeries in 2015.[52] Nearly half of all services are provided either free of charge or significantly subsidized. Aravind's significant social mission of relieving rural blindness in India is made possible by its sliding-scale revenue model in which paying customers seeking high quality eye care finance the care of those populations that would otherwise not be able to afford treatment.

In order to deal with the growing need for care and the scarcity of trained staff, Aravind established a unique cadre of "Ophthalmic Assistants" to shift certain responsibilities away from surgeons to maximize medical efficiency. OAs are young women recruited from surrounding villages who in many cases have only had a few years of formal schooling. They are trained for two years to perform all aspects of screening, diagnosing, and pre- and post-operative care. OAs evaluate eye function, perform panels of tests, prepare patients for surgery, finish post-operative procedures, and educate them about care and follow-up.[53]

The use of OAs has allowed Aravind Eye Hospitals to not only give training and job opportunities to young women in the surrounding rural villages, but also to maximize surgical efficiency. Aravind Doctors perform an average of over 2,000 surgeries per year, as compared to the national average of 250, [54] with the average cost of a cataract surgery being approximately $29 [55], as compared to the $1800 cost in the United States.[56] Other factors that have allowed the hospitals to expand at scale include massive outreach campaigns, low costs and consistently high quality of services.

Narayana Health (NH)

Narayana Health (NH) uses surgical care task shifting to provide high quality, affordable, and efficient cardiovascular solutions. Heart disease is one of the leading causes of death worldwide and in India there is a critical lack of cardiovascular care. It is estimated that 120,000 cardiothoracic surgeries are conducted each year in India, far from the estimated 2-3 million surgeries that are needed.[57] The large gap between the supply and demand for cardiothoracic surgeries has been attributed to and has even led to high costs of surgical care that are unattainable to populations outside affluent, urban patients. NH, one of the leading heart hospitals in India, uses surgical task shifting to drive down costs while improving efficiently and maintain high quality of care.[58]

Coronary artery bypass grafting (CABG) is a complex surgery requiring harvesting of veins from elsewhere in the body to be grafted on the heart to bypass blockages in vessels (poorly) supplying blood to the heart. At NH, several steps of this complex surgery, except the most complicated ones like anastomosis of the harvested veins, are now routinely conducted by junior surgeons. Co-location of simultaneous surgeries frees by the senior surgeon for being involved in only the most critical steps of the procedure, attending to more than one surgery simultaneously and seeing more patients, including in clinics and in-patient wards. The junior surgeons receive an excellent opportunity to hone their surgical skills and gradually take on more critical roles in their final years of training.[59]

Task shifting at NH has resulted in lowering the cost of care of CABG surgeries, increasing the number of surgeries that are offered, and refining the skills of junior cardiovascular surgeons. This task shifting practice was not mandated but grew organically from a handful of surgeons experimenting with the idea to optimize their practice outputs. It is now the standard of care at NH for most of its surgeries. NH continues to maintain some of the highest quality of care and outcome indicators in CABG surgeries. Compared to hospitals where senior surgeons

conduct all procedures in the surgery, there is no difference in mortality rates or postoperative recovery.[59] On average, each surgeon at NH has been able to offer 2-3 surgeries per day compared to 4 to 6 per week in the United States. Additionally, senior surgeons are able to attend to nearly 20 outpatients per day. NH has become a primary hospital for referrals from other institutions in India, South Asia, and the Middle East.[59]

Learnings from innovation in the private sector

Aravind and NH have been able to harness task shifting to provide high quality care at scale profitably. By redistributing the responsibilities of post and pre-surgery care from doctors to OAs, Aravind has been able to expand its reach to more patients. Shifting certain responsibilities of doctors to non-medical professionals, has improved the capability and efficiency of not only diagnosis and identification of problems, but has also improved the efficiency of doctors in offering care. Additionally, Aravind's strategy of redistributing costs to patients' ability to pay has increased the reach of their services to a subset typically unable to afford care. The high volume of cases means has allowed the institution to distribute fixed costs among a large pool of people making surgery more affordable for patients, and kepping the operation profitable for Aravind. Similarly, NH's approach of redefining the division of labor between senior and junior surgeons has allowed more patients to receive care, driving down the cost per surgery while maintaining quality care and competitive wages for surgeons.

Mental Health Task Shifting Initiatives

The burden of mental health is growing, around the world. Depression is expected to be the leading cause of disability adjusted life years by 2030 [59], affecting nearly 5% of people worldwide.[60] Yet, mental health needs are largely unmet, especially in the developing world. In India it is estimated that there is a 90% treatment gap for mental health disorders.[62] This is largely attributed to a profound shortage of mental health specialists and the social stigma around mental health disorders

that prevents patients from seeking or being directed to treatment. By conservative estimates 50 million in India are affected by mental health disorders, however there are only approximately 5,000 mental health professionals.[61] It is in this context that organizations such as Sangath and COPSI have utilized lay counselors to take on the responsibilities of health care professionals and deliver care to those affected by depression, anxiety, addiction, and other debilitating conditions.

Sangath

Sangath was started in 1996 and works throughout Goa and surrounding rural areas. Sangath organizes and trains community volunteers to serve as lay mental health counselors to treat depression, addiction, and youth development. Sangath's flagship initiative, the Program for Effective Mental Health Interventions in Under-Resourced Health Systems (PREMIUM) introduces scalable psychological treatments that are culturally appropriate, affordable, and feasible for delivery by non-specialist health care workers. PREMIUM workers attend to moderately severe to severe depression under the Healthy Activity Program (HAP), and to harmful drinking under the Counseling for AlcoholProblems(CAP).[62] Volunteers participate in a three week training course followed by a 6 month internship.

HAP counselors are trained in identifying, addressing, and providing solutions to people suffering from moderate to severe depression.[62] HAP's core strategies are to develop skills around treatment engagement, psychoeducation, behavior activation, problem solving, involvement of significant others, activation of social networks, relaxation, and techniques to improve interpersonal communication among their counselors. On average, only six to eight 30-minute sessions were required per patient. In a study conducted in 2016, it was found that HAP reduced symptoms of depression, increased remission by two-thirds, and had positive effects on functional impairments of depression. Left untreated functional impairments have long lasting effects and lead to additional physical and behavioral side-effects.[62]

CAP trains community volunteers to address, assess, and provide solutions to people dealing with alcohol addiction. Volunteers guide their patients to develop solutions and take ownership of the intervention.[63]

Sangath's approach to task shifting mental health responsibilities can be summarized by their five-step process: "First, simplify messages conveyed to trainees, unpack the interventions in easily replicable and culturally appropriate forms, deliver care to where there is a lack of specialists, use available human resources from local areas, and reallocate scare and expensive mental health professionals to design training programs." [63]

Community Care for People Living with Schizophrenia in India (COPSI)

The Center for Global Mental Health (London School of Hygiene and Tropical Medicine) conducted a randomized controlled trial (COPSI) to compare the clinical- and cost-effectiveness of facility based care to a collaborative community based care intervention for people with schizophrenia. The community intervention was developed by a treating psychiatrist, an intervention coordinator and lay community health workers.

Schizophrenia, while not as common as depression or addiction, is also significantly underdiagnosed and undertreated in India. Schizophrenia patients and their families also often face social exclusion.[64] Several studies have shown that the most effective solutions to schizophrenia are those based in community settings.[65] The one-year COPSI study sought to deliver solutions through household-based solutions and community-based clinics. COPSI's goal was to train community caregivers to create a system of social inclusion, livelihood opportunities, and empowerment for individuals who had schizophrenia, and for their families.[66] COPSI managed patients with schizophrenia via multiple stakeholders. Community volunteers were trained in managing and in treating the symptoms of schizophrenia, lowering the cost of intervention while simultaneously advocating for social inclusion. Simultaneously, COPSI incorporated

pharmaceutical treatments prescribed by certified specialists.[68]

Learnings from mental health initiatives

Mental health is an underserved area of healthcare due to lack of trained professionals and an under-demanded service due to associated stigma. Task shifting models in mental health have been able to effectively address both the manpower and cultural barriers effectively.[61] Since most of the lay counselors are from communities they serve, their ability to navigate local nuances makes their role extremely effective and helps them build a strong rapport with local communities.[67] Initiatives like Sangath's PREMIUM also contribute to the spread of awareness regarding mental health conditions in areas that are largely unaware that such problems exist or are treatable. Finally, using lay counselors also is a cost-effective and cost-saving approach to the deployment of specialists, where costs were lower and outcomes were the same and if not, higher, than treated by professionals.

GLOBAL PRECEDENCE IN TASK SHIFTING

Task shifting in health has a rich global history, and has been been well-studied. Review of the diverse examples of task shifting internationally not only substantiates an established precedent for delegating the delivery of a variety of health services, but also provides important lessons regarding how task shifting is best optimized.

Early examples

One of the earliest documented examples of task shifting dates to 19th century France, when a cadre of Officiers de Santé were incorporated into a restructured medical practice system following the country's revolution. Separate from traditional physicians and surgeons, these medical personnel went on to fill urgent needs by providing care for the nation's military during wartime and for France's poorer rural populations in peacetime, before being dissolved nearly a century later after substantial political contention.[68]

In 20th-century China, farmers who received basic medical training began serving local communities where qualified doctors were scarce, promoting preventative health, family planning, and treating common illnesses. These "barefoot doctors" as they came to be known were formally integrated into China's national health policy in 1968 as pat of the Rural Cooperative Medical System (RCMS). By the time it was abolished in 1981, the RCMS covered 90% of the rural population. The barefoot doctor program is said to have influenced the WHO's Alma Ata "Health for All" Declaration in 1978.

Community Health Workers

The utilization of barefoot doctors is often cited as the primer for many of the community health worker systems that were successfully developed elsewhere around the world in following years. Today, around the world, community health workers are involved in a wide range of programs addressing health needs in

a variety of fields, including maternal and child health care, malaria, tuberculosis, HIV, surgeries, counseling, auditing and others. Community health workers internationally are involved in undertaking a wide range of tasks, including patient identification and referral, execution and interpretation of testing, management of adherence, drug dispensing, and preventative tasks.[10, 18, 69-76]

Studies demonstrate that community health worker programs can contribute to health services that are accessible, of high quality, and cost-effective. Brazil's Family Health Programme, the country's primary health strategy, has incorporated community workers as a key element of their health delivery services.[10,77,78] In rural Haiti, evidence has shown that well-designed community-based HIV programs are safe and effective.[10] In Sub-Saharan Africa, antiretroviral therapy programs that have involved community health workers have resulted in lower rates of patient loss to follow-up than those without community involvement.[10,79] A number of studies have also demonstrated that community health workers can achieve better patient outcomes at some cost saving compared to clinic-based care.[10,80]

Advanced care by nurses

Around the world, the role of nurses has also realized vast expansion in order to fill health care deficits both in resource-constrained and non-resource-constrained settings. Task shifting of this form is far-reaching and well documented.[10, 81-83] As with community health workers, task shifting to nurses has also been shown to increase health access while sustaining care quality. For example, in Botswana, two pilot projects that involved nurse-centered delivery of antiretroviral therapy were observed to increase access to treatment and support for adherence.[10, 84] In Ethiopia, a cadre of nurses were formally trained as advanced HIV specialists in order for them to serve in a more central role in antiretroviral therapy scale-up efforts. They were allowed to refill medications and manage clinics primarily.[10] There are a multitude of studies documenting the

documenting the successful extension of the role of nurses to include the ability to write simple prescriptions.[10, 85-87]

In a number of high-income countries, specialized nursing programs have been broadly adopted to create needed cadres of non-physician providers able to perform tasks traditionally restricted to medical doctors.[10] Responding to physician shortage in the US, Loretta Ford and Henry Silver, a nurse and a physician, created the first training program for nurse practitioners in 1965. Nurse practitioners in over 50 countries now have protected responsibilities for advanced care beyond general nursing, with licensed autonomy to examine patients, diagnose illness, provide treatment, and prescribe mediations for adults and children. In certain cases, nurse practitioners are independently licensed, and in addition to providing clinical and administrative services at hospitals, now run their own clinical practices where there are physician shortages.

Similarly, nurse anesthetists, a cadre of nurses with advanced degrees are licensed to provide comprehensive anesthesia care with variable requisite supervision of medical doctors depending on local regulations.[88]

The development of these specialty nursing programs has been met at times with the same concern seen in India - that of dilution of care quality and overreach by the nursing profession as a whole. While these programs may have had ad hoc origins, over time they underwent rigorous transformations in training and credentialing, not without legal and attitudinal challenges, to reach current levels of universal acceptance. Key to their success was focus on institutional commitment, integration into health care delivery models, certification and monitoring of clinical efficacy.

Physician Assistants

Non-physician clinician cadres have been developed in high-income countries in response to physician shortages, now serving integral health delivery functions in Canada, the United

States and the United Kingdom.

The Physician Assistant program in the United States was launched at Duke University Medical Center in 1965. The initial program was modeled after the fast-track training of doctors in World War II. Over the years that followed, the physician assistant program gained federal recognition and support from the medical fraternity, which helped define standards for accreditation, certification, and continuing medical education. Today, physician assistants undergo 2-3 years of didactic study (sometimes resulting in a master's degree), often followed by a clinical externship or residency training. After apprenticeship during their initial years of employment, PAs, practicing under the license of a supervising physician, perform a variety of complex medical, surgical and administrative tasks.

We now examine evidence from two fields of healthcare where task shifting has had the most demonstrated success.

Task shifting in maternal and reproductive health

Task shifting is similarly prevalent in reproductive and maternal health globally; there is a vast literature demonstrating care decentralization in a variety of countries for multiple clinical tasks including contraception, sterilization, abortion, obstetrical surgery, and anesthesia.[91] In a study in Mozambique in 1996, the outcomes of caesarean deliveries performed by assistant medical officers and medical doctors who specialized in obstetrics and gynecology in provided evidence from expanding training to medical assistants to supplement care in underserved areas.[10]

Dawson et al. conducted a narrative synthesis of peer-reviewed literature to provide evidence on the best methods to optimize health workers through task sharing and sharing to achieve universal access to reproductive health (MDG 5). The analysis found that most often, clinical tasks like obstetric surgery and anesthesia were being shifted to or shared among doctors, non-physician clinicians, nurses, and midwives, resulting in

greater access to maternal and reproductive health services without causing loss of performance or patient outcome.[89]

Task shifting in HIV care

Task shifting has been the back bone of HIV care around the world. The high burden of disease and extreme resource-constraints in the countries affected by HIV necessitated a wide range of task shifting approaches, many of which have proven successful.[10]

In countries with a high HIV burden and with critical physician shortages, it is now the norm for non-physicians to perform the majority of tasks, including assessment of care eligibility, initiation of therapy, monitoring for treatment failure, and adherence support.[90] In Uganda, basic care packages for HIV patients are delivered by non-specialist doctors or nurses and supported by community health workers.[91] In Ethiopia, Kenya and Malawi, non-physician providers have even been allowed to prescribe antiretroviral therapy.[10, 92 ,93]

Studies show that the quality of healthcare and patient satisfaction are not compromised when care is delivered by appropriately trained non-specialist doctors, when key determinants of successful task shifting are addressed. There is convincing literature to support that in Haiti and Rwanda, where many HIV treatment programs utilize task shifting approaches, efficacy and safety are high; studies demonstrate low rates of treatment abandonment or failure, comparable rates of mortality from similar settings, and high levels of patient satisfaction.[10] Another study confirms that HIV care provided by trained non-physician providers can be similar to that provided by HIV-specialist physicians and better than non-specialist physicians. Authors conclude that high performance by non-physician clinicians in these settings is due to high levels of experience, focus on a single condition, participation in teams, and access to medical doctors with HIV expertise.[10]

WHO Guidelines

The WHO has published consensus recommendations and guidelines that endorse task shifting to expand access to health services. This work, which derives from exhaustive literature review, commissioned research, expert consultation and government collaboration from multiple countries, brings provides an authoritative framework to guide implementation at scale. The guidelines specifically advise significant investment in assuring the following key elements:

a) Adopting task shifting as a public health initiative with national backing by appropriate stakeholders;
b) establishing professional and legal protections;
c) ensuring appropriate vetting, training and supervision of health workers;
d) assuring quality of service delivery with adequate referral systems;
e) resource support;
f) incentives and career progression.[10]

Critical analysis of successful task shifting programs demonstrate these very themes recurring I examples around the world. Though not exhaustive, a few concluding examples follow. In Ethiopia, prior to formal creation of a new cadre called Health Extension Workers, the government convened a series of meetings with external stakeholders and non-government organizations, resulting in the establishment of a legal basis to successfully integrate the Health Extension Workers into the civil service and existing delivery systems.[10]

In Malawi, prior to formal task shifting efforts, the government reviewed the Ministry of Health's antiretroviral therapy implementation guidelines and amended regulations to allow for nurses to prescribe antiretroviral therapy by implementing the Nurses and Midwives Practice Act and the Pharmacy, Medicines, and Poisons Act. Provisions in both laws were approved by the medical councils.[10] This consensus building exercise was in contrast to efforts decades prior, when lack of consultation with appropriate regulatory bodies resulted in refusal of recognition of

a new cadre of community health workers by the Nursing and Medical Council.

The ability of task shifted health workers to perform at high level requires that they be trained with adequate educational support that is standardized and nationally endorsed. There are vast examples detailed in the literature of how structuring curricula based on identified core competency needs can be highly effective. For example, Malawi links in-service education for HIV care delivery to a standardized, nationally endorsed training and certification process. Non-physician providers undergo a structured learning program and then subsequent certification exam before being granted approval for scope of practice by the Medical Council or Nursing Council.[94]

Beyond training and certification, regular supervision and well-functioning referral systems are repeatedly cited as important factors in sustainability and quality. Studies from Ethiopia, Malawi, Uganda, and Haiti document a wide-ranging set of referral systems that function effectively to facilitate task delegation from physicians to non-physician providers.[10, 95]

Regarding assurance of care quality, there are also many examples that demonstrate the need for competency assessment and performance evaluation against defined standards after task shifting programs have been adopted. In Ecuador, the Ministry of Health made directed efforts to improve health worker competency in maternal and child care by formally testing a series of improvement interventions, including job clarification, communication of standards, and compliance monitoring. After 12 months, these interventions were shown objectively to rapidly increase compliance with clinical standards in an intervention versus control group. Quality assurance mechanisms of this kind help instill confidence among service users, providers, and governing bodies.

Community health workers provide vital and timely counseling to pregnant mothers in Aurangabad
Courtesy: Unicef Mumbai

TASK SHIFTING: WHAT ROLE CAN AYUSH DOCTORS PLAY?

We finally get to the crux of this report – an examination of the potential for utilizing AYUSH providers in India in task shifting elements of allopathic health delivery. Articulated critiques and concerns have been the following 1) dilution of care 2) two-tier health delivery system for urban and rural populations and 3) dangers of cross practice. Irrefutable evidence of task shifting as an effective and not only acceptable but prescribed tool to address health delivery gaps in both low and high income countries neutralized the first two arguments. The third warrants careful attention. The question, we believe, is not whether or not this large workforce should be utilized better, but how best can they (and allopathic doctors) be equipped with the correct training, monitoring and incentives to optimize healthcare delivery among the underserved.

The following sections focus on the training of Ayurvedic doctors, and not all AYUSH providers, by the arguments offered apply not only to AYUSH providers but to nurses as well.

India's Ayruvedic doctors

Since India's independence in 1947, practitioners of traditional Indian systems of medicine have worked within the national health delivery framework along with allopathic doctors, both formally and informally. Over decades, as the landscape of health cadres serving the country's population has been restructured, the organization of these traditional medicine forms has also evolved. With roots in the Ministry of Health and Family Welfare, the Ministry of AYUSH (2014) now regulates educational and practice standards across several distinct traditional medicine forms, including Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy. Ayurvedic practitioners represent the largest fraction of AYUSH providers and account for approximately five percent of all health workers in both rural and

urban India (compared to roughly 30% for allopathic doctors.[98]

BAMS education and training

Higher educational institutions of Ayurveda, under the governance of The Central Council of Indian Medicine (CCIM), award a Bachelor of Ayurvedic Medicine and Surgery (BAMS) degree to students who complete five and half years of graduate study, including a year of internship. Traditional Ayurvedic teachings emphasize holistic approaches to restoring balance of elemental forms that dictate health, though modern BAMS curriculum now includes a wide array of contemporary subjects, many of which draw from allopathic principles, including anatomy, physiology, microbiology, pharmacology, toxicology, obstetrics and gynecology, preventive and social medicine. Modifications to the curriculum now also require that AYUSH interns complete six-month compulsory training with exposure to Government of India's national health programs, which are also based on western allopathy.[96]

Workforce distribution

Historically, scarcity of qualified MBBS graduates practicing in rural regions has contributed to workforce deficits throughout the country's non-urban areas [98]. There are about 133 allopathic doctors per lakh population in urban India, but only 33.7 in rural India. AYUSH doctors constitute about ten percent of all rural health workers that include allopathic doctors (29.7%), nurses and midwives (29.6%), pharmacists (12.4%), and ancillary health workers.[97] The scarcity of qualified health workers puts patients at risk of being exposed to misguided and poor treatment by providers practicing outside their scope of training or by traditional healers and quacks; puts a strain on existing health institutions; and leads to poor health outcomes.[11]

Allopathic cross practice is ubiquitous

As traditional medicine forms have expanded with time, patterns of practice have evolved substantially. Today, though BAMS doctors still practice Ayurveda in its conventional form, many

have come to incorporate – mostly without any formal training - allopathic diagnostic approaches and therapies into their care of patients. This movement has been shaped by a variety of factors, including patient demand for modern medicines, financial gains, educational reform, and systematic assimilation of providers on a societal level by the government (see Rural Practitioners section below). Available evidence confirms that mixed practice, or “medical pluralism” as it sometimes referred, is widespread across India.[98] The prevalence of cross-system practice is difficult to quantify, but subject to definitions, studies suggest it varies from 12% [99] to 98%.[100]

Movement to mainstream

The Government of India had undertaken several policy efforts to mainstream AYUSH practices in order to expand access to care in rural regions. These initiatives largely fall into two categories:

I) Integration of AYUSH medicine with allopathic health systems
The Ministry of Health and Family Welfare, by way of the National Rural Health Mission (NRHM), has introduced several proposals to catalyze the transition of traditional practice forms into the national health delivery framework. Key mandates have included AYUSH co-location and contractual hiring at public facilities, involvement in national health programs, training and educational reforms, promotion of cross-referral between different streams of medicine, and initiatives focused on research, development and supply of AYUSH drugs.[101-103]

These well-intentioned but sometimes poorly executed initiatives have, unsurprisingly, been met with mixed results. While the NRHM envisioned the integration of AYUSH medicine into national healthcare delivery, in reality, AYUSH doctors have not been provided support by state administrations to practice freely. There are reports of them not being allocated consultation rooms, or their pharmacies being only stocked with allopathic medicines.[104] In many rural centers, despite attempts to facilitate co-location of AYUSH doctors with allopathic doctors, due to unfilled allopathic posts, AYUSH doctors conduct solo

attending to all diseases presenting to the primary care clinic, and inadvertently practicing allopathic medicine.[105]

II) Legalizing (limited) allopathic practice by AYUSH doctors
Review of the regulatory landscape reveals a long history of divided interests by stakeholders with opposing claims about the legitimacy of allopathic cross practice. Multiple, highly publicized lawsuits across many states highlight campaigns to suppress medical pluralism, some have been upheld and others rejected.[106]

Allopathy is largely regulated by the Indian Medical Council Act (1956) and AYUSH by the Indian Medicine Central Council Act (1970). Each of these laws established, independently, central and state registers of practitioners in their respective fields. In a landmark decision of Dr. Mukhtiar Chand & Ors v. State of Punjab in 1998, the Supreme Court held that any provider, even if enrolled on traditional State or Central Registers of Indian Medicine, may practice “modern scientific medicine in any of its branches” if, and only if, also enrolled on the State Medical Register as established by the 1956 act. Effectively, this ruling confirmed that the jurisdiction to grant providers authority to practice allopathy lies with individual states.

In fact, in states that have allowed Ayurvedic doctors to enroll on the state register, Ayurvedic education has increasingly incorporated allopathic teaching, with Ayurvedic students receiving pharmacology, anatomy, and physiology courses that are similar in coursework to their MBBS counterparts.[107]

Recently, there has been support in the central government to allow AYUSH doctors to practice allopathic medicine at primary health centers. Several secretaries have written an MOU with Indira Gandhi National Open University (IGNOU) to offer a bridge course to learn the basic primary care needed in PHCs.[108]

Resistance from allopathic doctors

Cross practice, though widespread, remains a highly contentious

issue. Those who defend the merits of mixed practice argue that the vast deficit of allopathic doctors essentially obligates that alternative providers fill a needed gap in care, including the prescription of modern medicines that are often more effective and desirable to patients than traditional remedies. These proponents substantiate this claim by framing comparison of this practice to an alternative that involves nearly no care at all, as is often the state of affairs in far reaching areas in India. Some point out that while not with equivalent training, BAMS doctors have gone through an equal length of medical study as MBBS doctors, often with exposure to allopathic practice through modern curriculum, observerships, and internships, making them perhaps the most qualified non-MBBS providers to provide allopathic medicines in these circumstances.[109]

Opponents, however, raise serious concerns about such mixed practice, citing legal, practical, and ethical criticisms. Chief among critics are the Medical Council of India (MCI), which oversees allopathic medical education, and the Indian Medical Association (IMA), the governing body of modern medical practice. "'Permitting the practice of modern medicine directly and indirectly to persons not qualified under the standards of the MCI...will result in heavy miscarriage of public health, causing dangers to the lives of people in rural areas," warns Marthanda Pillai, national president of the IMA. He add, "…given deficiencies in regulatory and monitoring mechanism in the rural health-care system, creation of new cadre of health professionals will not only lead to poor quality health care for the rural population but also result in underutilization of existing health professionals." [110] This sentiment is reflected in MCI's Code of Ethics. Clause 1.1.3 states, "a person obtaining qualification in any other system of Medicine is not allowed to practice Modern system of Medicine in any form." [111]

These criticisms generally distill into three overarching and related points: first, allopathic use by anyone other than MBBS doctors is a legal encroachment on the institutions that have regulated its practice historically; second, allopathic use by non-MBBS providers is substandard and therefore dangerous;

third, substandard care of rural populations should not be systematized, as a separate standard of care for these populations amounts to discrimination.[94,109,112] A recent editorial in the Journal of the Academy of Family Physicians of India reframed the debate as one of deregulation of allopathic prescription, and even laid blame for it on the pharmaceutical industry.[113]

The first two arguments can generally be debunked by the long standing practice of successful task shifting in the public and non-government sector in India as seen earlier. In fact a wide range of traditional “physician” functions have been delegated to non-MBBS providers, often village women with little to no formal education. Tasks have included diagnosis, management, therapeutics, counseling, and in some cases, even prescribing medicine. Many of these initiatives have not only been hugely successful, but have been replicated on national scale, with legal sanction. The “substandard care” critique as well as the “separate but unequal critique” both strike at the heart of task shifting as a globally endorsed framework that has a long and rich history.

In 2014, Maharashtra decided that Ayurvedic doctors would be able to prescribe allopathic medicines after a one-year training course (Act XXVIII of 2014, June 26, 2014). A day prior, it had the government approved an amendment that would allowed even homeopathic doctors to prescribe allopathic medicine, after training in “modern pharmacology.” In protest, the IMA filed a special leave petition (SLP) that was subsequently denied in court. In stark contrast, the High Court of Delhi on April 8, 2016, prohibited AYUSH doctors from prescribing allopathic medication in response to a public interest litigation filed by the Delhi Medical Association (of allopathic doctors).

In June 2016, Odisha declared that AYUSH doctors will be given a few weeks of training to prescribe medications that are already being dispensed by pharmacists, nurses and community health workers, and that the state would develop treatment protocols.[114] In November a similar move in Karnataka aimed

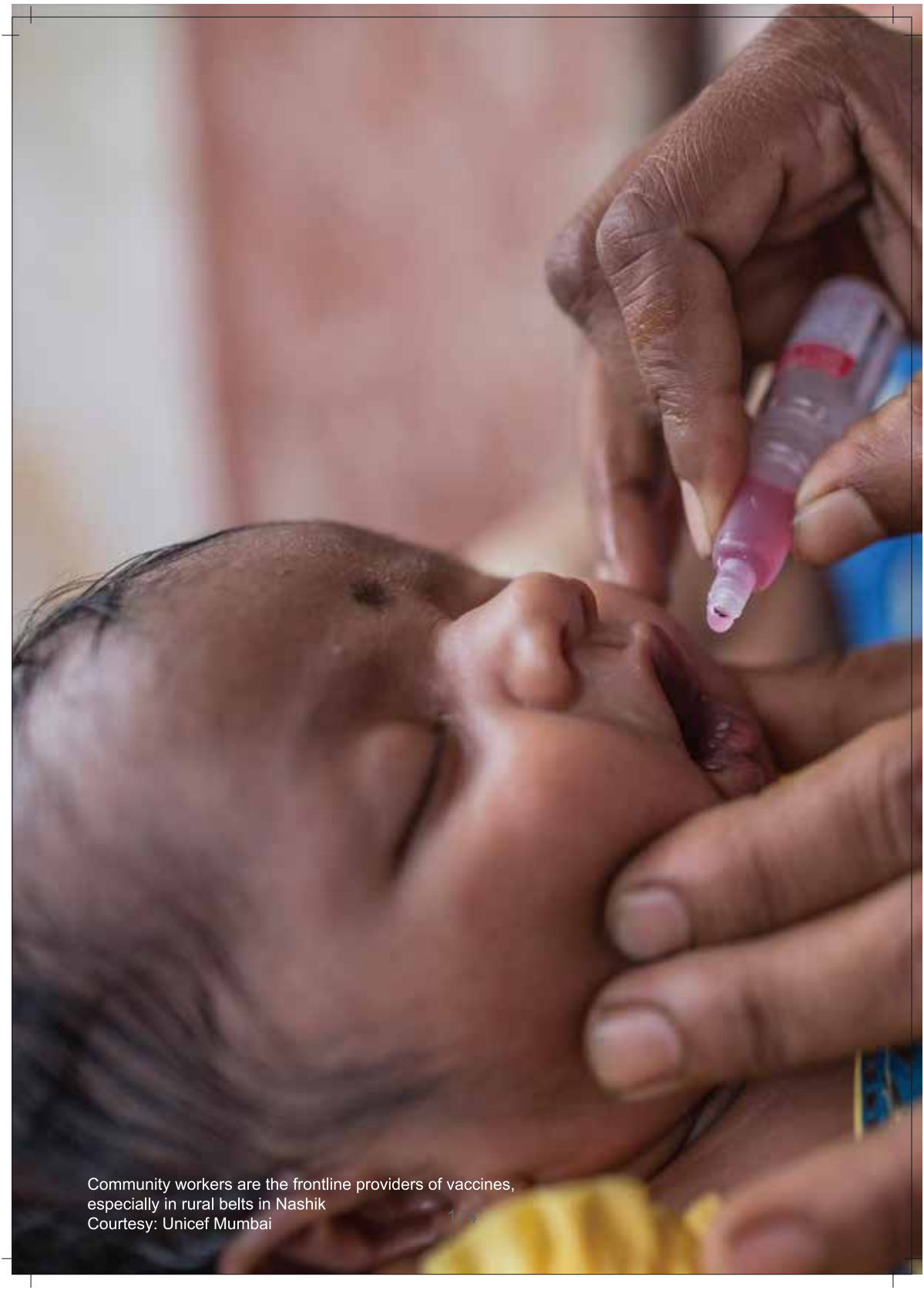
at filling 320 vacancies in primary care clinics with AYUSH doctors given three months of training, to “prevent people from going to quacks” was once again met with opposition by the Indian Medical Association.[115]

Currently, multiple states legally allow allopathic practice by Ayurvedic doctors, each with its own requirements for Register approval and subsequent practice: Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Karnataka, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh and Uttarakhand.[107]

How task shifting can fail: why the IMA’s concerns must be addressed

It is important to recognize the context within which the IMA and MCI have raised their concerns. Multiple studies have shown the poor quality of primary care across India. Of note, is the 2012 study conducted by Das J., et al that found low overall levels of medical training among health care providers, where in one instance 67% of sampled providers had no training at all. In some cases, there were only small differences between trained and untrained doctors, and incorrect treatments were widely prescribed.[116] Allowing parts of allopathic practice to be task-shifted to Ayurvedic or AYUSH providers can therefore easily result in legitimization of such malpractice – unless accompanied by rigorous training and stringent monitoring mechanisms

A 2013 study in Chattisgargh compared clinical competence among providers at primary health centers. Between MBBS-trained medical officers, rural medical assistants, AYUSH providers and paramedics, the study concluded that AYUSH Medical Officers were less competent than MBBS Medical Officers, and need further clinical training.[99] While supporting supported the use of rural medical assistants for primary care in areas where posting Medical Officers is difficult, these studies, once again, underscore the importance of rigorous training and monitoring.



Community workers are the frontline providers of vaccines, especially in rural belts in Nashik
Courtesy: Unicef Mumbai

EXPANDING HEALTH CARE TASK SHIFTING IN INDIA: A ROADMAP

The expansion of the Ayurvedic doctor's scope of practice should be viewed as another example of task shifting, in line with a long list of successful initiatives in India and around the world. Viewed through the lens of task shifting, the argument that training non-MBBS provider dilutes care or results in a two-tier system, does not hold merit. The goal of task shifting away from MBBS doctors is not to take away their business, but to optimize the use of MBBS doctors to perform tasks that cannot be performed by those without similar levels of training. Clinical or administrative tasks that can be performed by others should be delegated to a range of non-MBBS providers including not only existing cadres but several categories of new cadres as well.
However, the debate around the recruitment of Ayurvedic doctors will need to address not only the permitted scope of allopathic practice but also the extent (if any) of permissible, evidence-based cross-practice.

Reluctance on part of the professional medical organizations to acknowledge these realities and their failure to provide alternate solutions precludes the formulation of a systematic plan to define, standardize, monitor and support allopathic practice by those not trained in allopathic medicine but willing to serve in areas where there is a scarcity of qualified MBBS doctors. It is equally important to acknowledge the concerns of the Indian Medical Association and the Medical Council of India and engage them while creating new cadres of healthcare providers,failing which long fought and often misplaced legal challenges seem inevitable. Objections to the creation of new health cadres with abbreviated training will best be overcome by providing robust evidence of their clinical efficacy and non-inferiority, neither of which have borne out when providers are untrained. The scope of practice must be clearly defined and may be limited by the number of diseases or interventions permitted, the geographic area of service, or type of employment (public sector vs private sector) as approprite Implementing

these limitations and monitoring compliance will not be an easy task, but essential for both buy-in and safety.

The successes and failures of previous task shifting initiatives in India (and elsewhere) highlight the need for addressing a wide range of determinants. Training, re-training, monitoring, decision-support and financial incentives have been effective tools in recruiting and sustaining task shifting initiatives. Programs like CeMOC and LSAS, though addressing critical public health needs, have failed due to poor planning and follow up. Cadres like the rural health practitioners have failed due to poor planning and lack of stakeholder consensus.

It is imperative that states authorizing the re-training of non-MBBS providers in allopathic practice meticulously follow the well established pre-requisites to task shifting: identify the precise gap that is being filled; identify the skill sets needed to fill the gap, and define the eligibility criteria for those that will be recruited in the task shifting endeavor; design training programs and refresher courses; provide clear referral, supervision and support guidelines; provide incentives (whether financial, social, professional or a combination thereof; identify the additional resources required (on a long term basis) to support the new cadre and their trainers and supervisors; and finally; formulate a clear credentialing process; and finally, establish an auditing process to constant review the efficacy of such intervention.

We propose that task shifting programs undergo the same rigorous examination that new therapeutic innovations undergo. Given the vast diversity of task shifting needs in India, the government and credentialing bodies may want to consider decentralizing the process of identifying and responding to task shifting needs. This practice is fairly routine in medicine. Fellowship training, for example, is an incremental process where hospitals or professional societies create new training programs to fill or augment delivery gaps. While typically such programs are un-credentialed and self regulated (not unlike the use of task shifting in non governmental organizations in India), they gather enough momentum (through evidence of efficacy,

expansion, replication) to warrant examination by credentialing bodies. Over time, providers trained and licensed in these highly specific skills become the new norm, as has been observed with fellowships in ultrasonography for physicians not otherwise specialized in radiology, intensive care fellowships for emergency medicine physicians, reproductive endocrinology for obstetricians, interventional radiology, and residency requirements for physician assistants, among many others – all prompted by advances in technology, new knowledge or increasing service demand.

We also recommend the integration of technological solutions to augment task shifting efforts in line with ongoing efforts across several states in India. Near universal cell phone penetration and coverage in India, the exponential growth of mobile health devices, cloud based analytics platforms and telemedicine initiatives can positively influence task shifting initiatives. Digital health information can bring about transparency, accountability and health information portability. Point of care testing and remote interpretation can change bedside clinical care algorithms in rural India. For example, hemoglobin A1c testing, a highly sensitive screening test for diabetes that, until recently, had to be sent out to a laboratory, is now available as a point-of-care device that plugs into a smart phone. Routine and large scale screening for diabetes is now possible at the primary care level. (Without a functional referral system, however, mere diagnosis is unlikely to change outcomes).Telemedicine and machine learning algorithms can provide robust decision support and supervision. Employing digital health solutions to address delivery gaps may greatly change task shifting training, implementation, monitoring and expansion.

The need to fill primary care delivery gaps in rural India and among the urban poor is most urgent; so is the need to greatly expand the surgical and mental health task force in India. Task shifting discreet medical and surgical tasks to existing nurses, MBBS physicians, and AYUSH doctors should only be the start. There is opportunity to create several new cadres of health care providers to augment the work of the currently overburdened

community health work force, as well as to optimize care in urban centers. Rural practitioners, advanced nurse practitioners, surgical assistants, mental health workers, nurse anesthetists, and rural health technicians are among few of the many possibilities. Given India's scale these cadres can also provide massive opportunities for livelihoods creation among low and middle-income groups.

Yet, as urgent is the need for task shifting, it is equally imperative that all stakeholders be consulted early in the process. Repeated cycles of legislation and counter-challenges will prevent desperately needed advances in care delivery.

In summary,

- Acknowledge the long and successful history of task shifting in India and elsewhere in the world.
- The "dilution of care" and "two-tier" health systems argu ment is inaccurate, and strikes at the heart of globally accepted strategies in health care task shifting
- There is need for statewide systematic analyses of task shifting needs across various medical disciplines in rural and urban India.
- AYUSH providers and nurses offer primed health care cadres that can be re-trained to take on additional tasks. Cross-practice is a serious concern and the parameters of acceptable cross practice, if any, must be clearly defined.
- Digital health technology can assist with monitoring (qual ity control), decision support and new clinical protocols appropriate for rural medicine.
- New task shifting initiatives should undergo a rigorous

and incremental credentialing process that addresses training, supervision, referral, incentives and career progression for newly proposed cadres.

- The practice of retrained health cadres may be limited by terms of employment, geographic area and clinical parameters, but must ensure livelihood, incentives and career progression.

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Author Biographies

Dr. Satchit Balsari's inter-disciplinary interests in mobile technology, disaster response and population health have been informed by his clinical practice in NYC and his field work around the world including, more recently, in Jordan, Iraq, South Sudan, Bangladesh, Pakistan and India. His research has resulted in innovative applications of mobile, cloud-based technology to address public health challenges in mass gatherings, disasters and humanitarian crises, with a focus on India.

He helped pioneer Weill Cornell's four year longitudinal Global Health Curriculum, serving as co-founding member of its Steering Committee. He directs two courses, the Introduction to Global Health course for first year medical students, and the Clinical Skills in Resource Poor Settings course for graduating students. He has also developed domestic and international courses attended by a wide audience of medical and public health practitioners from around the world. He co-founded the annual Global Health Emergencies Course at NewYork-Presbyterian / Weill Cornell in New York; University of Colorado's Global Health Foundations Massive Open Online Course (MOOC); and the mHealth Toolbox, piloted in South Africa in April 2016.

His current work in India is focused on the promotion of seamless, patient-centric health information exchange through the adoption of API-based ecosystems, and the expansion of technology assisted task-shifting to help address health delivery gaps in rural India.

Dr. Balsari has served on Cornell University's Internationalization Council. He is a Fellow of the Asia 21 Young Leader's Program at the Asia Society, and was recently selected to be a Spotlight Health Scholar at the 2016 Aspen Ideas Festival.

Dr. Mrudula Phadke is a Sr. Advisor to the National Health Mission, and to UNICEF. She has served as Vice Chancellor of the Maharashtra University of Health Sciences, the Director of Medical Education and Research, the Dean B.J. Med. College Pune & Prof of Paediatrics. She also served on the WHO committee for DSMB, Polio Vaccine, and Meningococcal vaccine, and on the Global Advisory Committee on Vaccine safety. She is recipient of 20 gold medals and prizes, and the President of India Medal. She has over 200 publications in national & international journals,and has edited chapters in numerous books.

Dr. Phadke has lead research efforts with the ICMR, DBT, DST, JHU, and NIH in the US. She helped start three government medical colleges, under the Department of Medical Education, Govt. of Maharashtra. Dr. Phadke has over 40 years of experience in teaching pediatrics and genetics to undergraduates, postgraduates & doctoral students.

Dr. Greg Simon Dr. Gregory Simon is a US senior resident physician in the field of emergency medicine. After completing medical school in New Jersey at Robert Wood Johnson, he went on to pursue specialty training in emergency care in New York City at New York Presbyterian, with clinical sites at the University Hospitals of Columbia and Cornell. His academic interests include medical student and resident education, operations, data analytics, and international health. He has previously participated in extensive volunteer and research work throughout Central and South America, and intends to extend his efforts globally to pursue work focused on improving healthcare delivery to under-resourced populations.

Ian Mulholland obtained his bachelors degree from The Ohio State University in economics and development. He is currently based in New Delhi, India and works for SEWA Bharat.

Raghav Goyal graduated from Oberlin College with a degree in Comparative Literature, and has worked as an English teacher in a number of different cities around the world. He will be matriculating to University of Vermont College of Medicine in the fall of 2017 to pursue an MD/MPH.

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