

Skilled Manpower in Health System for Door Step Delivery of Preventive Health Services: A Field Experience-Based Analysis for Gaps, and Available Skill Courses/Solutions In India

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Abstract

There is identified shortage of skilled certified trained health workers for door step delivery of health care specifically for care of chronic ailments requiring long term care and sustainable solutions. This review for gaps and solutions is outcome of field work done by the Author's team. Skilled manpower is required to achieve Universal Health Coverage (UHC) and achieve Millennium Development Goals. However challenges and opportunities are not discussed to fill that gap of skilled manpower. This paper fills that gap. Identified gaps herein are based on field work done to extend door step delivery of health care. This paper elaborates various aspects of available solutions too. One among various solutions tried by national and International bodies is to develop and deploy more Health guides; hence this paper compiles available courses for skilled, trained manpower. Basic education requirement for admission, training expenses; scopes of work and employment opportunities, logistics available, representative/ cultural appropriateness feasibility etc are compiled. Current workforce is majorly catering to specific age, gender, and disease conditions specific/ narrow scope. An ideal training curriculum for UHC/comprehensive holistic integrated preventive health is explored/identified. Comparative analysis of current Indian available validated courses/ syllabuses is done. Courses, which are low in cost, covers all desirable preventive health content, have training centers & logistics available in all languages, teachers available across India, possible benefits of training, representation across locations, employability are criteria used to short list curriculums- may be ideal to cater the need of community in a holistic comprehensive manner and to impart preventive and promotive health service as close as their homes, that too for all ages, for all health conditions.

Keywords: Door step delivery of preventive health, home health care needs, training courses for skilled manpower for health care

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INTRODUCTION

Worldwide 4.5 billion people lack access to basic health services and 2 billion people face financial hardship due to health care cost [1, 2]. The WHO (World Health Organisation) projected shortage of low cost health care using trained manpower at ground level is 11 million by 2030 [3]. It is mostly affecting low income countries like India. Some of the attributing factors are under-investment in education and training, and a mismatch between education and employment strategies [4]. WHO has also provided tools for assessment of workforce

requirements as per situations and experience obtained from field in each country [5], its recommendation is for 34.5 skilled health workers per 10000 populations (one on 289 persons) is there. Even 0.16 million doctors and 0.65 nurses/midwives shortfall is observed for India [6], ground level skilled frontline worker's shortfall is far more in number (one ASHA on 1000 persons that too to cater mother and child mainly) [7], hence India is far away from "Universal Health Coverage-a reminder that health for all means everyone can access the health services they need, without financial hardship," said Dr Tedros Adhanom Ghebreyesus, WHO Director-General.

Nigeria, USA has worked to identify gaps for existing skilled frontline health care workforce and estimated required numbers are similar to India [8, 9]. The frontline health workers are working 5 days per week and 8 h per day in Nigeria. 30 days of annual leave, 13 days public holidays and 7 days of sick leaves are given to them in Nigeria (similar to India) [10]. Average 178 days availability for half hour to one hour is there. That is why 80% shortage of workforce is observed there even for essential mother and child care needs. The gap for available care for other health conditions/ morbidities/elderly/ other ages and genders are much higher [11].

Ayushman Bharat-National Digital Health mission for Universal Health Care (UHC) is emphasizing for preventive promotive health services as close as possible to the home of beneficiaries in India [12]. No doubt grass root workers and frontline workers are back bone to do door step delivery of preventive health services and its necessity/ benefits/utility were observed under ICMR's (Indian Council of Medical Research) Health Account Scheme (now Ayushman Bharat Health Account) [13].

UHC through skilled health workers becomes meaningful only if it reached to all ages for all health conditions in holistic comprehensive manner at affordable cost. Trust, personal touch and privacy is important barriers which need addressed while communicating with community [14, 15]. Considering above our ICMR study done in 3 north Indian rural, slums, and tribal sites during 2012-19 reached to community with Health Account Number (unique health id) health diary (to write health status by individual themselves) and mobile app for community generated health data which also show health needs of Health id & health diary holders. It was observed that people needed prolonged hand holding [16]. Our first step to extend that hand holding for health care was to contact existing frontline health workers (FLHW) in the available existing local health system/ panchayat and orient/ ensure with them to visit each house at least once a month to maintain health status in diary which was expressing their health needs. This initiative/ effort got failed though and there were many reasons (cited by existing field workers/ ASH/ ANMs/ Anganwadis/FLHW) i.e. "routine activities are already too many" "existing workload of documentation process take lots of time so no time to shoulder additional responsibility of monthly contact to each house". These reactions/ responses/ reasons given for no show were in contrast to the initial feedback of FLHW, as excerpts from existing health workers during initial orientation meetings were good/ enthusiastic-i.e. "task is very easy, we already go to community in regular manner and are in constant touch with community", "we are already going to our area and can do this task easily", "Caring for all family members will give us easy entry to houses which is difficult currently as only young lady of house or children are taken care and other members feel ignored", "Other family members will feel good and welcome for feel taken care of during our visits."

Post 3 months of our initial orientation meetings we observed nil performance at ground level as none of health diary got updated by visiting 50 houses allotted to each of existing FLHW. When No health data came from community, No health diary was updated to know health status and health needs of the community, reasons were explored by central study team in site monitoring visits. Some of the reasons cited were: "unable to contact all houses of catchment once a month due to lack of time", "already burdened for 40 registers to fill health information", "lack of incentives", "no travel facility", "superiors/local authorities/ pvt. Doctors asked me not to do this", "we cater few conditions, no order or mandate from superiors to cater all the health conditions among all ages, genders"

Seeing this situation of available FLHW's inability to cater community for our study objectives of monthly health status updation and exploring health needs by once a month door step visit, a drive to involve local youth/ women was undertaken to motivate them to become health literate/ take responsibility to handhold their community and help at least 50 houses for health data and need updating. The result of such effort was overwhelmingly optimistic. Outcomes started pouring in terms of improved community participation, regular authentic health data updation on monthly basis and increased health service utilization by the community as per their needs for the efforts taken by local community health volunteers. Later similar success story was observed in an Indonesian study too [17].

Mention of above gap identification/problems /challenges faced by us is done to highlight importance of how community expressed need of assistance were addressed successfully by local health volunteers. They became useful to community by not only helping updating health data, but also imparted preventive health education, screening for common ailments, counseling and facilitating outreach to treatment/ referrals to nearby health center. As a result community participation increased from 0 to 74% [16].

These health volunteers/health guides (local students, housewives) gave 2 to 4 hours time per week for helping our study objectives. During monthly meeting with them and study teams, our doctors and nurses gave them customized orientation to address health needs of the community using local resources. Helping community as per need, by actually visiting their houses, human connect worked well [18] in our case and seeing similar success of Lily et al's made this mechanism (created for health needs of the community) more strong a worth replicating model [19]. Our ICMR study observed lowered cost of care, increased utilization of available services. A similar success story comes from Sri Lanka deploying culturally compliant skilled health inspectors. They used World Bank fund- for versatile activities to improve the health and sanitation of people. This intervention observed lesser stunting of children, better health of people and it all attributed to skilled manpower deployed in the community [20].

Why There is Need of Certification of Skilled Health Workers?

According to Reed Gardner health status is 20% technical and 80% social [21]. It was found true as meaningful engagement of people in health data generation, health service improvement became possible through community volunteers /health guides in our study, however such non certified volunteers/ health guides did not sustain after the study got over in 3 years duration. They could have continued as asset for themselves as well as for others after becoming professionally certified health guides. To fill that gap in process and to improve sustainability, a search began for logistically, financially viable Government certified skill course for community health volunteers. After certified skill course these volunteer may work as self employed skilled Ayushman Health Guide-AHG. The content and curriculum for AHG is searched herein in this report on the basis of experience from field, needs expressed by the community to find syllabus covering comprehensive holistic approach for integrated preventive promotive health.

METHODS

READ guidelines [22] are followed to prepare list of available desirable curriculums for AHG and find optimum content/ syllabus to fill the gap. The Four Steps of READ followed are-1. Ready your materials: collect relevant documents, define inclusion criteria, set search parameters, and organize storage.2. Extract data: Review texts systematically and pull out key information using a structured coding tool. 3. Analyse data: Examine the coded text to find patterns, themes, and underlying meanings.4.Distil findings: Refine the results, fill in gaps. Thorough search was conducted on pub med, Google scholar, Science Direct, Web of science unpublished resources, Government health sites of National Skill Development Corporation (NSDC), Central Health Learning Portals of SAKSHAM (Stimulating Advanced Knowledge for Sustainable Health Management): A Learning Management Information System (LMIS) by the Ministry of Health and Family Welfare (MoHFW) and NIHFW

providing online public health and medical modules for authorized workers and the general public, NHA Digital Academy: The National Health Authority's learning platform offering expert-led digital health ecosystem courses and verified certificates, Skill India Digital Hub (SIDH): The national upskilling portal featuring free government-aligned healthcare programs like Pradhan Mantri Arogya Mitra, Research and Specialized Training Portals of ICMR Courses and Trainings i.e. ICMR-NIE Online E-Certificates: The National Institute of Epidemiology learning repository offering specialized certifications in health research fundamentals and biomedical ethics, NIHFW, NHM for training materials. Literature search was done using many key word/combinations i.e. "suitable courses for field health workers", "training for FLHW", "portal of health related training by Government of India". Focus was to bridge the identified gaps for home care, preventive promotive health need of the community. Search was redirected /conducted to find courses useful/attracting to laymen/ less privileged to become certified health guide. To find the various Indian curriculums for such FLHW in paramedic category for its syllabus content, logistics, and mode of teaching (online/offline), how it may address identified needs/benefits community. Following criteria's used to tabulate the government recognized courses:

- Syllabus should cover all needs of emergency care first aid, home care and rehabilitation for all in health care need for supportive care
- Capable to impart Preventive promotive health services for life style corrections using yoga, ayurved, diet and address addiction.
- Basic education of 10th pass in any subject as requirements to get enrolled
- Cost of Admission and training (charges less than Rs. ten thousand per student to make it affordable)
- Time taken/ Training duration is less than one year and mode of training both online/ offline
- Logistical feasibility-representation- available pan India teachers- centers of training
- Placement track record and proven utility of course for self-employability

The findings of search are tabulated in 2 Tables. Table 1 is showing overview on existing grass root workers.

Impact of above workforce is visible by reduced maternal and infant mortality, increased immunization rates, better access to healthcare in remote regions, improved nutrition and sanitation awareness. However, field workers report challenges of-Lack of resources to deal with all conditions, Inadequate facilities, Heavy workload, overburdened with multiple tasks, burnout and low morale, Safety concerns in high-risk areas with social and barriers, financial instability and low respect in community due to work linked honorarium.

Online availability of training materials for skilling of Frontline health workers is at the links:

- ASHA training manuals [61].
- Training Manual on Elderly Care for Medical Officer at Ayushman Bharat-Health and Wellness Centers [62].
- Reducing risk factors for noncommunicable diseases (NCD) in primary care.
- Various free training to already working field health workers to upgrade skills.

Further in this direction list of currently available course with job, self-employment opportunities at institutional and home level in public and affiliated NGO sector, having all India centers and teachers in all Indian languages are in Table 2. List of identified available courses to address identified gaps and need of skilled grass root manpower for robust door step health care delivery with logistical requirements are done in Table 2.

€ Title of course-1. Home Based Care (Theory), 2. Skills Related to Home Based Care (Practical) programme has been developed to prepare a work force in the country with the skills required to look after elderly and people suffering from chronic progressive illnesses.

Table 1. Existing skilled workforce for grass root level health services in India.

Program name	Institution	Level	Entry level	Minimum age	Fees (Rs.)	Duration	Mode of teaching
Care of Elderly	NIOS	Certificate	10 th pass	14 yrs	6000	1 year	Online +offline +correspondence
Panchkarma assistant	NIOS	Certificate	10 th pass	14 yrs	3000	6 months	Online +offline +correspondence
€Certificate in Home Based Health Care(CHBHC)	IGNOU	Certificate	10 th	No bar	2000	6 months	Online +offline +correspondence
Yoga	NIOS	Certificate	8 th pass	14 yrs	1000	6 months	Online + offline + correspondence
Yoga Assistant	NIOS	Certificate	10 th pass	14 yrs	3000	6 months	Online +offline +correspondence
Ayurveda Assistant	NIOS	Certificate	10 th pass	14 yrs	3000	6 months	Online +offline +correspondence
Community Health workers	NIOS	Certificate	10 th pass	14 yrs	5000	1 year	Online +offline +correspondence
Certificate Programme in YOGA (CPY)	IGNOU	Certificate	12 th pass	18 years	5000	No bar	Online +offline +correspondence
Certificate in Home Health Assistance (CHHA)	IGNOU	Certificate	12 th pass	18 yaers	6000	6 months	Online +offline
βAyurveda Ahara&PoshanaSahayak	HHSSC (NSDC)	Certificate	10 th pass	18 YRS	No fee	6 months	Online +offline
£Ayurveda Dietician	HHSSC (NSDC)	Certificate	BAMS	23 YRS	No fee	6 months	Online +offline
∞Yoga Therapy Assistant	HHSSC (NSDC)	Certificate	12 th PASS	18 YRS	No fee	6 months	Online +offline
©Assistant Yoga Instructor	HHSSC (NSDC)	Certificate	8 th Class OR 8 th Class (ASHA and Angawadi worker) with 2 Years of experience	18 YRS	No fee	6 months	Online +offline
αYoga Wellness Trainer(Assistant Yoga Instructor)	HHSSC (NSDC)	Certificate	18 yrs	with 2 Years of experience OR I.T.I (Certificate in	5-6000	15 days and 6 months modules	Offline
Home Health Aide	IGNOU and NSDC	Certificate	18yrs	10 th pass	6-10 000	15 days and 6 months modules	Offline
¶COVID Frontline Worker (Basic Care Support)	NSDC	Certificate	18 yrs	10 th pass	free	195 hrs	Online +offline

Program name	Institution	Level	Entry level	Minimum age	Fees (Rs.)	Duration	Mode of teaching
COVID Frontline Worker (Home Care Support)	HHSSC (NSDC)	Certificate	10 th pass	18 yrs	free	195 hrs	offline
Home Health Aide Occupational Standards (NOS)	HHSSC (NSDC)	Certificate	10 th pass	18 yrs	Varying center to center	6 months	Hybrid mode
Diet Assistant	HHSSC (NSDC)	Certificate	10 th pass	18 yrs	Varying center to center	6 months	Hybrid mode
Basic care support COVID frontline worker and Home care support COVID frontline worker	PMKVY (NSDC)	Certificate	10 th CLASS	18 years	No fee	195 HRS	offline
Advanced care support COVID frontline worker	PMKVY (NSDC)	Certificate	10 th PASS	18 years	No fee	210 HRS	offline
Sample collection support COVID frontline worker	PMKVY (NSDC)	Certificate	12 th PASS science stream	18 years	No fee	211 HRS	offline
Emergency care support COVID frontline worker	PMKVY (NSDC)	Certificate	12 th PASS	18 years	No fee	144 HRS	offline
Medical equipment support COVID frontline worker	PMKVY (NSDC)	Certificate	10 th class + I.T.I with 3- 5 years of experience or diploma (technical subjects like electronic/ mechanical/ electrical/ computers/ any other related field	18 years	No fee	312 HRS	offline
Yoga instructor, NOS Category: Beauty & Wellness Sector Skill Council	NSDC, NOS Sub Sector: Alternate Therapy/NOS QP Category: Retired Occupational Standards QP Code: BWS/Q2201 Occupations: Yoga Services	Certificate	8 th pass	18 years	Ranges from 500 to 5000	Theory Duration: 52 Practical Duration: 174	offline
PMKVY Yoga instructor- available to join an accredited yoga training centre.	PMKVY - course for one health concept	Certificate of those who are already learned and practicing yoga	8 th pass	18 years	500	3 days orientation and exam	offline
ASHA manuals Training Module For Multipurpos	Directorate of National Vector Borne Diseases Control Programme DGHS, MOHFW	Certificate	10 th pass	18 years	No fee	3 days training	Offline-Limited to malaria, vector borne disease training only

Program name	Institution	Level	Entry level	Minimum age	Fees (Rs.)	Duration	Mode of teaching
ΩMultipurpose Health Worker	Diploma in Multipurpose Health Worker Private Colleges, Universities	6 months to 2 year certificate and diploma	12 th pass	18 years	As per college norms -Rs. 12 to 48000	6 months to 2 years	offline
Youth Leadership Training course-Karnyoga	NGO- Vyakti Vikas Kendra, affiliated to Ministry of AYUSH for RPL certification (certification for prior learning)	Entry level-8 th Pass	18 years	Fees Rs.1500/-3000 (residential-includes boarding lodging feed tuition fees study material etc)	Duration- 7 days, mode-offline	Course module imparts complete	package for holistic all round development of self and surroundings
TM SAKSHAM 256 preventive health courses listed at SAKSHAM site of NIHFV:	NIHFV For existing skill enhancements	12th pass	18 years	Entry level 10 th pass	Minimum age 18 years	Fees- nil, Duration- not fixed- flexible timings	Courses/module: 256 modules available online to enhance existing skills and improve skills by self learning
8General duty assistant program	MOHFW. Government	12th pass	18 years	Duration 6 months fees 7500/-	offline	Module consist of helper of nurses	in hospital settings, rehabilitation services in home setting

Table 2. List of courses fulfilling inclusion criteria for skilling of multipurpose frontline health workers of India for home care as well as Institutional supportive care are:

Program name	Institution	Level	Entry level	Minimum age	Fees (Rs.)	Duration	Mode of teaching
Care of Elderly	NIOS	Certificate	10 th pass	14 yrs	6000	1 year	Online +offline +correspondence
Panchkarma assistant	NIOS	Certificate	10 th pass	14 yrs	3000	6 months	Online +offline +correspondence
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Ayurveda Assistant	NIOS	Certificate	10 th pass	14 yrs	3000	6 months	Online +offline +correspondence
Community Health workers	NIOS	Certificate	10 th pass	14 yrs	5000	1 year	Online +offline +correspondence

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Program name	Institution	Level	Entry level	Minimum age	Fees (Rs.)	Duration	Mode of teaching
Certificate in Home Health Assistance (CHHA)	IGNOU	Certificate	12th pass	18 years	6000	6 months	Online +offline
βAyurveda Ahara & Poshana Sahayak	HHSSC (NSDC)	Certificate	10th pass	18 YRS	No fee	6 months	Online +offline
£Ayurveda Dietician	HHSSC (NSDC)	Certificate	BAMS	23 YRS	No fee	6 months	Online +offline
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Program name	Institution	Level	Entry level	Minimum age	Fees (Rs.)	Duration	Mode of teaching
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Yoga instructor,NOS Category: Beauty & Wellness Sector Skill Council	NSDC, NOS Sub Sector: Alternate Therapy NOS QP Category: Retired Occupational Standards QP Code: BWS/Q2201 Occupations: Yoga Services	Certificate	8 th pass	18 years	Ranges from 500 to 5000	Theory Duration: 52 Practical Duration: 174	offline
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ASHA manuals Training Module For Multipurpose Health Worker	Directorate of National Vector Borne Diseases Control Programme DGHS, MOHFW	Certificate	10 th pass	18 years	No fee	3 days training	Offline-Limited to malaria, vector borne disease training only
Q2Multipurpose Health Worker	Diploma in Multipurpose Health Worker Private Colleges, Universities	6 months to 2 year certificate and diploma	12 th pass	18 years	As per college norms -Rs. 12 to 48000	6 months to 2 years	offline
Youth Leadership Training course- Karmyoga	NGO- Vyakti Vikas Kendra, affiliated to Ministry of AYUSH for RPL certification (certification for prior learning)	Entry level - 8 th Pass	18 years	Fees Rs.1500/- (residential- includes boarding lodging tuition fees study material etc)	Duration- 7 days, mode- offline	Course module imparts complete	package for holistic all round development of self and surroundings
TwSAKSHAM 256 preventive health courses listed at SAKSHAM site of NIIHFW:	NIIHFW For existing skill enhancements	12th pass	18 years	Entry level 10 th pass	Minimum age 18 years	Fees- nil, Duration- not fixed- flexible timings	Courses / module: 256 modules available online to enhance existing skills and improve skills by self learning
General duty assistant program	MOHFW. Government	12th pass	18 years	Duration months 6 fees 7500/-	offline	Module consist of helper of nurses	in hospital settings, rehabilitation services in home setting

This programme is for family members and patients to cope with the stress of care to their long term ailing relatives which will add to the quality of life, programme has been developed to prepare a work force in the country with the skills required to look after elderly and people suffering from chronic progressive illnesses. This is to help the family members and patients to cope with the stress of care to their long term ailing relatives which will add to the quality. Kriyas, Yogic Kriyas, Asanas, Pranayama, Mantra Japa

B: National Occupational Standards (NOS) -NOS courses are to carry out routine activities-Provide support to Ayurveda Dietician, Maintain interpersonal relationship with patients, colleagues and others, Maintain a safe, healthy and secure working environment, Comply with Infection Control and Bio Medical Waste Disposal.

£:NOS: 1. HSS/N3904 courses are to prepare an ayurvedic diet plan as per client's health and medical conditions 2. HSS/N3905: Educate the client on customized diet plan in accordance with ayurvedic principles 3. HSS/N3906: Evaluate the effectiveness of the diet plan 4. HSS/N3907. : Document and maintain the dietetic records for follow up activities

∞: NOS:courses the unit as per yoga therapy needs, carry out initial interaction with individuals for proposed yoga therapy as per directions, Conduct yoga therapy session as per prescribed advice, Conduct post yoga therapy session review, Maintain interpersonal relationship with patients, colleagues and others, Maintain professional & medico-legal conduct

©:NOS course is to carry out activities related to yoga sessions (CYP) as per the instructions, Follow sanitization and infection control guidelines, Maintain a safe and secure working environment, interpersonal relationships and professional conduct

A:NOS course to conduct yoga session for participants to promote wellness, regular in house training for subordinates, Ensure sanitization and infection control guidelines are followed at workplace

é: NOS course on hygiene & food safety, store food safely and diet/ menu based on Diet prescription, Prepare food safely to maintain nutritive value and avoid contamination, educate patient on dietary restrictions as per instructions, select a therapeutic diet plan.

7 NOS course for supporting individuals to eat and drink, assist the patient in maintaining normal elimination, bathing, dressing up and grooming, follow infection control policies & procedures including biomedical waste disposal protocols, nursing and implement the interventions planned for patients with diverse needs, support sick person with diverse needs in coping up with their health conditions

™: <https://lms.nihfw.ac.in/course/index.php?categoriesFetched=false&categoryid=&short=latest&page=0&instructor=&class=public&restrict=none>.

¥:NOS course for last office (death care), transferring patients and their samples, drugs, documents within the hospital, provide support in routine activities of in-patient

≠:NOS course for multiple works like emergency health care services at lower levels in various places, sanitization and infection control guidelines, assist patient in bathing, dressing up and grooming

Ω: New Courses Introduced for Covid Frontline workers with the eligibility criteria for the PMI-RMP® Certification, secondary degree or a high school diploma or its global equivalent. 4,500 hours of experience in project risk management within the last consecutive 5 years. Project risk management education spanning 40 hours.

‡: Karmyoga (youth leadership training program- YLTP) syllabus includes full 7 days offline training to train manpower with entrepreneurship skills, communication, counseling skills, skills of identifying problems, making use of locally / culturally appropriate solutions, implementing identified solution, skills to use local resources, taking care of mental and physical need of sick person using Yoga, mental health, Ayurved, skills of environment management, methods of de-addiction/ de stress, skills for life style enhancement, comprehensive care of community by allied skills like zero budget farming and scientific waste management. PMKVY yoga instructor certification is there in this course by RPL (recognition of prior learning) exams to get skill certification.

⌘ :This skilled manpower in health care has been flagship program of NIHFw- providing certified courses in online offline modes to all willing to enhance skills. Some programs are with nominal fees-majorities are without fees. Currently trained frontline workers in field are carrying certification from NIHFw and IGNOU.

DISCUSSION

Though available courses like Pradhan Mantri Kaushal Vikas Yojna (PMKVY), SAKSHAM, National Institute of Public Health Training and Research (NIPHTR), Healthcare Sector Skill Council, Basic Healthcare Provider- (for patient hygiene, practicing infection control, performing clinical skills, promoting safety, and understanding biomedical waste management) <https://www.niphtr.mohfw.gov.in/> and NSDC (National Skill Development Corporation) <https://nsdcindia.org/nos-listing/21>, Symbiosis Centre for Health Skills (SCHS)- <https://www.schs.edu.in> are generating workforce in public health. Indian Institute of skill development training- NIE-ICMR, IIPH, IIMR, IPHS etc are also generating public health workforce but above are mainly administrative and produce mainly hospital care providers.

However, the combination course of IGNOU-home health guide and Karmyog- YLTP fits well in criteria of low cost, all India presence / representativeness, logistically feasible, available all over India, culturally appropriate, covering all health need expressed by community in our study. The IGNOU's 6 months course of home health guide through correspondence and 7 days Karmyoga training (teaching yog ayurved communication, counseling, entrepreneurship, preventive health for community) are suitable to generate skilled workforce for multitasking for comprehensive integrated preventive health. Online courses of NIHFw, NIOS to refine skills are also suitable. These certified trained workforces can become self employed unlike ASHA workers. Their utility can be much more for community and little handholding by sponsoring their training expenses and providing them state sponsored diagnostic kits (containing equipments for general screening for BP sugar temperature height weight measurement with common use medicines, from district's IEC budget) will make them complete preventive and supportive health care providers.

How many Health Guides for on how many HOUSES will be SUFFICIENT for UHC

Our ICMR study has shown one family visit takes time of one hour if the Health guide lives in same vicinity/ nearby/ within 100 meters. In our study volunteers covered average 5 houses during the day. On the basis of average time available to work as part time, one health guide may cover 20 to 50 houses in a month. Considering average 5 persons per house, one health guide practically contacted 175-250 persons on monthly basis. Number of houses covered by proposed AHG can vary considering comfort and time available to AHG, location/ distance of houses, hence local wise titration of required skilled workers is needed in further studies.

Envisioned Role and RESPONSIBILITIES of AHG

Proposed Ayushman Health Guide (AHG) may become instrumental in improving performance of ABDM, which is currently struggling for acceptability/outreach at door step of community-AHG may become bridge for various gaps observed in many reports of Government of India and ICMR study [37, 38].

Health data documentation/ regular screening/counseling for prevention of disease/ referrals are some envisioned roles for this skilled fleet of AHG. It will improve health literacy of community; improve participation and outreach of Government programs to community. Professional responsibilities expected from AHG are:

1. Able to monitor the physical, chemical, and biological environment, water, sanitation, air quality in the community and inform the authority/community for corrective intervention
2. Monitor health status, timely identify community health problems
3. Inform, educate, and empower people about health issues, capable of providing behavior change education to the individuals, family and community for bringing out lifestyle, diet and behavioral changes
4. Mobilize community to identify and solve health problems.
5. Organize and implement health promotional, protective, preventive, and rehabilitative services/program in the area he/she serves
6. Participate in local planning, implementing and monitoring all national public health programs adapting to the need and resources of the community along with the medical health officer.
7. Enforce laws and regulations that protect health
8. Identify common community health emergencies/disasters and initiate action
9. Able to provide primary health care for common morbidities
10. Help to conduct research for new insights and innovative solutions

Possibility for Adoption in Policy

History and chronology of adoption of Frontline workers in health care has been very interesting in India. Pre-independence (pre 1947), public health started with health system treating specific treatable illnesses cholera, smallpox, and plague like in British colonial administration. Post-Independence (1947 onwards) came Village Health Workers (1950s-1960s) who were trained locals to provide basic healthcare services for maternal and child immunization and sanitation. In 1950s first Five-Year Plan of India emphasized infrastructure, establishing Primary Health Centers (PHCs) in rural areas and during 1960s the First National Malaria Eradication Program and Smallpox Eradication Program saw significant involvement of field workers (door-to-door vaccinations, families educated for preventive measures). With launch of the Integrated Child Development Services (ICDS) Program in 1975 health and nutrition of children and mothers came in focus in rural India. This program relied heavily on field workers, particularly Anganwadi workers (AWs)-trained to provide supplementary nutrition, immunization, and health education to women and children. The Anganwadi worker system focused on the development of young children, providing services such as immunization, nutrition, and pre-school education hence became central to rural health programs. Establishment of the National Rural Health Mission (NRHM) (2005): focused on improving access to quality health services in rural and underserved regions, with a major emphasis on community-based healthcare. Accredited Social Health Activists (ASHAs): One of the most important innovations in the NRHM was the introduction of ASHAs. These are volunteer health workers, women from the communities they serve, who are trained to promote health education, facilitate access to healthcare services, ensure immunizations, and help in maternal and child health. The COVID-19 pandemic highlighted the crucial role that health field workers play during health emergencies. Field workers, including ASHAs, ANMs (Auxiliary Nurse Midwives), and other healthcare volunteers, were instrumental in the response efforts: Screening and Testing, Vaccination Drives, Information Dissemination- vital in combating misinformation, providing accurate information about safety protocols, masks, and social distancing. Field workers have been integral to various other health programs in India: Immunization Campaigns: Field workers, particularly through the Pulse Polio Program, have worked extensively to reduce vaccine-preventable diseases. Maternal and Child Health (MCH): Through programs like Janani Suraksha Yojana and Rashtriya Bal SwasthyaKaryakram.

Drawback of such skilling is that it does not bring commercial use/ employability (private sector/government salaried post not based on such courses) to the person doing such courses.

Community feedback is also lacking on how much benefit of such courses bring to them [37–39]. Indian Public Health Standards [40] states “It is important that available human resource is motivated, empowered, trained and skilled. Since IPHS 2022 [41] focuses on the services at the forefront-categorized as ‘Essential’ and ‘Desirable’. Health is a dynamic subject, various programmes and schemes when implemented keep on adding human resources, however complete coverage is now upcoming concept rather program or single scheme based approach to train manpower [42].

“TB mukt bharat” and “Anemia mukt bharat” initiatives have already indicated crunch of manpower for door step delivery [43]. These programs infuse 6 to 8 additional manpower as using additional manpower always increases efficiency of implementation and effectiveness, but higher cost from sustainability, logistical feasibility and cost effectiveness point of view [44]. 12 points of care in HWCs also striving for improvement of outreach for UHC [45]. Various studies have shown the effectiveness of adding trained manpower [46] for door step delivery of specific schemes as well as constant updating, monitoring supervising. The population needs comprehensive solution as issues with mother and child health also has other co morbidities too which require help [47]. This review identified employability, cover all aspects of preventive education, screening and counseling. This comparison of the content, duration, fees, infrastructure available for training of courses will pave way for adoption of curriculums by public and private sectors to fill the gap of skilled manpower [48].

Comparison of cost and training duration found that cost of courses by Private Institutions was higher than available courses of Government of India’s NIOS, IGNOU and PMKVY. Skills @ of INR.2000 to 6000 as fees for training material found feasible affordable as most part of courses is through correspondence with short contact class room sessions, hence may be used for remotely situated and working population. It was noticed that these courses have many centers across country for contact sessions-infrastructure is adequate. Duration: average duration is 6 months for NIOS, IGNOU, and PMKVY is shorter as compared to other courses of 2-3 years. If cost of training is nominal, screening and emergency treatment kits imparted from ongoing IEC budget (Information Education Communication) for the district, funneling of budget makes its best use. In this way no extra budget is required to generate huge numbers of trained AHG in short span of time -within 6 months to one year time.

Training Duration

To develop Doctor, nurses technical staff is more costly and time taking while need of door step delivery of basic services and health data flow may be covered by empowering 10th to 12th pass using available courses within 6 months of time. Hence 6 months correspondence course of NIOS or IGNOU, and 7 days training of Karmyog-YLTP, yoga instructor under PMKVY considered bridging gap of certified care givers for preventive health education, screening, emergency care, counseling and referral for testing and treatments in early stage of all identified ailment. Identified curriculums include technical, physical and mental, soft skills and communication skills to identify risk sign symptoms, impart preventive, rehabilitation care, palliative care. Syllabus content is such that it increases acceptability of such workers in the families they serve.

However investment to uplift skilled workforce may not be so high as predicted by WHO document- INR 3000 billion for doctors and INR 1100–1500 billion for nurses, total INR 8000 billion by 2030, if the active health workforce is added with AYUSH qualifications the required investment to bridge the gap will be in the range of INR 200 billion [49]. However this investment will not be required in proposed model to generate skilled workforce as meager-easily manageable course fees may be managed by self funding from individuals opting for courses or by using existing IEC budget. Only thing government can do is to advertise these course at large scale so many get attracted [49, 50]. ICMR study demonstrated [51] Medical colleges may be optimally used in skilling manpower for public health. Each medical college with preventive and social medicine department may be hand holder accountable to strengthening of grass root workers.

WHO recommends quality into the foundations of health systems by ensuring high-quality –skilled health care workforce, by developing a national strategy to address gaps in numbers, distribution and retention of health professionals, both in the short term and the longer term. Engaging and empowering patients, families and communities, people-centeredness’ as an entry point to higher-quality care is envisaged by WHO document. The proposed manpower skilling seek to engage and empower patients, caregivers and families, promote better care, healthier behaviours, enhanced patient experience, and more effective utilization of health services, reduced costs and improved outcomes [52]. Systematic, sustained community engagement mechanisms is possible to build if such skilled manpower is infused in the system to improve quality of care –modernizing training curricula for health care workers and integrating the principles of quality and quality improvement methods into training curricula. Impact of such efforts becomes visible through continuous professional development and evaluating their impact. A ‘Public-private partnership’ structure may also can be explored to reduce the deficiency in all areas of the public health for personalized Health (PH) delivery [53, 54].

The COVID-19 pandemic has strained and disrupted health systems, highlighted the critical role of the health workforce in emergency preparedness and health security and positioned it as central to health system resilience. Countries are compelled to take action, in particular to strengthen workforce production, regulation, and competency-based education and lifelong learning, but many lack the necessary data and technical tools to make meaningful progress. This document may become help in finding different combination to add comprehensive holistic health care providers. One study using non-physician for blood pressure testing in community found all-cause death (0.85, 0.76–0.95; $p=0.0037$) reduction as primary outcome- consistent across subgroups of age, sex, education, antihypertensive medication use, and baseline cardiovascular disease risk in China [55]. More such evidence needed in India too [56–60]. In India, increasing AHA-frontline health workers considered essential in managing and responding to public health challenges, including pandemics like COVID-19. They provide direct care and support to patients and are involved in a wide range of activities that ensure the health system functions effectively.

CONCLUSION

Conclusively the identified syllabus, logistics, cost and time workup gives combination of low cost KARMYOGA and IGNOU Home Health Guide courses fit for AHG as affordable, available all over India in all languages with teachers and infrastructure, logistics. If adopted as skilled workforce curriculum for door step delivery of screening preventive promotive and supportive health it will produce much needed workforce playing vital role in preventing and controlling diseases, especially in underserved areas.

REFERENCES

1. Universal health coverage (UHC). [https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)) accessed 30 April 2025.
2. World Health Organizations. Billions left behind on the path to universal health coverage. <https://www.who.int/news/item/18-09-2023-billions-left-behind-on-the-path-to-universal-health-coverage>
3. World Health Organization, World Bank Group. Tracking universal health coverage: 2023 global monitoring report. Sep 2023. <https://www.who.int/publications/i/item/9789240080379>
4. Health and care workforce planning tools: a rapid review. Geneva: World Health Organization; 2025 (Human Resources for Health Observer Series No. 29). Licence: CC BY-NC-SA 3.0 IGO. Accessed on 15 May 2025 <https://iris.who.int/bitstream/handle/10665/380622/9789240106277-eng.pdf?sequence=1>
5. Taylor L. More than half the world's population lack basic health services as progress stalls. *BMJ*. 2023 Sep 20;382:2160. doi: 10.1136/bmj.p2160. PMID: 37730369.
6. Karan A, Negandhi H, Kabeer M, Zapata T, Mairembam D, De Graeve H, Buchan J, Zodpey S. Achieving universal health coverage and sustainable development goals by 2030: investment

- estimates to increase production of health professionals in India. *Hum Resour Health*. 2023 Mar 2;21(1):17. doi: 10.1186/s12960-023-00802-y. PMID: 36864436; PMCID: PMC9979880.
7. GUIDELINES ON ACCREDITED SOCIAL HEALTH ACTIVITISTS (ASHA). <https://nhm.gov.in/images/pdf/communitisation/task-group-reports/guidelines-on-asha.pdf> (accessed on July 2026)
8. Marshall R, Bradbury A, Morgan N et al. Social prescribing in the USA: emerging learning and opportunities. *The Lancet Public Health*, 2025; 10, e531-e536
9. Okoroafor SC, Ongom M, Mohammed B, Salihu D, Ahmat A, Osubor M, Nyoni J, Dayyabu H, Alemu W. Estimating frontline health workforce for primary healthcare service delivery in Bauchi State, Nigeria. *J Public Health (Oxf)*. 2021 Apr 13;43(Suppl 1):i4-i11. doi: 10.1093/pubmed/fdaa272. PMID: 33856465.
10. Business Line. Preetha R. India can bridge the healthcare workforce gap- essential to redefine India's role on the global healthcare stage. Updated-January 30, 2025 available at <https://www.thehindubusinessline.com/opinion/india-can-bridge-the-healthcare-workforce-gap/article69160610.ece>, accessed on 30th April 2025.
11. World Health Organization Global Strategy on Human Resources for Health: Workforce 2030. Geneva:World Health Organization 2016. Available at: <https://www.who.int/publications/i/item/9789241511131>
12. Minu Bajpai1,* and Abhijat Sheth . Ayushman Bharat: The Pradhan Mantri Jan Arogya Yojana (PM-JAY) National Board of Examinations-Journal of Medical Sciences Volume 3, Issue 4, Pages 361–378, April 2025 DOI 10.61770/NBEJMS.2025.v03.i04.001
13. Singh NS, Huicho L, Afnan-Holmes H, John T, Moran AC, Colbourn T, Grundy C, Matthews Z, Maliqi B, Mathai M, Daelmans B, Requejo J, Lawn JE; Countdown to 2015 Health Systems and Policies Technical Working Group. Countdown to 2015 country case studies: systematic tools to address the "black box" of health systems and policy assessment. *BMC Public Health*. 2016 Sep 12;16 Suppl 2(Suppl 2):790. doi: 10.1186/s12889-016-3402-5. PMID: 27634035; PMCID: PMC5025822.
14. Dapari R, Che Dom N, Shapien MS, Harun QN, Salleh SA, Aljaafre AF. Barriers and Opportunities for Community Engagement in UAV-Based Dengue Management in Rural Malaysia. *PLoS One*. 2025; 20(4): e0322321.
15. Jayapura Rene Mano, Untung Muhdiarta, Nur Aedah. Implementation of Health Service Retribution Policy in Kota. *Equilibration: Universal Journal of Academic & Applied Sciences*, Vol. 1, No. 1 (2025), pages 1–16.
16. Kumar N, Gupta N, Adhikari T, Tiwari N, Ganguly KK, Kohli C, et al. Digital diary tool under health account assessment for community participation and action: an implementation experience from rural, urban and tribal field sites in India. *Int J Health Syst Implement Res*. 2018;2(2):4–17.
17. Nur A, Harbuwono D. Indonesia's first nationwide health screening programme. *Lancet Glob Health*. 2025 Apr;13(4):e620. doi: 10.1016/S2214-109X(25)00071-3. Epub 2025 Feb 24. PMID: 40015295.
18. Listl S, Lavis JN, Cohen LK, Mathur MR. Engaging citizens to improve service provision for oral health. *Bull World Health Organ*. 2022 May 1;100(5):294-294A. doi: 10.2471/BLT.22.287944. PMID: 35521040; PMCID: PMC9047427
19. Lily Y.W. Ho, Arkers K.C. Wong, Fraide A. Ganotice, George L. Tipoe. Effects of a cross-university interprofessional education programme on nursing students: A concurrent nested study, *Teaching and Learning in Nursing*, 2025, Volume 20, Issue 4, October 2025, Pages e953-e960.
20. World Bank Group. Improving public health services: India's best investment. monica das gupta. World Bank Group health, nutrition, and population. Discussion Paper. February 2025. Access on 5th May 2025. Availabe at: <https://openknowledge.worldbank.org/entities/publication/995315a4-d16b-4169-997b-b61a2f59ecce>
21. Hourani D, Darling S, Cameron E, Dromey J, Crossley L, Kanagalingam S, Muscara F, Gwee A, Gell G, Hiscock H, Anderson V. What Makes for a Successful Digital Health Integrated Program of Work? Lessons Learnt and Recommendations From the Melbourne Children's Campus. *Front*

- Digit Health. 2021 May 24;3:661708. doi: 10.3389/fdgth.2021.661708. PMID: 34713136; PMCID: PMC8521853.
22. Sarah L Dalglish, Hina Khalid, Shannon A McMahon, Document analysis in health policy research: the READ approach, Health Policy and Planning, Volume 35, Issue 10, December 2020, Pages 1424–1431, <https://doi.org/10.1093/heapol/czaa064>
 23. Aytona MG, Politico MR, McManus L, Ronquillo K, Okech M. Determining staffing standards for primary care services using workload indicators of staffing needs in the Philippines. Hum Resour Health. 2022 Jan 28;19(Suppl 1):129. doi: 10.1186/s12960-021-00670-4. PMID: 35090487; PMCID: PMC8796386.
 24. Govt of India. Comments of Committee. Available at: <https://nhsrcindia.org/sites/default/files/2021-03/Education%20qualification%2010th%20standard%20for%20ASHA%20selection%2022.08.2012.pdf>
 25. National Health Mission, Ministry of Health & Family Welfare, Government of India. ABOUT ACCREDITED SOCIAL HEALTH ACTIVIST (ASHA). Available at: <https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=150&lid=226>
 26. National Health Mission. Update on ASHA Programme J a n u a r y 2 0 1 4. Available at: <https://nhsrcindia.org/sites/default/files/2021-03/Update%20on%20ASHA%20Program%20January%202014.pdf>
 27. GOVERNMENT OF INDIA, MINISTRY OF HEALTH AND FAMILY WELFARE, DEPARTMENT OF HEALTH AND FAMILY WELFARE, LOK SABHA, UNSTARRED QUESTION NO. 1860 TO BE ANSWERED ON THE 2nd AUGUST, 2024, REMUNERATION FOR ASHA WORKERS https://sansad.in/getFile/loksabhaquestions/annex/182/AU1860_TzyAkV.pdf?source=pqals
 28. Manav Vikas Sanstha. ASHA Workers In India: The Backbone Of Rural Healthcare. Available at: <https://mvsindia.org/asha-workers-in-india-the-backbone-of-rural-healthcare/#:~:text=Conclusion,and%20empowered%20communities%2C%20especially%20women>
 29. Fathima FN, Raju M, Varadharajan KS, Krishnamurthy A, Ananthkumar SR, Mony PK. Assessment of 'accredited social health activists'-a national community health volunteer scheme in Karnataka State, India. J Health Popul Nutr. 2015 Mar;33(1):137-45. PMID: 25995730; PMCID: PMC4438657.
 30. Wikipedia. Auxiliary nurse midwife. Available at: https://en.wikipedia.org/wiki/Auxiliary_nurse_midwife
 31. Pyone T, Karvande S, Gopalakrishnan S, Purohit V, Nelson S, Balakrishnan SS, Mistry N, Mathai M. Factors governing the performance of Auxiliary Nurse Midwives in India: A study in Pune district. PLoS One. 2019 Dec 27;14(12):e0226831. doi: 10.1371/journal.pone.0226831. PMID: 31881071; PMCID: PMC6934276.
 32. Team SPRF in partnership with Centre for Civic Engagement. The Status of Anganwadi Workers in Delhi Pilot Study Report. Available at: <https://sprf.in/wp-content/uploads/2024/12/Status-of-Anganwadi-Workers-in-Delhi.pdf>
 33. Malik G. Role of auxiliary nurse midwives in National Rural Health Mission. Nurs J India. 2009 Apr;100(4):88-90. PMID: 20527493.
 34. Guidelines For Multipurpose Health Worker (Male) 2010 Government of India Ministry of Health and Family Welfare Nirman Bhawan, New Delhi. Available at: https://nhm.gov.in/images/pdf/guidelines/nrhm-guidelines/guidelines_mphw-m.pdf
 35. National Health Mission. Scheme of supporting Multipurpose Health Worker (MALE) Under NHM. <https://aam.mohfw.gov.in/download/document/5d7fedfd81106af28150fc40f5c06874.pdf>
 36. Narayanasamy NS, Lakshminarayanan S, Kumar SG, Kar SS, Selvaraj K. How Multipurpose Health Workers Spend Time During Work? Results from a Time-and-motion Study from

- Puducherry. Indian J Community Med. 2018 Jan-Mar;43(1):5-9. doi: 10.4103/ijcm.IJCM_276_16. PMID: 29531430; PMCID: PMC5842476.
37. Rees S, Watkins A, Keauffling J, John A. Incidence, Mortality and Survival in Young People with Co-Occurring Mental Disorders and Substance Use: A Retrospective Linked Routine Data Study in Wales. Clin Epidemiol. 2022 Jan 13;14:21-38. doi: 10.2147/CLEP.S325235. PMID: 35058718; PMCID: PMC8764170.
 38. Magwood O, Kpadé V, Afza R, Oraka C, McWhirter J, Oliver S, Pottie K. Understanding women's, caregivers', and providers' experiences with home-based records: A systematic review of qualitative studies. PLoS One. 2018 Oct 4;13(10):e0204966. doi: 10.1371/journal.pone.0204966. PMID: 30286161; PMCID: PMC6171900.
 39. Bhatia K. Community health worker programs in India: a rights-based review. Perspect Public Health. 2014 Sep;134(5):276-82. doi: 10.1177/1757913914543446. PMID: 25169614.
 40. Kahssay H, Taylor M, Berman P. Community health workers: the way forward. In: Public health in action. Geneva: World Health Organization; 1998.
 41. Perry H, Crigler L, Lewin S, Glenton C, LeBan K, Hodgins S. A new resource for developing and strengthening large-scale community health worker programs. Hum Resour Health. 2017 Jan 12;15(1):13. doi: 10.1186/s12960-016-0178-8. PMID: 28183351; PMCID: PMC5301425.
 42. National Health Mission. Indian Public Health Standards.Vol 1. https://nhm.gov.in/images/pdf/guidelines/iphs/iphs-revised-guidelines-2022/01-SDH_DH_IPHS_Guidelines-2022.pdf
 43. Behera D, Behera RK. COVID-19 & the National Tuberculosis Elimination Programme of India. Indian J Med Res. 2021 May;153(5&6):533-536. doi: 10.4103/ijmr.IJMR_2763_20. PMID: 34643563; PMCID: PMC8555605.
 44. Kumar N, Adhikari T, Singh JK, Tiwari N, Acharya AS. Health data from diaries used in low-income communities, north India. Bull World Health Organ. 2021 Jun 1;99(6):446-454. doi: 10.2471/BLT.20.264325. Epub 2021 Apr 1. PMID: 34108755; PMCID: PMC8164179.
 45. Prof. (Dr) Subhasish Chatterjee. Challenges of Manpower Problems and Its Solution (With special reference to Public health sector) December 2017Journal of Medical Science And clinical Research 5(12).
 46. Singh A. Supply-side barriers to maternal health care utilization at health sub-centers in India. PeerJ. 2016 Nov 3;4:e2675. doi: 10.7717/peerj.2675. PMID: 27833824; PMCID: PMC5101621.
 47. Natrajan M, Sridhar R, Narendran G, Ramachandran G, Kumar VV, Tripathy S. Crusade for TB: Bringing Treatment to Masses at their Doorsteps. Indian J Med Res. 2019 Jan;149(Suppl):S89-S93. doi: 10.4103/0971-5916.251664. PMID: 31070184; PMCID: PMC6515743
 48. Pandey Archana, Kumar A, Agarwal N, Bharti A, Kumar N, Kansal S. Empowerment of Community for Universal Health Coverage: Home Health Guides, the sustainable solution for the human resource gap. Indian J Prev Soc Med, 2023; 54 (4): 184-188.
 49. World Health Organization. Health workforce in India: where to invest, how much and why? Available at: <https://www.who.int/publications/i/item/9789290209935>
 50. National Health mission. Indian Public health standards. Volume IV. (https://nhm.gov.in/images/pdf/guidelines/iphs/iphs-revised-guidelines-2022/04-SHC_HWC_UHWC_IPHS_Guidelines-2022.pdf)
 51. Eka Care. ABHA Card>Create Ayushman Bharat Health Account Online Available at: <https://www.eka.care/ayushman-bharat/create-abha-abdm-ndhm-health-id> 9Accessed on 4 November 2022 4 pm IST.)
 52. WHO, Delivering Quality health services. A global imperative for global Health coverage. Available at: <https://apps.who.int/iris/bitstream/handle/10665/272465/9789241513906-eng.pdf>
 53. Canadian Institute of Research. Transitions in Care (TiC).<https://cihr-irsc.gc.ca/e/50971.html>
 54. Canadian Institute of Research. Personalized Health. Available at: <https://cihr-irsc.gc.ca/e/50117.html>
 55. He J, Ouyang N, Guo X, Sun G, Li Z, Mu J, Wang DW, Qiao L, Xing L, Ren G, Zhao C, Yang R, Yuan Z, Wang C, Shi C, Liu S, Miao W, Li G, Chen CS, Sun Y; CRHCP Study Group.

- Effectiveness of a non-physician community health-care provider-led intensive blood pressure intervention versus usual care on cardiovascular disease (CRHCP): an open-label, blinded-endpoint, cluster-randomised trial. *Lancet*. 2023 Mar 18;401(10380):928-938. doi: 10.1016/S0140-6736(22)02603-4. Epub 2023 Mar 2. PMID: 36871573.
56. Sun Y, Mu J, Wang DW, Ouyang N, Xing L, Guo X, Zhao C, Ren G, Ye N, Zhou Y, Wang J, Li Z, Sun G, Yang R, Chen CS, He J; CRHCP Study Group. A village doctor-led multifaceted intervention for blood pressure control in rural China: an open, cluster randomised trial. *Lancet*. 2022 May 21;399(10339):1964-1975. doi: 10.1016/S0140-6736(22)00325-7. Epub 2022 Apr 29. PMID: 35500594.
 57. Jafar TH, Gandhi M, de Silva HA, Jehan I, Naheed A, Finkelstein EA, Turner EL, Morisky D, Kasturiratne A, Khan AH, Clemens JD, Ebrahim S, Assam PN, Feng L; COBRA-BPS Study Group. A Community-Based Intervention for Managing Hypertension in Rural South Asia. *N Engl J Med*. 2020 Feb 20;382(8):717-726. doi: 10.1056/NEJMoa1911965. PMID: 32074419.
 58. Davies-Kershaw H, Petersen I, Nazareth I, Stevenson F. Factors influencing recording of drug misuse in primary care: a qualitative study of GPs in England. *Br J Gen Pract*. 2018 Apr;68(669):e234-e244. doi: 10.3399/bjgp18X695309. Epub 2018 Feb 26. PMID: 29483076; PMCID: PMC5863677.
 59. Lewis TP, McConnell M, Aryal A, Irimu G, Mehata S, Mrisho MI. Health service quality in 2929 facilities in six low-income and middle-income countries: a positive deviance analysis. *Lancet Glob Health*. 2023 Jun;11(6):e862-e870. doi: 10.1016/S2214-109X(23)00163-8. PMID: 37202022; PMCID: PMC10205971.
 60. Iacobucci G. Fall in patient satisfaction in England is linked to fewer GPs and less face-to-face contact, research finds. *BMJ*. 2025 Apr 23;389:r808. doi: 10.1136/bmj.r808. PMID: 40268312.
 61. National Health Mission, Ministry of Health & Family Welfare, Government of India. ASHA TRAINING MODULES. Available at: <https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=184&lid=257>
 62. NHM. Training Manual on Elderly Care for Medical Officer at Ayushman Bharat–Health and Wellness Centres. Available at: <https://nhsrcindia.org/sites/default/files/2021-11/Elderly%20Care%20Training%20Manual%20for%20Medical%20Officer.pdf>