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Improving retention of health workers in rural and remote areas: Case studies from WHO South-East Asia Region

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Foreword

Access to quality primary health care (PHC) is the right of all people everywhere, including in remote and rural areas. A fully functioning PHC system that can meet most people's health needs, whatever their age and income, gender or ethnicity, is a precondition to achieving universal health coverage (UHC) and health and well-being for all at all ages. This is especially true in the WHO South-East Asia Region, where an estimated 66% of the Region's near 2 billion people live in remote or rural areas.

Critical to the provision of quality PHC in remote and rural areas is a sufficient, well-trained, skilled and motivated health workforce. To help all countries in the Region achieve this outcome, in 2014 the Region embarked on a Decade (2015-2024) for Health Workforce Strengthening, with a focus on improving health worker retention in rural areas. The Region has made notable progress which, along with ongoing challenges, is reflected in the six case studies documented herein. Key interventions, which have been rolled out in bundles, and which are aligned with the 2010 WHO guidelines on rural retention of health workers, have focused primarily on education, financial incentives, regulation and personal support interventions. As the case studies demonstrate, concerted and coordinated action across sectors and stakeholders can forge real gains, from which Member States across the Region and the world can draw valuable lessons.

All countries in the Region have immense potential to drive rapid and lasting progress. Health workers retention in rural areas will continue to be one of the Region's top priorities, and WHO remains committed to supporting Member States to increase investments aimed at improving the distribution of health workers. Further, concerted efforts should be made to strengthen human resources for health information systems to enhance monitoring and assess the impact of policy interventions. WHO's updated guidelines on health worker retention in rural areas, which will be launched later this year, will provide critical guidance for all countries to make accelerated gains.

The Region is now in the second half of its Decade for Health Workforce Strengthening, and I urge all countries to scale up and strengthen efforts to build a health workforce that is sufficiently equipped to bring quality primary health care to all, wherever they live. Throughout the COVID-19 response and beyond, we must sustain and accelerate progress towards our Flagship Priorities, WHO's "triple billion" targets and Sustainable Development Goal 3 – health and wellbeing for all at all ages. The future is ours to make.

Dr Poonam Khetrapal Singh
Regional Director
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Contributors and acknowledgements

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Abbreviations and acronyms

AH	Area-Health
AMO	Assistant Medical Officer
AMW	auxiliary midwife
ANM	auxiliary nurse midwife
ANSWERS	Academy for Nursing Studies and Women's Empowerment Research Studies
APA	Annual Performance Agreement
APN	advance practice nurse
AS	assistant surgeon
ASHA	accredited social health activist (mitanin community health worker)
AYUSH	Ayurveda, yoga and naturopathy, Unani, Siddha and homoeopathy
BCSR	Bhutan Civil Servant Rules and Regulations
BHS	basic health staff
BHU	basic health unit
BMHC	Bhutan Medical and Health Council
CBHW	community-based health workers
CBO	community-based organization
CHC	community health centre
CHE	current health expenditure
CHMO	Chief Health and Medical Officer
CHW	community health worker
CME	continuing medical education
CPD	continuing professional development
CPIRD	Collaborative Project to Increase the Production of Rural Doctors
CRM	Common Review Mission
CRMC	Chhattisgarh Rural Medical Corps
CS	civil surgeon
CSMBS	Civil Servant Medical Benefit Scheme
CSR	corporate social responsibility
DH	district hospital
DHD	District Health Department
DHIS	District Health Information System

DHO	District Health Officer
DHRH	Department of Human Resources for Health
DMF	District Mineral Foundation
DMS	Department of Medical Service
DPH	Department of Public Health
DPM	District Programme Manager
ECCD	Early Childhood Care and Development
EHO	ethnic health organization
EPHS	basic essential package of health services
EmOC	emergency obstetric care
ENT	ear, nose & throat
ET & R	education, training and research
EU	European Union
Gavi	The Vaccine Alliance
GDP	gross domestic product
GNH	Gross National Happiness
GNM	General Nursing and Midwifery
GP	general practitioner
HA	health assistant
HRH	human resources for health
HSS	health systems strengthening
HWC	health and wellness centre
IMR	infant mortality rate
IPD	inpatient department
ITHP	Inclusive Township Health Plan
JKN	Jaminan Kesehatan National (National Health Insurance)
KGUMSB	Khesar Gyalpo University of Medical Sciences Bhutan
LHV	lady health visitor
LSAS	life-saving anaesthesia skills
LWE	left wing extremist
MCH	maternal and child health
MDGs	Millennium Development Goals
MDT	multidrug therapy
MEC	medical education centre
MLHP	mid-level health-care provider

MMC	Myanmar Medical Council
MMR	maternal mortality ratio
MNMC	Myanmar Nurses and Midwifery Council
MNPED	Ministry of National Planning and Economic Development
MO	Medical Officer
MoH	Ministry of Health
MOH	Medical Officer of Health (Sri Lanka)
MoHS	Ministry of Health and Sports
MoPH	Ministry of Public Health
MP	Madhya Pradesh
MPHW	multipurpose health worker
MW	midwife
NCD	noncommunicable disease
NEET	National Eligibility cum Entrance Test
NHM	National Health Mission
NHM PIP	National Health Mission Programme Implementation Plan
NHP	National Health Plan
NHSRC	National Health Systems Resource Centre
NHWA	National Health Workforce Accounts
NIHS	National Institute of Health Sciences
NRH	National Referral Hospital
NRHM	National Rural Health Mission
ODOD	One rural District, One Doctor (scheme)
ORC	outreach clinic
PC	personal class
PG	postgraduate
PGIM	Post Graduate Institute of Medicine
PHC	primary health centre
PHI	public health inspector
PHM	public health midwife
PHNS	Public Health Nursing Sisters
PHS-1	public health supervisor 1
PHS-2	public health supervisor 2
PMCU	primary medical care unit
PNS	Pegawai Negeri Sipil (civil servant)

PSM	professions supplementary to medicine
PSSP	Primary health care System-Strengthening Project
PTT	Pegawai Tidak Tetap (contracted staff)
RCSC	Royal Civil Service Commission
RHC	rural health centre
RMA	rural medical assistant
RRH	Regional Referral Hospital
S/RHD	State/Regional Health Department
SC	scheduled caste
SDG	Sustainable Development Goal
SEA	South-East Asia
SH	station hospital
SHRC	State Health Resource Centre
SHU	station health unit
SLMA	Sri Lanka Medical Association
SLMC	Sri Lanka Medical Council
SMO	station medical officer
SRHC	sub-rural health centre
ST	scheduled tribe
THA	township health assistant
THD	Township Health Department
TMO	Township Medical Officer
TNMC	Thai Nurse and Midwifery Council
TWG	technical working group
U5MR	under-five mortality rate
UCSB	Union Civil Service Board
UHC	universal health coverage
UHC	urban health centre (Myanmar)
UOCH	University of Community Health
UPH	University of Public Health
VHW	village health worker (Bhutan)
VHW	voluntary health worker (Myanmar)
WHO	World Health Organization
WKDS	Wajib Kerja Dokter Spesialis (compulsory service of medical specialist doctor)

Executive summary

Introduction and background

The aim of this report is to provide country case studies that document the rationale for implementing policies intended to improve retention of health workers, the process of implementation and the intended and actual impacts of these policies. It builds on work already undertaken in the World Health Organization's (WHO) South-East Asia (SEA) Region and elsewhere.

The structure for this report is the evidence-based framework published by WHO in 2010 *(1)*. This provides a full review of the available published evidence on policy impact of retention policies aimed at rural/remote areas, and synthesises these findings into an evidence-based framework. The framework presents a total of 16 different potential policy interventions, grouped into four main areas: education, regulation, financial incentives and professional/peer support.

Six country case studies were conducted: Bhutan, India (Chhattisgarh state), Indonesia, Myanmar, Sri Lanka and Thailand.

Method

In order to provide a common approach to the country case studies and a common structure for reporting, a template was developed that was used by stakeholders in each of the six case study countries. The studies were led by a lead correspondent for each country. The template was developed from the WHO 2010 framework and focused on documenting the various strategies used to try to improve rural/remote retention in the six countries, with specific and more detailed focus on those strategies that are regarded as most promising or effective. The country case study groups were also requested to provide relevant analytical and data underpinning and reference any supportive policy material and literature which described the process and/or impact of those interventions.

Why health worker retention is important

Whenever a health workforce post is unfilled (vacant), or a health worker leaves a health-care organization and is not immediately replaced, there is an impact on the health services, the remaining health workers, the health-care organization and the client population of the organization. There is the likelihood of organizational costs and the potential for a negative impact on patient care. This impact can be particularly pronounced in rural and remote areas, where workforce numbers may be small, the workforce may be widely dispersed and where even one unfilled post may have a major negative impact on access to health services for the local population.

Main human resources for health challenges in the case study countries

The main human resources for health (HRH) challenges reported in each of the countries were not dissimilar, though health systems configurations in these six countries varied. All countries reported absolute staff shortages (against the benchmark of 44.5 per 10 000 population), and/or shortages being exacerbated by geographical maldistribution of the health workforce. There were also specific additional challenges that reflected the country context.

For example, Bhutan is reliant on sending its nationals to other countries for undergraduate education in medicine, pharmacy, laboratory and other allied fields except the case of nurses, as it is a small country with some limitations on its educational capacity. Myanmar reported concerns about out-migration of doctors into the private sector and going abroad. Sri Lanka reported a need to streamline recruitment processes. Thailand reported a need to better develop and implement HRH policy. Improving retention in rural and remote areas was identified as a main HRH challenge in all countries.

Which retention policies are being used and which are successful?

The country case study groups were asked to indicate which policies had been implemented in the past five years which were aimed at improving retention of health workers in rural and remote areas. The aim was to assess the breadth of policy intervention in the different countries as a starting point, to then examine the effectiveness of specific policies in more detail.

The pattern of responses highlights a particular focus on most types of educational interventions (other than continuing professional development [CPD]), some regulatory interventions (notably compulsory service and scholarships/return of service), financial incentives, and to a lesser extent, professional support linked to working conditions, outreach/use of telehealth and public recognition measures.

Table E1 gives a summary of recruitment and retention policies implemented in the case study countries.

Table E1: *Summary of recruitment and retention policies implemented in the six case study countries*

Category	Examples	Implementation
A. Education	A1 Students from rural backgrounds	
	A2 Health professional schools outside of major cities	
	A3 Clinical rotations in rural areas during studies	
	A4 Curricula that reflect rural health issues	
	A5 Continuous professional development for rural health workers	
B. Regulatory	B1 Enhanced scope of practice	
	B2 Different types of health workers	
	B3 Compulsory service	
	B4 Subsidized education for return of service	
C. Financial incentives	C1 Appropriate financial incentives	
D. Professional and personal support	D1 Better living conditions	
	D2 Safe and supportive working environment	
	D3 Outreach support	
	D4 Career development programmes	
	D5 Professional networks	
	D6 Public recognition measures	

Fully implemented across cadres or country

Some cadres or parts of the country

Not implemented

In terms of successful interventions, it should be noted that some countries did not report a specific narrow policy intervention that could be categorized as only falling under any one heading as per the WHO 2010 framework; they reported a broader range of interventions that combined elements of more than one category. The relatively high frequency of reports of educational interventions is perhaps not surprising, given that the review of evidence for the 2010 guidelines noted that the quality of evidence related to education interventions was more extensive and more persuasive than for the other three areas of intervention: regulation, financial incentives and professional/peer support. However, it must be stressed that all six countries reported several interventions across different areas, so education was not the sole point of intervention in any country, although it does appear to be a main focus in most.

What emerges clearly from this selective and more detailed description and assessment of specific policy interventions to improve rural/remote retention is that there are good working examples of policies being developed and implemented with coherence and sustained focus. In addition, few of the policies have reportedly been developed and implemented in isolation. Most are built on existing policies or interventions, draw from experience and focus on achieving certain specific priorities. However, most have at best limited evidence and analysis to support implementation and evaluation.

Key points

The 2010 global recommendations highlighted the need to identify the correct policies, align their implementation and assess costs, effectiveness and impact. These issues were explored in the country case study groups, and several key issues emerged that have broader implications.

Four key points emerged from the overall assessment of these case studies, which must be taken into account when any efforts to improve retention in rural areas are being considered in any country.

These are:

- the limited evidence base from which to draw information to shape an approach;
- the need to consider multiple stakeholder engagement when identifying and developing relevant interventions;
- the need to coordinate, "bundle" and evaluate intervention; and
- the need to develop financial sustainability to enable workforce stability.

Much of the literature on implementation of interventions to support rural retention only focuses on the third point.

In summary, it is evident that there is no "one-size-fits-all" solution to the selection and implementation of the best "bundle". Alignment between priority objectives and planned policy interventions is critical, and was noted in a recent five-country review examining the effect of payment and incentives on motivation and focus of community health workers *(2)*.

What emerges from the examination of the six case studies is a clear conclusion that the most appropriate combination of interventions will vary considerably from country to country, and will be shaped by funding availability, system and organizational culture, capacity, workforce profile, motivations and level of understanding of labour market dynamics.

The successful results of some of the interventions in these country case studies constitute a good practice that could be considered when planning and implementing rural retention policies and interventions in other SEA Region countries.

Next steps

This case study-based examination of policy approaches to improve rural retention of health workforce in countries of the Region has provided new and detailed evidence of country experiences. Ten important messages emerge from this work, which has implications for the consideration of the next steps in the Region and beyond.

1. **Rural retention is a continuing priority.** All six countries that were covered in this report confirmed that improved recruitment and retention of the health workforce in rural and remote areas is a continuing government priority.
2. **The 2010 WHO framework continues to have utility but requires updating.** The 2010 WHO evidence-based framework was recognized by respondents in all six countries as having

value and utility; however almost a decade has passed since the framework and related evidence review was published and it is time to update the evidence review and re-assess how this can contribute to amendments to or updating of the framework.

3. **Rural retention must be examined within the overall context of national (and international) labour markets**. The scope to develop and implement improved retention policies can only be achieved when the retention dynamics are examined within the overall context of national (and international) labour markets and mobility, taking into account the broader national HRH policy and planning framework.

4. **Rural retention must focus on skills and teams**. Much of the limited evidence available on how to retain health workers in rural areas focuses on individual health workers, often doctors. While examining the motivations and needs of individual workers is an important aspect of determining effective retention polices, there is a critical requirement of taking a broader perspective, which focuses on developing the most effective mix of skills and roles to deliver care to defined populations in defined areas. Taking a uni-professional perspective only from the supply side, and focusing efforts on encouraging or requiring one type of worker to relocate and stay, in isolation from a more comprehensive assessment of how best to meet demand is likely to be ineffective. Assessing population health priorities and determining the best mix of roles in a functioning and integrated primary health team will improve care and is also more likely to enable retention.

5. **More policy emphasis must be placed on the gender dimension in the workforce**. In most health systems, including in remote areas and frontline services, many, or the majority of the workforce will be women. Some of the case studies highlighted this dimension. Policy-makers must take fully into account the gender profile of the workforce, the related implications for labour market behaviour and health worker preferences and priorities while developing and implementing policies oriented at improving retention of health workers.

6. **Effective retention needs good governance and management.** The case studies highlighted the need to develop policies with the full engagement of relevant stakeholders, which can then be implemented and sustained with a view to achieving improved retention and therefore improved access and equity. In part, this is about ensuring that there is consistency and transparency in applying policies and that implementation is managed locally in a way that matches national commitments to equity and access. There is also a workforce aspect to good governance. Retention is likely to be enhanced where rural workers feel that their situation and priorities are given consideration by management, and that there is an equitable approach to providing career development opportunities and access to CPD.

7. **The evidence base on rural retention is incomplete.** Evaluation is generally weak, and requires better data, systems and knowledge sharing. Improvements in data can also support more effective evaluation of implemented policies and initiatives to improve rural retention. This is currently a relatively weak point, not just in the Region, but across the world. Key solutions are to standardize the framework and measurement of retention, agreed data and indicators, while supporting improvements in HRH information systems. One case study highlights the need for improved monitoring and the use of core indicators: median retention as measured by length of stay in the current position; annual turnover rate as measured by ratio of separations to the average number of the health workforce in a setting; stability, which is usually measured as the percentage of staff who stay on over various numbers

of years; and median year of survival and survival probabilities at, for example 12, 24 and 60 months after recruitment, in combination with periodic estimates of recruitment costs.

8. **Educational interventions are most commonly reported overall.** More policy attention needs to be given to new roles including mid-level cadres when determining functions and competence of the health workforce in responses to Sustainable Development Goals (SDGs) commitments. The findings of the six case studies highlighted that educational interventions are often among the most common types of intervention that are supportive of retention, sometimes in combination with others. This suggests that future assessment and evaluation of retention should ensure that other types of intervention intended to improve rural retention such as regulation, financial incentives and professional/peer support be given fuller attention. In particular, the scope to implement new roles and alter the skill mix is likely to be a major potential source of improved and safe access to health care in rural and remote areas.

9. **Financial sustainability, alignment and synergies across different funding sources needs to be improved.** Some initiatives to improve rural retention are funded only for a limited time period from non-core sources such as external donors, or locally raised, time-limited funds. This creates a vulnerability in the process of implementation and is likely to limit the full effectiveness of implementation – particularly if the funds are targeted directly at employing additional staff or improving the compensation packages of existing staff. As such, there is a need for the government sector (health, finance, labour and public employment agencies), funders, donors and others stakeholders to work together to harmonize different funding streams, if these exist, to aim for longer-term coherence and sustainability in funding flows.

10. **Health service design and technology are part of the solution**. Improving rural retention of the workforce is not just about the workforce, it is also about examining the current structure and processes within the local health system to examine the scope for improvement and change that will either achieve increased effectiveness, or will enable the workforce to be more effective, such as adequate medical supplies, equipment, essential medicines and a safe work environment. In part, this is about looking at how referral processes are designed, identifying the optimal geographical location and structure of different services and prioritizing primary care services to ensure that the overall system is based on a solid foundation. In addition, it requires focus on the extent to which technology can improve service delivery, and e-learning of the workforce.

In summary, there has been overall progress in the Region with attempting to coordinate interventions on rural retention. Successful results of some of the rural retention interventions in these country case studies constitutes good practice that could considered when planning and implementing rural retention policies and interventions in other SEA Region countries. Retention of the health workforce continues to be a major issue in all six countries, which points to the continued need to have access to a policy framework such as is set out in the 2010 guidelines, and for countries to make greater efforts to retain health workers in rural areas.

Part I

Synthesis report

1. Background

1.1 Introduction and aims

The WHO Regional Committee resolution SEA-RC67-R6 Strengthening Health Workforce Education and Training in the Region, adopted in September 2014, requested the World Health Organization (WHO) to report progress in the implementation of health workforce developments every two years for the next decade (2015–2024), commencing in 2016. This "Decade for health workforce strengthening in the South-East Asia Region 2015–2024" was discussed in Bhutan in November 2014 and it was agreed to focus on rural retention of, and transformative education for, health professionals.

In addition, one of the eight Flagship Programmes of the WHO Regional Office for South-East Asia (SEA) is on universal health coverage (UHC) with a focus on health workforce and medicines.

As one of the key building blocks for the Decade of health workforce strengthening, improving health workforce retention, particularly in rural/remote areas, has become a major policy and an area of technical focus in countries of the Region. Improved retention can assist in achieving more effective health service delivery through improved access to health workers.

All SEA Region countries have identified health workforce retention as a major issue. Reports at Regional human resources for health (HRH) workshops in 2016 and 2018 set out new policy interventions and innovative approaches that were being used by Member States to improve retention. Feedback at these meetings was mainly descriptive but did raise real prospects of improvements in retention of health workers. It was recognized that these new developments, which reflect increased policy attention to health workforce retention issues, were worthy of more detailed assessment, with the aim of synthesising the key lessons for policy-makers in the Region and beyond.

Further reinforcement and endorsement of the central importance of retention came from the *WHO Global Strategy on Human Resources for Health: Workforce 2030*, which was adopted by Member States in 2016 *(3).* One of its key recommendations is: "Optimize health worker motivation, satisfaction, retention, equitable distribution and performance" and it notes that "Critical to ensuring equitable deployment of health workers are the selection of trainees from, and delivery of training in, rural and underserved areas, financial and non-financial incentives, and regulatory measures or service delivery reorganization" (page 18 para 25).

Milestone 2.4 in the Strategy states that "By 2030, partners in the UN Sustainable Development Goals (SDGs) will have made progress on Goal 3c to increase health financing and the recruitment, development, training and retention of health workforce". The Strategy includes "appropriate strategies and incentives to deploy health workers in underserved areas" and "education and retention strategies should aim to retain health workers in their country of origin and to attain an adequate geographical distribution" (page 26 para 45).

The main aim of this report is therefore to present country level case studies which document the implementation of policies intended to improve retention, and report on what is known about their intended and actual impacts. It builds on work already undertaken in the Region and elsewhere *(1, 4–11)*.

The report is organized in four sections:

Section 1 presents the conceptual framework which guided this work, methods used to develop the case studies and the selection of countries.

Section 2 provides the rationale and context for the case studies by highlighting the reasons why improving workforce retention is important, and describes briefly the HRH situation in the six countries and the main identified HRH challenges and priorities in remote and rural areas.

Section 3 summarizes the policy interventions to improve retention of HRH in rural/remote areas that were reported in the six countries, focusing on policy interventions to address retention issues in rural and remote areas that had been used in the past five years, and using the WHO evidence-based recommendations as a framework; it also provides more detailed descriptions of one selected intervention per country that had reportedly been successful.

Section 4 summarizes key points, reports on identified conditions for success or enablers that have supported these identified policies to be effective in each of the countries, and also highlights future plans and next steps to further improve HRH retention in rural/remote areas in the Region.

The production of case studies has been useful in four ways : firstly, the process of developing the case studies helped policy-makers and stakeholders to give fuller consideration to the strengths, weaknesses, conditions for success and impact of their current approach(es) to health workforce retention in rural/remote areas; secondly, the case studies can be used to inform and shape any further policy implementation; thirdly, the synthesis of the key points emerging from the case studies can be used to assess and inform progress in the Decade of health workforce strengthening in the Region; and fourthly, good practices from these case studies can inspire other countries in the Region.

1.2 Framing the case studies

The WHO report on *Increasing access to health workers in remote and rural areas through improved retention* provides a full review of the available published evidence on the impact of retention policies aimed at rural/remote areas and synthesises these findings into an evidence-based framework. The framework presents 16 different potential policy interventions, grouped in four main areas: education, regulation, financial incentives and professional/peer support (Table 1) *(1)*.

Table 1: *The WHO 2010 evidence-based recommendations: categories of interventions used to improve attraction, recruitment and retention of health workers in remote and rural areas*

A. Education

- A1: Students from rural backgrounds
- A2: Health professional schools outside of major cities
- A3: Clinical rotations in rural areas during studies
- A4: Curricula that reflect rural health issues
- A5: Continuing professional development for rural health workers

B. Regulatory

- B1: Enhanced scope of practice
- B2: Different types of health workers
- B3: Compulsory service
- B4: Subsidized education for return of service

C. Financial incentives

- C1: Appropriate financial incentives

D. Professional and personal support

- D1: Better living conditions
- D2: Safe and supportive working environment
- D3: Outreach support
- D4: Career development programmes
- D5: Professional networks
- D6: Public recognition measures.

The 2010 WHO recommendations and other subsequent policy advice on improving retention in remote and rural areas have emphasised the need for policies that are relevant to addressing the underlying HRH problem, that ensure that there is alignment between policies, and that the costs of implementing the policies are estimated *(6, 10, 12–14)*.

The WHO Global Strategy on Human Resources for Health: Workforce 2030, published in 2016 *(3),* highlights that "To ensure better health worker retention outcomes in countries, the best results will be achieved by choosing and implementing a bundle of contextually relevant recommendations, encompassing interventions on education, regulation, financial incentives and personal and professional support". The use of planned and coordinated "bundles" of policy interventions, sometimes in sequence, has been identified as an important aspect of improving the likely impact of policy interventions on HRH issues *(15–17).*

In order to guide policy-makers in selecting the appropriate mix or "bundle" of interventions, and to support approaches to costing and evaluation, the WHO 2010 recommendations also proposed five questions to guide policy-makers in the selection, design, implementation and monitoring and evaluation of appropriate rural retention interventions.

a. Relevance: which interventions best respond to national priorities and the expectations of health workers and rural communities?

b. Acceptability: which interventions are politically acceptable and have the most stakeholder support?

c. Affordability: which interventions are affordable?

d. Effectiveness: have complementarities and potential unintended consequences between various interventions been considered?

e. Impact: what indicators will be used to measure impact over time?

The recommendations also note that "each recommendation has more than one outcome (or effect), and no outcome can be achieved through only one intervention. This complexity adds to the task of measuring the results and attributing the achieved effects to specific interventions" *(1).*

Several HRH indicators can be used to assess workforce retention, such as turnover, attrition, job stability rates and vacancy rates. To enable timely analysis, these data should ideally be collected on a regular basis in a human resource information systems (HRIS). *See* examples in references for more details on analytical approaches and their limitations *(18–22)*. The National Health Workforce Accounts (NHWA) being developed by WHO include modules which can provide indicators relevant to assessing retention and distribution of the workforce, notably Module 1 (Active health workforce stock) and Module 5 (Health labour market flows) *(23).*

In addition to regular data analysis, the 2010 recommendations highlight that there may be scope to undertake more targeted research and analysis to inform policy-makers about the underlying causes of retention difficulties, and assist in identifying responses which will align with health worker preferences. This can include the use of focus groups, surveys and cohort studies *(24),* as also analytical tools such as discrete choice experiments *(25–29).*

The WHO evidence-based framework continues to resonate and have influence with policy-makers, and has influenced much of the more recent work on policy effectiveness in health workforce retention *(10, 17, 30–33).* It will be explored in more detail in the report, and has been used to frame the case studies which are described below.

1.3 Methods

The approach used to generate information for this report builds on existing knowledge, both from the WHO 2010 evidence-based recommendations and from published and grey literature in the six countries. The report aims to be policy relevant and to interest a broad readership of health workers, educators, managers and policy-makers.

In order to provide a common approach to the country case studies and a common structure for reporting, a template was developed that was used by a group of stakeholders in each of the six case study countries, led by a nominated responsible lead correspondent. The template was developed from the WHO 2010 report and focused on documenting the various strategies used to try to improve rural/remote retention, with specific and more detailed focus on those which are regarded as most promising or effective. The country case study groups were also requested to provide relevant analytical and data underpinning, and to reference any supportive policy material and literature which described the process and impact of those interventions.

The template was in four sections:

1. Background and context
2. Policy interventions to improve retention of HRH in rural/remote areas
3. Detailed descriptions of one or two interventions to improve HRH retention that have been successful
4. Conditions for success, and future plans for interventions to improve HRH retention in rural/remote areas.

Box 1 highlights the steps used in developing and completing the country case studies.

Box 1: Steps used in developing country case studies

1. Identification of potential case study countries; initial contact with country stakeholders; agreement to progress
2. Lead country person (local consultant) researches and completes the first draft, using local data sources and key informants, and based on the template
3. Comments on the first draft are provided by the editorial team
4. In-country workshop with a small team from Ministry of Health (MoH) and relevant stakeholders is convened to further improve and complete the draft
5. Lead country consultant Incorporates comments in a revised draft
6. Further feedback on revised draft
7. Draft report completed
8. Report gains final endorsement by country MoH

1.4 Case study countries

Six countries from within the Region were contacted to assess their willingness to be case studies. All agreed. This initial selection of potential case study countries was done on the basis that: (i) they reflect varying country/population sizes in the Region; and (ii) it is known that recent retention innovations and initiatives have taken place. The selected countries were:

- Bhutan
- India (Chhattisgarh state)
- Indonesia
- Myanmar
- Sri Lanka
- Thailand

The case studies were developed and completed during the period March–July 2019. In addition to the core material requested in the country case study reports, authors were asked to provide additional analysis, evidence, references or links to other source material.

2. Why health worker retention is important

Every time a health workforce job or post is unfilled (vacant) or a health worker leaves a health-care organization (turnover) and is not immediately replaced *(19, 20)*, there is an impact on the health worker, on the health-care organization, and on the client population of the organization. Not all health workers who leave do so because of negative experiences in the organization, and not all of the impact of a health worker leaving is necessarily negative.

Even so, there is the likelihood of organizational costs being incurred, of an increased workload for those who stay and a potential negative impact on patient care. This impact can be particularly pronounced in rural and remote areas, where workforce numbers may be small, the workforce may be widely dispersed and where even one unfilled post may have a major negative impact on access to health services for the local population and on the ability of services to be delivered effectively.

2.1 Impact on care access and quality

Low retention, as indicated by unfilled posts and higher health worker turnover, can contribute to reduced access to care and possible negative impacts on quality of care (service). Reduced access, or even no access, occurs when there are insufficient workers available within reasonable travel distance of the local population. In addition, even if staff is available, but in insufficient numbers, or with insufficient skills, there can be a negative effect on quality of care.

There is relatively little research on this complex connection, which requires data on turnover patterns, staffing levels, staffing costs and quality of care indicators, but there is an obvious risk to quality of care when a post is unfilled.

A related issue is that a continuous cycle of high leaving rates of health workers can further impact negatively on quality of care, organizational costs and workload of remaining health workers. The challenge for policy-makers is to decide how best to act to fill vacant posts in a timely manner. Ideally, this can be done by improving health worker retention (also sometimes defined as workforce/job stability), reducing preventable health worker turnover and improving recruitment processes to consequently impact positively on care outcomes and organizational costs *(10)*.

2.2 Impact on costs and productivity

When a post is unfilled, the organization should respond to the skills gap that is created. This may involve some interim solution while waiting for a replacement, e.g. arranging cover from other staff, postponing some work, using a temporary health worker, etc. In other situations, the post may remain unfilled because there are no resources to fill it. The impact of this "lost"

workforce contribution is likely to manifest itself in reduced accessibility and continuity of care, disruption to services and a drop in overall productivity. If the worker can be retained in the post, then none of these costs are incurred. These issues are usually magnified in rural and remote settings, where there are fewer overall workers, and many will be working in relative isolation. If the post is unfilled, there may be no health worker available to provide backup.

There have been a range of studies estimating the costs of health worker turnover. These studies examine the various impacts when health workers leave the organization, such as temporary cover costs, the cost of hiring a replacement worker and lost productivity, and attribute a financial value to each element. At the aggregate level, the turnover costs to a health-care organization can be significant *(32, 34–36).* The overall findings suggest that the negative impact on the organization of a health worker leaving, in financial cost terms, will be the equivalent of at least several months' pay, and considerably more if the health worker had specialist skills.

2.3 Impact on the health workforce

Poor work environments and unsustainable heavy workload can contribute to stress and health worker burnout *(37, 38)* and health worker absenteeism *(39)* and can be a major factor in the inability to recruit and retain staff in specific posts and locations. This in turn can compromise the quality of care. These factors can be particularly notable in rural and remote areas, where workers may be isolated, working on their own, challenged with a broad and unpredictable range of demands and with limited or no backup. In contrast, improved work environments can contribute to reduced stress, improve health workers' ability to provide quality care and can encourage health workers to remain *(40).*

The factors that contribute to improving worker retention by triggering or reinforcing intention to join or stay in an organization may be complex and multidimensional, but are usually influenced both by organizational and individual/demographic factors. These include the work environment, working relationships, working conditions and organizational culture; pay, other financial and non- financial incentives, e.g. living accommodation; "family friendly" policies, e.g. flexible hours, time off for childcare and elder care; career opportunities and access to education, e.g. specialty training, continuing professional development (CPD) and peer networks; productive working relationships with other staff and teams; and responsive management, effective supervision and focused mentoring *(41).*

It is particularly important to note that incentives can be both financial and non-financial, and that there is a range of different types of financial incentives that can improve effectiveness, but will also complicate the analysis of impact. While there is ample research that investigates separately each of the incomes health workers may earn, e.g. salary, fee-for-service payments, informal incomes, "top-ups" and per diems, dual practice and non-health activities, there is a dearth of studies which look at the health workers' complex remuneration, i.e. the whole of the financial incentives available *(42).*

The fact that the majority of health workers in most organizations are women, and the age profile of the workforce, will also be factors to consider when looking at appropriate policy responses aimed at improving retention in rural and remote areas (see Fig 1 on gender composition of doctors and nurses in the selected countries).

3. Country case studies

3.1 Background and country context

Key demographic indicators and HRH issues in the six case study countries are summarised in Table 2. Three basic population indicators show an important variation in population size, density and the percentage living in urban areas across the six countries. Other relevant indicators are gross domestic product (GDP) per capita, the expenditure on health per capita and average life expectancy at birth.

Population size is a crude indicator of the demand for health care. Countries with smaller populations may have challenges related to the funding base available to support health care, and may have less opportunity for economies of scale in health service organization and provision. The population density indicator gives some insight into the extent to which the population is concentrated or dispersed, which has implications of the deployment of the health workforce – low density, more dispersed populations may be relatively more difficult to access. The percentage of population in urban areas gives an additional indicator of population concentration.

Population size varies from less than one million in Bhutan to more than 264 million in Indonesia. Population density, which is one indicator of the extent to which there may be an "access" challenge linked to a widely dispersed population, varies from only 21 per sq km in Bhutan to 329 per sq km in Sri Lanka. In addition, the percentage of the population reported in urban areas are likely to have an impact on health care. The more concentrated areas will face less challenging issues of geographical access, provided there are services and health workforce available (though challenges remain among the urban poor, slum dwellers, urban migrants and vulnerable population). The percentage of the population in urban areas varies from 18% in Sri Lanka to 54% in Indonesia.

There are also significant differences in GDP and health expenditure per capita, which raise issues of how to allocate the health workforce to best meet population health challenges by optimum location of different types of health workers.

A measure of health worker density is also shown in Table 2. This reports the number of doctors, nurses and midwives per 10 000 population. It varies from 17.9 in Myanmar to 38.2 in Thailand. As such, it does not show all the cadres of workforce (such as medical assistants and others), but focuses on some of the core professions required to provide good quality care.

Table 2: *Case study countries: key indicators (most recent year available)*

	Bhutan	India (Chhattisgarh state)	Indonesia	Myanmar	Sri Lanka	Thailand
Population size in millions *(1, 2)*	0.79	1339 (25.5)	264	53	21	69
Population density: pop per sq km *(1, 2)*	21	440 (189)	143	80	329	133
Percentage urban population *(1, 2)*	39	33 (23)	54	34	18	49
GDP per capita *(3)* (current US$, 2018)	3360.3	2015.6	3893.6	1326.0	4102.5	7273.6
Per capita total health expenditure *(1)*	n/a	63	112	59	118	217
Life expectancy at birth *(1, 4)*	70.6	68.6 (64.8)	69.3	66.8	75.3	75.5
Health worker density 2018 *(5)*	19.4	28.5	24.4	17.9	31.7	38.2
Main reported HRH challenges	Staffing gap; notably medical doctors, nurses and technicians No undergraduate courses; dependent on other countries for undergraduate education for medicine, nursing, pharmacy, laboratory and other allied fields	National: Absolute shortages More pronounced shortages and gaps in rural areas Lack of trained personnel In State: Shortage in medical cadre of specialists (92% vacancies)	HRH shortages and maldistribution Rural and remote areas suffer from a shortage of all essential health workers	Shortages Internal/external migration of doctors Inequitable distribution between levels of care and states/regions Rural deployment and retention, especially doctors in rural areas Lack of appropriate incentives and support Strengthening workforce policy and planning	Streamlining recruitment Improving retention Improving career development Managing dual practice of doctors Improving skill mix Geographical maldistribution of doctors	Overall shortages Inequity in distribution Need for more effective mechanism to develop/ implement HRH policy Mismatch between HRH planning and production Inappropriate environment/supportive system in some rural areas
Is retention in rural/remote areas regarded as a main HRH challenge?	Yes	Yes	Yes	Yes	Yes	Yes

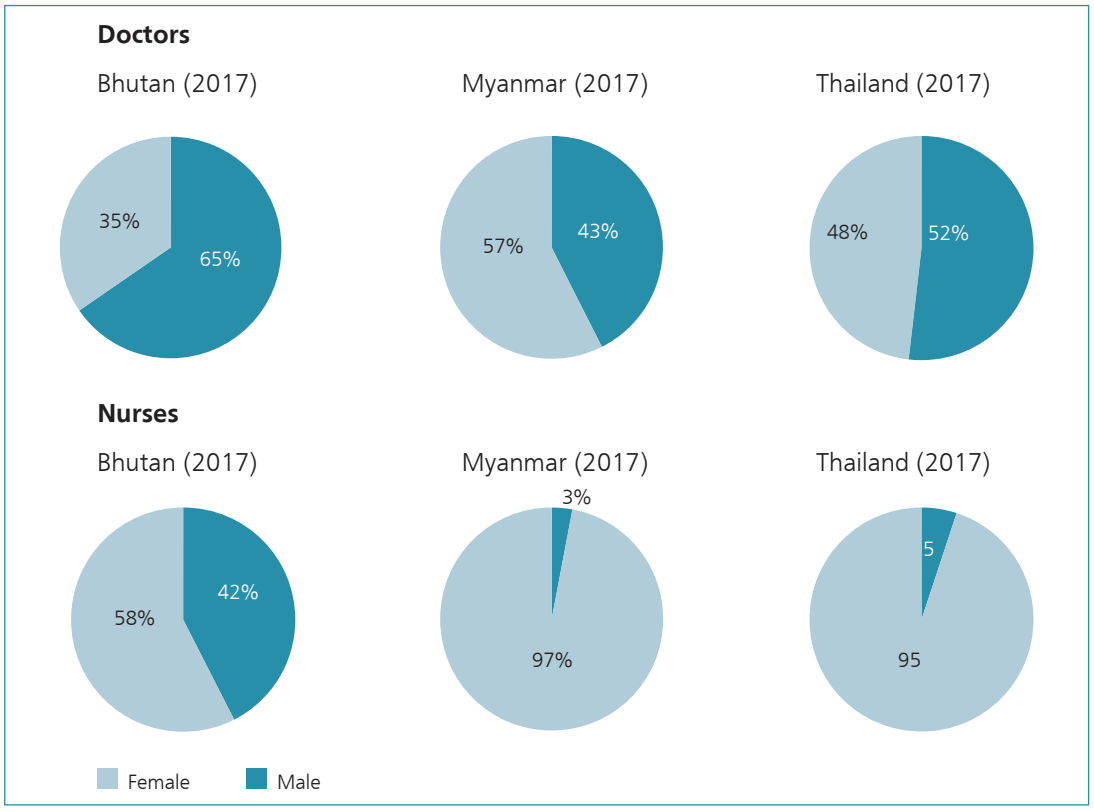
Sources:

1. Health Information Platform for the WHO South-East Asia Region – estimated population as of 2019 (http://hip.searo.who.int/dhis/dhis-web-commons/security/login.action)
2. Chhattisgarh census 2011 (https://www.census2011.co.in/census/state/chhattisgarh.html)
3. The World Bank. World development indicators 2018. Washington DC (http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators, accessed 03 December 2019)
4. Niti Aayog, 2010–2014 estimates (https://niti.gov.in/content/life-expectancy)
5. Doctors, nurses and midwives per 10 000 population. In: Decade for Health Workforce Strengthening in the South-East Asia Region, 2015–2024, Second review of progress 2018 (https://apps.who.int/iris/bitstream/handle/10665/274310/9789290226574-eng.pdf?sequence=1&isAllowed=y)

The main HRH challenges reported by the case study groups were not dissimilar. All countries reported absolute staff shortages, and/or shortages being exacerbated by geographical maldistribution of the health workforce. There were also additional country-specific challenges. For example, Bhutan is reliant on sending its nationals to other countries for undergraduate education for medicine, pharmacy, laboratory and other allied fields, as it is a small country without complete educational capacity (except nursing education); Myanmar reported concerns about mismatches between production of health workers and demand, with shortages of doctors in the public sector and the increasing number of doctors working in the private sector or migrating abroad; Sri Lanka reported a need to streamline recruitment processes; and Thailand reported the need to better develop and implement HRH policy. Improving retention in rural and remote areas was identified as a main HRH challenge across all six countries.

The gender composition of doctors and nurses in three of the six countries is given in figure 1. Data on gender distribution is not available for the other three countries.

Figure 1: *Gender composition of doctors and nurses in the SEA Region*



Source: Country data reported to WHO-SEARO, 2018

3.2 Which retention policies are being used?

The country case study groups were asked to indicate which policies had been implemented in the past five years that were aimed at improving retention of health workers in rural and remote areas. The aim was to assess the breadth of policy intervention in the different countries as a starting point, to then examine in more detail the effectiveness of specific policies. This section of the report presents a picture of the variety of policies that have been used in the six case study countries.

The WHO 2010 framework was used to structure the responses. The table in the executive summary highlights the key findings, and Table 3 provides a more detailed country by country pattern of responses.

Table 3: *Extent of use of different policies to improve recruitment and retention in rural/remote areas*

Recommendations	Has this policy been implemented in the past five years? Was the policy adopted across the whole system, or only for selected occupations or geographic areas?					
	BTN	IND	IDN	MMR	LKA	THA
A. Educational						
A 1. Use targeted admission policies to enrol students with a rural background						
A 2. Locate health professional schools and residency programmes outside of major cities						
A 3. Expose undergraduate students to rural community experiences and clinical rotations						
A 4. Revise undergraduate and postgraduate curricula to include rural health topics						
A 5. Design continuing education and professional development programmes that meet the needs of rural health workers						
B. Regulatory						
B 1. Introduce and regulate enhanced scopes of practice in rural and remote areas						
B 2. Introduce different types of health workers with appropriate training and regulation for rural practice						
B 3. Ensure compulsory service requirements in rural and remote areas are accompanied with appropriate support and incentives						
B 4. Provide scholarships, bursaries or other educational subsidies						
C. Financial incentives						
C 1. Use a combination of fiscally sustainable financial incentives						
D. Personal and professional support						
D 1. Improve living conditions for health workers and their families and invest in infrastructure and services						

Recommendations	Has this policy been implemented in the past five years? Was the policy adopted across the whole system, or only for selected occupations or geographic areas?					
	BTN	IND	IDN	MMR	LKA	THA
D 2. Provide a good and safe working environment						
D 3. Identify and implement appropriate outreach activities						
D 4. Develop and support career development programmes and provide senior posts in rural areas						
D 5. Support the development of professional networks, rural health professional associations, etc.						
D 6. Adopt public recognition measures						

	Reported as fully implemented across cadres or country
	Reported as some cadres or parts of the country
	Reported as not implemented

BTN – Bhutan; IND – India; IDN – Indonesia; MMR – Myanmar; LKA – Sri Lanka; THA – Thailand
Note: For more details, see the country case studies

The responses show a pattern across the six countries, which highlights that many of the possible interventions identified in the 2010 framework were reportedly at least partially adopted and implemented. This will be discussed in more detail, but it is apparent that educational interventions and financial incentives were particularly prominent. However, the extent of coverage, e.g number of eligible recipients for any intervention was not always available. It was also difficult to identify an actual start date for some policies, which were often built on or adapted from pre-existing policies, or were part of a package that had been implemented and adapted progressively over time. As such, not all those shown in Table 3 had been first adopted in the past five years, but all were reported to be in existence at the time when the case studies were being developed.

Educational interventions

In the WHO 2010 recommendations, educational interventions had the strongest reported evidence base of the four areas identified for possible policy intervention. All six countries reported that at least some selected groups of students were exposed to rural practice during training, and all reported some attempt to review and ensure that curricula reflected rural work and health-care priorities. Five countries reported that they used some type of targeted admission policies, and had established educational facilities in underserved areas. The sixth country, Bhutan, is atypical: whilst it is making significant improvements in educational capacity, it currently relies on training provision in other countries for some of its training.

The reason why educational interventions appear the most frequently reported of the four categories may be related to the relative ease of developing and implementing policies that focus on a discrete group of the workforce, i.e. those undergoing training. This is easy to identify and target with policies, and is open to central control via educational institutions. It may also be

relatively less expensive than some incentive-based options, as it tends to be time limited rather than some incentives which are open-ended. However, the apparent popularity of educational interventions merits more detailed consideration across the Region in relation to their costs, impact and effectiveness.

Regulatory interventions

Regulatory interventions include: (i) extending the roles, or scope of practice of workers located in remote areas to enable them to be more effective first responders; and (ii) developing dedicated roles to meet the challenges of delivering care and improving access in remote and rural areas. Both models were reported in the countries. Five of the countries reported that they had introduced some type of enhanced scope of practice in rural and remote areas, and/or had introduced different types of health workers with appropriate training and regulation for rural practice. Some of these policies had been in place for years in some countries; others have been developed more recently.

Other types of policy intervention are linked to either encouraging or requiring a period of service from qualified health workers in rural/remote areas. This can be a voluntary or compulsory process, and requires transparent selection/allocation criteria and consistent management and enforcement to be effective. Another type of intervention is to provide scholarships or funding to students from underserved areas on the condition that they would then return to these areas on completion of training. All six countries reported some type of compulsory service being used for one or more categories of workers, and some types of scholarship with return of service requirements.

Financial incentives

Financial incentives can include a direct enhancement of pay – either a percentage addition to basic pay, or some type of criteria-based additional payment. It can also include one-off relocation payments, periodic bonus payments for working in underserved areas, and end-of-contract bonus payments to encourage retention in rural and remote areas. All six countries reported offering some type of financial incentives for at least some categories of staff – from simple enhancements based on a percentage of basic pay, e.g. Myanmar to more complex and targeted tariffs of incentives, taking into account different levels of remoteness, and in some cases, on different altitudes of the work location, e.g. Bhutan. Thailand reported a hardship payment based on different level of difficulties related to transportation, geographical isolation and remoteness.

Personal and professional support

The provision of support for health professionals to continue to engage in professional development and networking even when located in rural/remote areas has been identified as one issue for policy consideration; another is to take into account aspects of personal life, such as schooling for children of workers. All six countries reported that there were some outreach activities to facilitate cooperation between health workers from better-served areas and those in underserved areas, but these were often localized and based on local initiatives. There were also reported examples of use of telehealth to improve support to workers in remote areas. Four of the six countries indicated that they aimed to provide a good and safe working environment

including adequate equipment and supplies, supportive supervision and mentoring in order to make work in rural and remote posts professionally attractive.

Four countries reported that they had made improvements to living conditions for some cadres of rural health workers and their families; four reported introducing enhanced or accelerated career development for workers in rural/remote areas and some type of professional recognition; three reported support for rural/remote professional networks and four reported other types of public recognition.

The overall pattern of responses highlights that most of the sixteen potential policy interventions had been considered or implemented in at least half or more of the countries in the past five years. What this initial assessment does not tell us is whether the policies have been fully adopted and implemented, what has been the impact, and have they been sustained. The next section gives a more detailed description of selected specific interventions, which the country teams had identified as having had the greatest impact or the greatest potential.

3.3 Which policies have been effective?

Country case study groups were asked to provide more detailed descriptions of selected interventions that they believe have been successful in improving HRH retention, and to give information about the assessment or evaluation of impact. There was often limited evidence on evaluation or assessment; however, some examples of assessment of impact were presented.

Herein, one intervention is reported for each country, with the corresponding main areas in the WHO 2010 framework listed in brackets:

- Bhutan: health assistants (HAs) providing comprehensive primary health care in rural areas (B2)
- India (Chhattisgarh state): initiative to improve availability of medical officers and specialists (B1, B2, B4, C1, D1, D2)
- Indonesia: scholarships to improve rural/remote representation among medical students (B4. A1)
- Myanmar: increased recruitment and support for rural students (A1, A2)
- Sri Lanka: compulsory appointments (B3)
- Thailand: Scholarships to improve rural/remote Collaborative Project to Increase Production of Rural Doctors (CPIRD) (A1).

It should be noted that some countries chose not to report a single policy being adopted or implemented in isolation, but focused on reporting on several being implemented in parallel. These countries reported a broader intervention that combined elements of more than one category. This places limits on how these interventions could be categorized under only one of the four categories in the WHO 2010 framework. Instead, it reflects the reality that the framework sets out options that are not mutually exclusive, and indeed may be necessarily aligned with others in order to achieve impact.

All countries reported at least partial coverage of educational interventions to improve retention. This relatively high frequency of reports of educational interventions is not surprising, given that evidence reported in support of the 2010 guidelines was more extensive, and more solid than for the other three areas of intervention. While education was not the sole point of intervention in any country, it does appear to be a main focus in most.

The full information provided by country authors can be found in the country case study reports themselves (annex); this section provides a series of snapshots which give the key descriptions of interventions and furnish more context to specific policy interventions in identified countries. For each intervention, the country group was asked to report when the policy was first implemented, who was responsible for developing the policy and what were the stated objectives and key characteristics. In addition, they were asked to describe any costing and impact assessments.

Educated for purpose and with status: health assistants (HA) in Bhutan

(see Chapter 3.1 of the Bhutan case study)

Bhutan reported a well-established and dedicated role of HA, which was developed purposely for a leadership role in rural/remote health care. This is covered in the HAs' 3-year education programme for Diploma in Community Health. Students are selected on merit and preference. During the 3-year course, trainees get on-job clinical practice in all aspects of competency required to function independently at the basic health unit (BHU) level. At the end of the training programme, students are expected to have the following competencies:

- have clinical skills in diagnosing and giving prompt treatment for common adult and child health problems and in providing prompt treatment;
- have knowledge on maternal health and capacity to provide women and family-centred midwifery care;
- be able to communicate effectively with individuals, families, communities and with other members of the health team;
- be able to engage in multisectoral collaboration with other sectors in achieving the well-defined health goals of the country;
- understand the research process and apply it in relation to the delivery of health-care activities;
- have leadership qualities in the initiation of change and decision-making;
- be able to practice within a framework based on a code of ethics for health workers and the government's regulations.

It is reported that since 1994, all HA graduates have been able to pass the annual registration examination and have been employed by the MoH where they are mostly posted in the Basic Health Unit level II (BHU II). They can have career options like District Health Officer (DHO) and Programme Officer in the Ministry after obtaining a Bachelor of Public Health degree and being selected through the Bhutan Civil Service examination. HAs are regarded as the key health staff in the rural communities; they have opportunities to do CPD through meetings, training and workshops. All HAs are civil servants and depend on the Royal Civil Servant Rules and Regulations for promotion, transfer, training and other benefits. HAs can normally receive promotion within

2–4 years. A "360-degree" evaluation is done on an annual basis for HAs. This progressive career path has been reported as one main reason why the HA's role has continued to be popular.

Each BHU II has at least two HAs. The HA's role is the main driver for the delivery of public health and primary health care. Due to the specific nature of the health systems in Bhutan, it is reported that the retention of HAs in the rural communities has not been a major challenge. Prior to their training, HA recruits are already aware about, and committed to serving in a rural health setting. However, there is a reported need to expand the number of female HAs that are being trained and employed.

Currently there are 609 HA posts (51% female), and only 20 posts (3.3%) are reported to be vacant; this compares favourably with an overall 42.2% vacancy rate across the total health workforce, with very high rates of unfilled posts of medical specialists, clinical nurses and administrative staff. This data suggests that training and deploying HAs has been a successful policy intervention to provide access and retain health workers in rural areas in Bhutan.

Improving availability of key staff using bundled policies: India (Chhattisgarh state)

(see Chapter 3.3 of the Chhattisgarh case study)

The case study of Chhattisgarh highlights a range of coordinated interventions to improve staffing and access in remote and rural areas including adapted roles, the use of incentives and the provision of appropriate accommodation. One example is the role of Assistant Medical Officer, which is described in detail in the case study report. Another key contribution to improved access, increased staffing and more stable staffing has been the creation of the Chhattisgarh Rural Medical Corps (CRMC) in 2009.

This was developed as a comprehensive intervention. Studies and evaluations of CRMC have found that financial incentives and bonus marks for admission to postgraduate studies have been instrumental in attracting and retaining health workers to rural, remote and difficult areas of the State. An evaluation undertaken in 2014 found that since the introduction of CRMC, 1319 health workers had joined CRMC areas in 2010–2011, bringing down the vacancy rate from 90% to 45% across facilities. It increased to 1658 in 2011–2012, and the majority of the workers were deployed in difficult areas. In 2018, of the 50 postgraduate studies admissions in the state, 14 (28%) were those who had got bonus marks due to service in remote areas.

A related CRMC initiative, which focused on attracting key medical personnel, started in Bijapur district of the State in 2016 when the then district administrative head issued a call for specialists and MBBS doctors to join the Bijapur District Hospital at a negotiated salary that was much higher than the regular salaries of contractual and regular doctors and specialists. The initiative subsequently spread to the neighbouring districts of Dantewada and Sukma. These districts used a combination of funds from the District Mineral Foundation (DMF), Corporate Social Responsibility, National Health Mission (NHM) and the State to finance the interventions.

While the recruitment process using social media was still ongoing, the district administration prioritized establishing of additional services and infrastructure covering the District Hospital (DH), Maternal and Child Wing, community health centres (CHCs) and primary health centres (PHCs). The initiative includes a bundle of interventions:

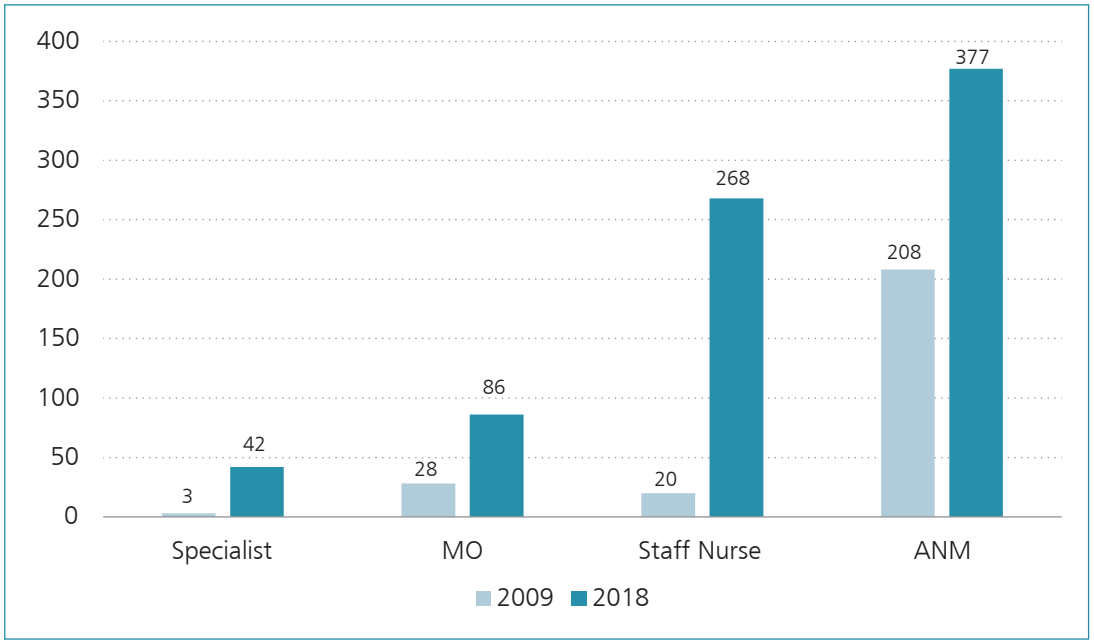
- financial incentives (contractual MBBS doctors and specialists receive around 10% to 20% more than the regular salaries);
- bonus marks for admission to postgraduate studies for working in difficult areas;
- increase in the penalty amount to be paid by medical graduates for breaking the bond that makes it compulsory for all who complete MBBS to serve in rural areas;
- provision/facilitation of residential facilities, housekeeping support, library and gymnasium membership, internet connection, mobile phone connection, etc.
- facilitation of employment for spouse;
- transportation facilities for local travel;
- strengthening the health facilities – recruitment of paramedical and support staff, building, upgrading and renovation of health facilities, operation theatre and wards, setting up of essential services and infrastructure such as laboratory, X-ray services, blood bank, haemodialysis centre, laundry, etc. and ensuring availability of medicines, consumables, instruments and equipment;
- improvement in organizational culture, delegation of duties and tasks, increase in motivation, autonomy and flexible leave policy;
- decentralised recruitment, use of social media.

Two key impacts of these initiatives are reported.:

- There has been an increase in availability of MBBS doctors by 207% (from 28 to 86), specialists by 1300% (from 3 to 42) and nurses by 1240% (from 20 to 268) in the three district hospitals of Sukma, Dantewada and Bijapur from 2009 to 2018 (*see* Figure 2).
- Similarly, the uptake of health services in the three district hospitals has also increased. Outpatient (OPD) visits increased by 87% (from 152 607 in 2014–2015 to 285 432 in 2018–2019). Similarly, the inpatient attendance increased by 243% (from 34 863 admissions in 2014–2015 to 119 668 in 2018–2019) (*see* Figure 3).

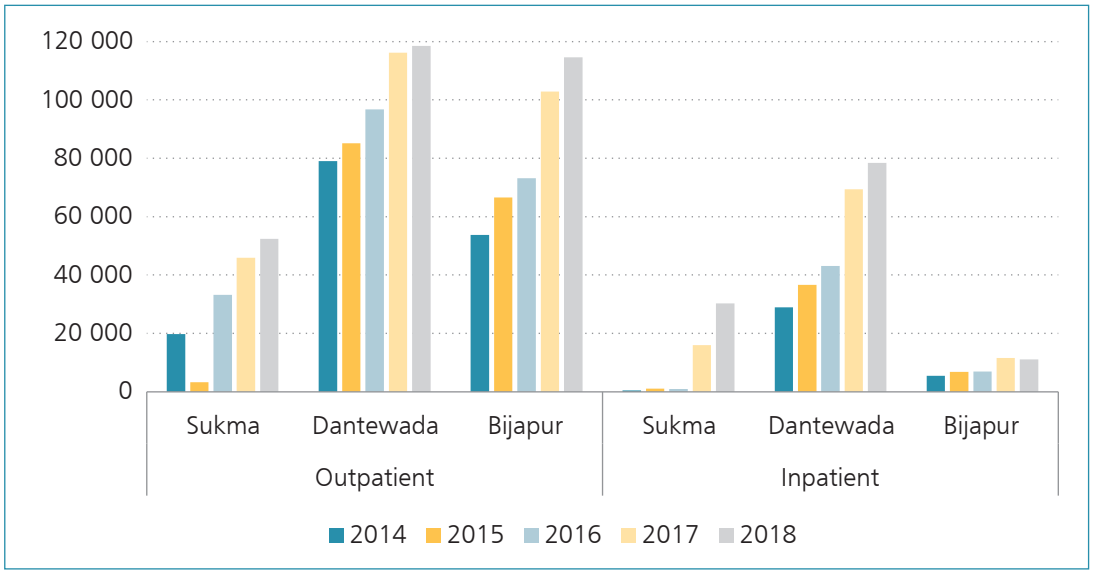
Figure 2 shows the increase in staff of various categories from 2009 to 2018. Figure 3 shows the increase in OPD and inpatient numbers from 2014 to 2018.

Figure 2: *Increasing trend in the number of staff of different categories in the district hospitals of Sukma, Dantewada and Bijapur in the State of Chhattisgarh (India) (specialists, medical officers, staff nurses and auxiliary nurse midwives)*



Source: Draft report on the Human resources for health [HRH] Plan for Comprehensive Primary Health Care in Dantewada, Bijapura and Sukma districts of Chhattisgarh. State Health Resource Centre, Chhattisgarh and WHO, India Office, 2019.

Figure 3: *Utilization of outpatient and inpatient services in the district hospitals of Sukma, Dantewada and Bijapur in the state of Chhattisgarh (India)*



Note: 2014 refers to a range of 2014-15, and so forth.
Source: District Health Information System [HMIS]

Indonesia: scholarships to improve rural/remote representation among medical students

(see Chapter 3.1 of the Indonesia case study)

The Government of Indonesia provides scholarships for all types of HRH, which is conditional on signing a bond to serve in rural and remote areas. The objective of the scholarship policy, first implemented in 2008, is to contribute to the development of HRH capacity, improve organizational performance and personal development of HRH through further education, improve the ability and professionalism of HRH to support the successful implementation of health development and to support the career development of all HRH. Scholarships are available for health workers willing to expand their studies or undertake a specialization with a bond to return to their rural area after their studies for a minimum period equal to the period of study and a maximum period of twice that.

Candidates who receive scholarships must be health personnel with civil servant status or post-rural service as contracted staff, and have at least two years' rural experience. For medical specialists, whose duration of studies is four years, the tenure in rural areas will be for a minimum of four years and a maximum of eight.

Scholarships are available for all types of health workers to attain a higher education level, including general practitioners who want to train as specialists. In the final stage of specialist training, doctors and dentists are assigned to work in hospitals located in remote areas that lack specialists.

All scholars under this scheme have some privileges, such as: (i) receiving tuition assistance during the education programme; (ii) getting assistance for medico-legal cases such as adverse events, providing that the students conform to standard operating procedures; and (iii) receiving incentives for carrying out special assignments.

The HRH Development and Empowerment Board under the MoH is responsible for developing and enforcing the policy by involving local governments, medical councils and professional organizations. MoH provides full funding for these health workers for the entire period of education.

Scholarships have shown great potential and have greatly contributed to achieving equity and fulfilling the needs of referral health services nationally. Between 2014 and 2019, there were a total of 9161 postgraduate scholarships for all HRH cadres in Indonesia. There has reportedly been an increase in the number of medical specialist doctors in remote, island, and border areas from 1084 to 2273 between 2016 and 2018. Analysis highlights that 73% of scholarship students over the period 2008–2019 have returned to the area of their personal origin, while 15% have not returned/have not yet returned and the remaining 12% had returned but then moved to another province. The current location of the 15% doctors who did not return has reportedly not been tracked.

Myanmar: increased recruitment and support for rural nursing and midwifery students

(see Chapter 3.2 of the Myanmar case study)

Schools of nursing and midwifery are located across the country. Data shows that the intake of students to schools outside the capital (Yangon) and Mandalay grew from 1540 (79% of total national nurse students enrolled) in 2014 to 3690 (91%) in 2018. Local recruitment is being done so that students can be posted to their local areas. However, it is recognized that more must be done to sustain improvement, including harnessing the current provision of stipends, scholarships and bursaries to the local poor and providing targeted support from donors and charitable foundations for students from remote areas to train as medical doctors, nurses or midwives.

The Myanmar HRH Strategy 2018–2021 prioritizes the strengthening of the rural health workforce for UHC, and a Technical Working Group (TWG) comprising members from Ministry of Health and Sports, national and international consultants, supported by WHO, has been established. The Rural Retention Workforce Report of the TWG was structured using an adapted WHO framework on rural retention. The newly established Ministry Central HRH Coordination Unit (CU) is coordinating the consultation process with stakeholders on the development of the rural retention strategy.

The limited data available shows that the targeted admissions of nursing students from rural areas studying in nursing schools near their home place has more than doubled in number over the past five years, which in turn may increase the chances of these nurses working in rural areas near their communities.

Sri Lanka: compulsory appointments

(see Chapter 3.2 of the Sri Lanka case study)

Appointing post-intern doctors (doctors who have graduated and just concluded their 1-year internship) to rural areas has reportedly improved the maldistribution of human resources and sustainability of rural health services to a significant level, although this requirement has not yet been satisfactorily fulfilled. Post-intern appointments are allocated according to a merit list prepared according to the performance during qualifying and ranking examinations. It is reported that generally the high performers opt for institutions with better facilities and those who are lower down in the list are compelled to select rural stations.

To stimulate more movement of staff to underserved areas, the allocation of vacant posts is weighted towards underserved areas. Nearly 40% allocations are given to Northern and Eastern Provinces, which are considered as underserved areas. For example, the number of posts available for post-interns in the Northern Province has increased from 188 in 2016 to 210 in 2017.

The case study highlights that certain medical health facilities are defined as "difficult" based on selected criteria, with a process that was first implemented in 2015. Criteria that have been used are as follows:

- Type of institution – line ministry institutions are not considered difficult
- Distance to the main town of the closest pradeshya sabha (local government) – above 15 km is considered difficult

- Access to the main town of the closest pradeshya sabha – If there is no public transport at least four times/day, it will be considered a difficult station
- Means of transport – non-motorable or sea transport considered as difficult
- Road conditions – non-paved (>500 m) considered as difficult
- Availability of adequate quarters with minimum facilities such as single room, pipe-borne water and 24 hours electricity. If these facilities are not available, it is considered difficult
- Other conditions – threat of wild animals, terrorists – if these situations are occurring frequently it is considered as difficult.

It has been agreed that the list of difficult health facilities will have to be annually updated. In 2019, of the tentative list of 199 stations listed as difficult medical institutions/health facilities, the highest number were from the Northern and Eastern provinces (35.7%). In contrast, in the Western Province, where the highest density of medical officers is observed, only one institution has been identified as difficult. In the capital Colombo district, none has been identified as difficult.

In addition, it is reported that medical specialists who return to Sri Lanka following completion of overseas training and specialist trainees who are awaiting overseas training are usually allocated to rural areas. These appointments are implemented on a compulsory basis.

Compulsory appointments for post-intern doctors have enabled the system to fill an important number of posts in "difficult" health facilities, notably those located in more underserved provinces.

Thailand: Collaborative Project to Increase Production of Rural Doctors (CPIRD) Programme

(see Chapter 3.1 of the Thailand case study)

In 1994, the Ministry of Public Health (MoPH) in Thailand collaborated with the Ministry of Education to start a project to increase the production of rural doctors. Titled the Collaborative Project to Increase Production of Rural Doctors (CPIRD) Programme, it was launched to address the lack of rural physicians, poor distribution and increasing brain drain from MoPH employment to the private sector in the 1990s.

CPIRD has an administrative office in MoPH that supports collaboration between faculties of medicine in the Ministry of Education with service hospitals in the MoPH. This programme combines three key concepts: rural recruitment, local training and hometown placement. It has been in place now for more than 20 years. Medical students of CPIRD are selected on the basis of their rural origins. Pre-clinical programmes are taught in 14 collaborating universities, and clinical subjects are taught in 37 medical education centres (MECs) nationwide. The MECs are regional or provincial hospitals of the MoPH. CPIRD graduates are obliged to work in rural hospitals for three years. This network of 14 universities and 37 MECs covers all 12 health-care regions of Thailand.

The number of CPIRD quotas in each medical school depends on estimated shortages in each region. The regional quotas are then distributed to provincial level. The student selection process occurs at provincial level (rural recruitment). Qualified students from secondary schools study in medical schools for their first 3-year pre-clinical programme. For the second 3-year clinical

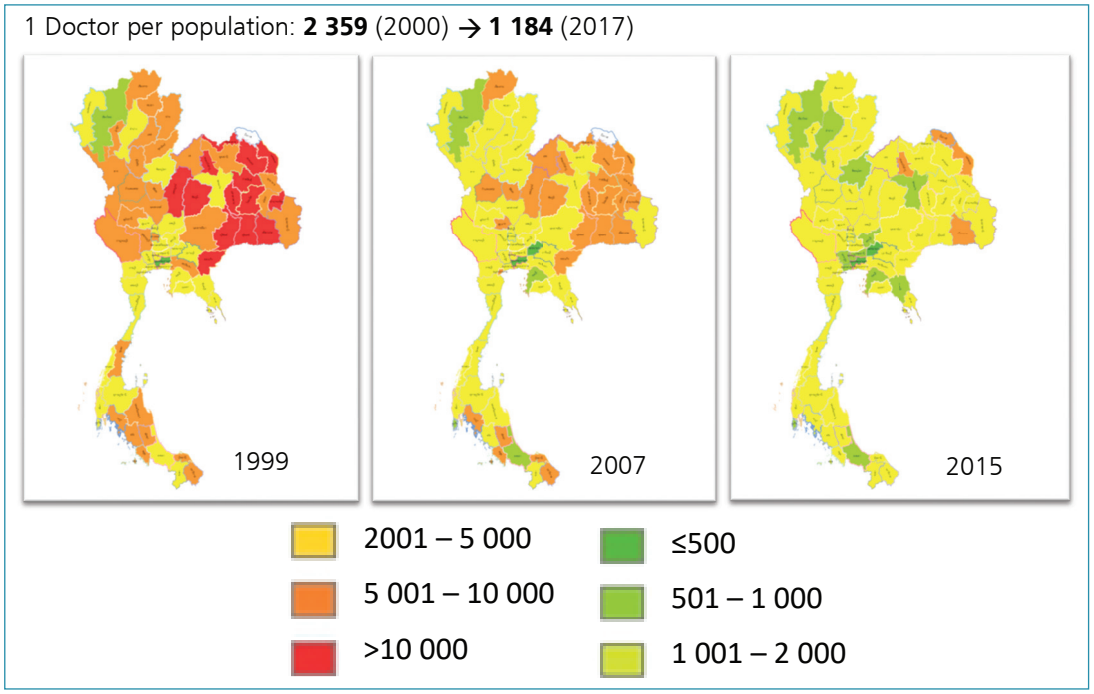
programme, students are sent to a regional hospital near their hometown (local training). After graduation, young doctors from this programme are sent back to work in their hometown province.

Thailand has 21 faculties of medicine. Currently, all faculties of medicine have a combined production capacity for normal track recruitment of 1870 medical students to be enrolled per year, and an additional total extra production from the CPIRD programme of 1116 per year. Nowadays, about half of the new doctors entering district hospitals are from the CPIRD programme. Thailand has planned to increase overall production of medical students to 3121 per year, of whom 1131 will be produced by CPIRD.

Between 2000 and 2015, CPIRD has helped produce 6955 doctors for the country. There were only eight students that graduated as the first batch in the year 2000; this had increased to 1100 graduates in 2018. The graduation results of classes 2000 to 2015 showed a graduation rate of 95.6%, which is comparable to regular university students. The passing rate of national license testing parts 1–3 was 99.6%, which demonstrated that CPIRD students did not differ from regular track students. Currently, CPIRD graduates comprise 39.0% of all doctors entering community hospitals each year. The ratio of CPIRD graduated physicians compared to normal track physicians ranges from 13% to 62% across the 12 public health regions of Thailand. Research has highlighted that normal track graduates resigning from MoPH before the obligatory 3 years was 1.5 times higher than CPIRD graduates, and that CPIRD graduates continued working in the rural areas after 3 years 1.14 times more than graduates recruited from the normal track.

Figure 4 shows the distribution and density of doctors in Thailand at three points in time – 1999, 2007 and 2015.

Figure 4: *Distribution and density of doctors in Thailand*



The case study reports that CPIRD has helped solved the problem of doctor shortages in Thailand, and that future plans focus on CPIRD acting as a change agent in Thai medical education to help create "real rural clinical education". The processes include goal setting, selection criteria, curriculum planning and implementation, competency-based assessment and finally, career path and postgraduate training of a CPIRD doctor.

In conclusion, CPIRD has been established as a a core component in a partnership model to increase the number of doctors in Thailand through collaboration between MoPH regional hospitals and all existing university faculties of medicines. The country has already achieved this with less investment by using the existing resources and capacities in the MoPH regional hospitals. This should confirm that a collaboration model of doctor production can be established and expanded. Nevertheless, challenges still exist in overcoming the maldistribution of doctors and producing the right person to be a rural physician. From now on, this strong partnership between CPIRD and collaborating universities will have to overcome the challenge of producing the right type of doctor for delivering care to the rural population.

3.4 Summary

What emerges clearly from this selection of specific policy interventions to improve rural/remote retention is that there are a range of examples of different policies. A few of these policies have been developed and implemented in isolation; these are often built on previous experience and usually focus on achieving identified priorities. Many were "top down" in approach, many focus on one occupation (often, but not always doctors), most are driven by national policy change, often within one government ministry, and some had only limited involvement of other ministries and relevant stakeholders such as regulators and professional associations. Whilst some have strong evidence of impact and change, many have, at best, very limited evidence and analysis to support implementation and evaluation. The key points and next steps in achieving further improvements in identifying appropriate policies, coordinating their implementation, assessing their costs and evaluating their impact are discussed in more detail in the next section.

4. Key points and next steps

4.1 Key points

The 2010 global recommendations highlighted the need to identify the correct policies, align their implementation and assess costs, effectiveness and impact. These issues were explored by the country case study groups, and several key issues emerged, that have broader implications.

The Chhattisgarh case study, and that from Thailand, reported the most substantial series of wide-ranging interventions; there is evidence of implementation that was planned and scheduled and that interventions were "bundled" and sequential. For example, in Chhattisgarh the initial process of recruitment included a bundle of policies, including higher salaries, and the provision of residential, housekeeping and communication facilities. This was sequenced: (i) improving the health facilities; (ii) recruiting doctors; and then (iii) recruiting other necessary support staff. The State policies of providing bonus marks for postgraduate admission and increased bond money also reportedly played a role in making more staff available in rural areas. There are now further follow-up efforts being made to incorporate the posts into the NHM, along with a top-up funding so that the new posts remain secure and the initiative has greater sustainability.

The example of Thailand demonstrated a long-term approach (decades rather than years), which focused on creating a new cadre of doctors via an alternative supply route into education which focused on rural recruits and aimed to improve equity, achieve a better geographical distribution and be sustainable. This was achieved through effective governance and close coordination with educators and regulators.

In contrast, Bhutan reported long-term primary reliance on a single intervention, the creation of the HA's role. This appears to have been a long-term sustainable solution, based on the strong commitments of workers in that role to stay in and serve their community. However, the case study observed that there was also a recognized need to look beyond the HA's role for future solutions, given changes in demography, health policy, housing costs and individual preferences.

Four key messages emerge from the overall assessment of the case studies, which must be taken into account when efforts to improve retention in rural areas are being considered in any country. These are:

- the limited evidence base from which to draw information to shape an approach;
- the need to consider multiple stakeholder engagement when identifying and developing relevant interventions;
- the need to coordinate, "bundle" and evaluate interventions; and
- the need to look to develop financial sustainability to enable workforce stability.

Much of the literature on implementation of interventions to support rural retention only focuses on the third point.

Limited evidence base

The case studies generated few examples of reporting of the costing, assessment or evaluation of the implementation of policies. In general, the evidence base is incomplete, but improving. The WHO 2010 recommendations highlighted major gaps and weaknesses, which were also evident in the case studies. In many situations, there was neither the data nor analytical capability to undertake costing or evaluation of the policy outcomes and impacts. The complexity of assessing impact in remote and rural areas was paralleled by the complexities in evaluating multiple interventions, assessing relative contribution or attributing causality, and of taking a longer-term perspective in order to adequately assess sustainability of impact.

In any health system and country, most assessments of the implementation and impact of interventions to improve rural retention fall short of the ideal of assessing costs and impacts. This reflects a challenging reality, with capacity constraints on in situ evaluation and an ever-changing labour market and policy domain. A secondary factor related to the evidence base is that most published studies pertain to a single site/country, and often have limited information on the broader policy and labour market context in which they are being adopted and implemented. This can constrain the assessment of relevance and applicability of the findings of any study to other sites or countries.

Alignment across and beyond government

Secondly, the dimension of coordination of interventions must also be given consideration. This pertains to the need to align efforts across different government departments and with other stakeholders. In federated countries, or in health systems with a range of different employers (public sector, nongovernmental organizations [NGOs], private sector, etc.) the need for alignment becomes even more apparent, but also more challenging. Many interventions are crosscutting in nature and a MoH or individual health-care organizations cannot solve the retention challenge on their own. Ministries of education, finance, civil service bodies (or public service commissions), regulators, professional associations, civil society and international developmental partners all have a role to play.

Coordination and 'bundling' of interventions

Thirdly, the actual process of "bundling" and sequencing of interventions is given little attention in the literature; as noted above, there were some examples of alignment/bundling in the case studies, notably from Chattisgarrh and Thailand. The scope for this sequencing and coordinating of interventions is likely to be greater when there is good stakeholder cooperation and where there is sound evidence on which to base judgements about which interventions should be implemented next. The risk otherwise is that selected interventions do not match the conditions, and that the scope for a mutual re-enforcement of different aligned interventions is lost.

There were several examples from the case studies of interventions that had been applied with little or no understanding of the underlying problems (often as a result of the top-down process noted above), or where the implementation was a one-off initiative that had been developed in isolation without sufficient consideration to context and to pre-existing policies with the same overall objective of improved retention. At best, this can lead to misalignment of policies and reduced probability of success; at worst, one policy may cut across or undermine another.

Financial sustainability

Fourthly, there is the issue of financial sustainability. There are many examples of short-term, one-off or localized interventions intended to improve retention, but these often have a short life. This issue was highlighted in the Chhattisgarh case study and reflected in examples from other countries where there was a risk of reliance on fragmented funding from a range of different sources, including some specific donor-driven, time limited, initiatives. As highlighted in the Chhattisgarh study, where the money comes from and how it is channelled is tightly linked to the issue of financial sustainability. A critical aspect that was also highlighted in that study was that there was some local flexibility and discretion in allocation of funding.

In summary, there is no one-size-fits-all solution to the selection and implementation of the best "bundle". Alignment between priority objectives and planned policy interventions is critical, and was noted in a recent five-country review examining the effect of payment and incentives on motivation and focus of community health workers *(2).* What emerges from the six case studies is a clear message that the most appropriate combination of interventions will vary considerably from country to country, and will be shaped by funding availability, system and organizational culture, capacity, workforce profile and motivation and level of understanding of labour market dynamics. The importance of country, system, organization and cultural context has been highlighted in recent reviews assessing HRH interventions *(43, 44),* but is often overlooked when a narrow/deep focus is given to examining only one intervention over too short a period of time to enable any reliable conclusions to be derived about its longer term relevance and sustainability.

Conditions for success

The country groups were also asked to give consideration to the conditions for success or enablers that had supported policies to be effective (or ineffective, if they had been tried but had not led to a positive impact), and to report on any barriers that had contributed to policy implementation being less successful than anticipated. They were also asked to report on plans for any future policy interventions. This section summarizes and synthesizes the key points made in the country reports.

Bhutan highlighted the benefit of political stability and economic growth, but emphasised that the latter was underpinned by the development philosophy of "gross national happiness". This country report highlighted that the national policy framework had helped the Government and the MoH to develop health systems which are more rural-centric with a strong focus on the primary health-care system through the functions of BHUs and district hospitals. Central to the reported success of the system was the training and contributions by the well-established role of HAs; staff in this role are aware where they will be located for work prior to beginning their 3-year training. The report highlighted that working as an HA for the improvement of health of a rural community provides staff with social value, status and trust in the community. In addition, there are effective support systems at the BHU level to enable the HA to be effective. The main ongoing challenge is the issue of rapid development and urbanization.

The report from Chhattisgarh identified several main conditions for success: the bundling of financial and non-financial interventions; the ability to combine national and state policies, supported by local/district innovation; the scope for some flexibility in funding; strong and effective ownership and leadership at district level; and the significant contribution of the mid-

level health-care providers (MLHPs). Continued challenges include: funding stream uncertainty; lack of a systematic posting and transfer policy and delays in recruitments; continued challenges with filling regular posts, absence of area-based admission policies; and opposition of doctors' associations to mid-level health workers. In terms of future plans, the Chhattisgarh report noted the possible extension of the approach to other districts; and that, more broadly, the State was planning a number of reforms related to HRH, such as a restructuring of salaries, the development of specialists cadres, rational deployment of specialists and capacity-building to improve/expand services.

One condition for success is to support coordinated efforts, built on a relevant assessment of priorities for improving retention, and of context. For example, the report for Myanmar identified future plans linked to the Myanmar HRH Strategy 2018–2021, which prioritizes the strengthening of the rural health workforce, in particular nurse and midwives for UHC. In order to enable coordination, a national-level Technical Working Group first reviewed and conducted a policy mapping exercise on challenges faced by different cadres in rural areas, using an adapted version of the WHO 2010 framework. This led to the development of a Rural Retention Workforce Report, and the establishment of a Central HRH unit which will lead consultation with stakeholders on the development of a rural retention strategy.

Indonesia highlighted that one enabling condition for overall success is a complete HRH information base, as the current incomplete and fragmented HRH database is a constraint. A related condition for success was having an effective health service referral system to connect rural, remote and borders areas with the rest of the health system. Given its large geographic size and federated system, the need for alignment and coordination between various levels of government (provincial government and central government) was also noted. A clear mechanism for periodical monitoring and evaluation of the progress of implementation of policies and initiatives was also identified.

The report from Sri Lanka focused on next steps and future plans. It noted that rural placements need to be financially more attractive – by changing the criteria of existing financial incentive schemes, or by developing and implementing new schemes such as performance-based incentives or tax concessions for setting up dual practice in these areas, on the basis that doctors can more easily be retained if they have access to additional income from private practice. It also advocated implementing more outreach activities to facilitate cooperation between health-care workers in better-served and underserved areas, e.g. supported by the use of telemedicine. Other possible next steps included the improvement of career development opportunities in rural areas; provision of financial resources and infrastructure facilities to formulate clinical societies to conduct regional clinical and technical meetings; and the expansion of CPD programmes in rural areas.

Key lessons reported by Thailand were that while many strategies have been developed and used to improve maldistribution, these have often been reactive strategies in response to each crisis. As such, these may be uncoordinated and have rarely been the subject of systematic evaluation. The key lesson is that the combination of rational strategies in a package is very important, with the CPIRD programme being highlighted in the report as a good example – it combines three key concepts, namely, rural recruitment, local training and hometown placement. Overall, the report from Thailand concluded that more equitable socioeconomic development is the key

factor for overall sustainable success in societal equity. This needs strong political leadership and also social support.

Future plans reported in the case study from Thailand will be framed within the development of the second National Human Resources for Health Development Strategic Plan for Thailand (2018–2027). The development of the Plan has engaged multiple stakeholders, and has identified four key areas: to develop the HRH policy mechanism at national and area-based level; to strengthen the health professional education system to be aligned with a transformative education concept; to effectively manage the health workforce to ensure availability, accessibility, acceptability and quality; and to strengthen HRH information systems. At the time of writing the case study, the Plan had been approved by the National Health Commission, and the process of obtaining cabinet approval was ongoing.

4.2 Next steps and conclusion

This case study-based examination of policy approaches to improving rural retention of health workforce in countries of the WHO SEA Region has provided new and detailed evidence of country experiences. Several important messages emerge from this work, which has implications for the consideration of next steps in the Region and beyond. The ten key messages are as below.

- Rural retention continues to be a priority.
- The WHO 2010 framework continues to have utility, but must be updated.
- Rural retention must be examined within the broader HRH and labour market context.
- Rural retention must focus on skills and teams, not individual workers.
- Effective retention needs good governance and management.
- More policy emphasis must be placed on the gender dimension in the workforce.
- Evaluation is generally weak, and requires better data, systems and knowledge sharing.
- Educational interventions are most commonly reported. More attention needs to be given to new roles that focus on determining functions and competency of the health workforce.
- The sustainability and alignment of funding sources needs to be improved.
- Health service design and technology are part of the solution.

The ten key messages are discussed in more detail below.

Rural retention continues to be a priority

All six countries covered in this report confirmed that improved recruitment and retention of the health workforce in rural and remote areas was a continuing national priority. This was articulated within the broader frame of focus on attaining UHC in countries, and with the recognition that some of the most underserved communities are often those located in rural and remote areas. Improvement on access and quality in these areas depends on a more sustainable and stable local health workforce. This endorses the selection of rural retention as one of the core themes for the "Decade for health workforce strengthening in the South-East Asia Region 2015–2024".

The WHO 2010 framework continues to have utility, but must be updated

The 2010 WHO framework was recognized as having value and utility by respondents in all six countries – either as an aide-memoire for informing the selection of policies, or as a structure to assess and report on the current policy landscape related to rural retention of the health workforce. This reinforces the point that the recommendations continue to have utility; however, almost a decade has passed since the framework was published and it is time to update the evidence review and re-assess how this may influence any amendments to the framework. The findings of the case studies can contribute to the current initiative within WHO to assess progress and identify any necessary updating of the guidelines, to be completed in 2020.

Rural retention must be examined within the broader HRH and labour market context

Rural retention dynamics, and the scope to develop and implement improved policies, can only be understood when these are examined within the overall context of national (and international) labour markets, taking fully into account the broader national HRH policy and planning infrastructure. Two key dimensions that require more considered attention are the type of government and the geography/demographics of the country. The six countries examined in the report vary from relatively small, low population-density countries with central government (Bhutan) through to multi-island, low/high population density and a federated structure (Indonesia). Both the selection of policies, and how they are implemented and evaluated, must take account of these dimensions. In addition, policies developed and implemented in isolation, focusing only on rural and remote issues without considering the connection to the rest of the labour market, and to any "knock on" effects or unintended consequences, will be much less likely to have a sustained impact. This points to the need to continue to examine and improve the understanding of labour market dynamics, e.g. flows of workers between rural and urban areas, different profiles and labour participation rates of different types of workers, etc. This in turn highlights the need to improve HRH data and HRH planning and analysis capacity. These are issues that are already being supported by WHO within the Region and globally, but will continue to be a core area requiring support for the foreseeable future.

Rural retention must focus on skills and teams

Rural retention must focus on skills and teams. Much of the limited evidence available on how to retain health workers in rural areas focuses on individual health workers, often doctors. While examining the motivations and needs of individual workers is an important aspect of determining effective retention polices, there is a critical requirement of taking a broader perspective, which focuses on developing the most effective mix of skills and roles to deliver care to defined populations in defined areas. Taking a uniprofessional perspective only from the supply side, and focusing efforts on encouraging or requiring one type of worker to relocate and stay, in isolation from a more comprehensive assessment of how best to meet demand is likely to be ineffective. Assessing population health priorities and determining the best mix of roles in a functioning and integrated primary health team will improve care, and is also more likely to enable retention.

More policy emphasis must be placed on the gender dimension in the workforce

In most health systems, including in remote areas and frontline services, many, or the majority, of the workforce are women *(45).* Some of the case studies highlighted this dimension. Policy-makers must fully take into account the gender profile of the workforce, the related implications for labour market behaviour and for health worker preferences and priorities when developing and implementing policies oriented at improving retention of health workers.

Effective retention needs good governance and management.

The case studies highlighted the need to develop policies with the full engagement of relevant stakeholders, to be then implemented and sustained with a view to achieving improved retention, and therefore improved access and equity. In part, this is about ensuring that there is consistency and transparency in applying policies and that implementation is managed locally in a way that matches national commitments to equity and access. There is also a workforce aspect to good governance. Retention is likely to be enhanced when rural workers feel that their situation and priorities are given consideration by management, and that there is an equitable approach to providing career development opportunities and access to CPD. This was a point echoed in an Australian study which noted that "sustainable remote health workforces are achievable where localised management practices improve equity, where employee–manager relationships are fostered, and where there is equitable access to resources and professional development" *(46).*

Evaluation is generally weak, and requires better data, systems and knowledge sharing

Improvements in workforce, costing, service and outcome data can also support more effective evaluation of implemented policies and initiatives to improve rural retention. This is currently a weak point, not just in the Region, but across the world. An updated global review of the incomplete but improving evidence will help, as will support for improved HRH analytical capacity in countries. However, this action will have to be realistic, tempered by an understanding that formal evaluation will often be unattainable because of competing demands on the time of key personnel, as well as capacity constraint issues. Part of the solution will be to standardize the measurement of retention using agreed data, and support improvements in HRH information systems.

An analysis focusing on developing an overall strategy for a sustainable approach for retention of the workforce in remote areas noted that "There is a serious lack of evidence about the effectiveness of different retention strategies" *(47).* It proposed improved monitoring, and the use of core indicators: median length of stay (LOS) in the current position, annual turnover, stability, median survival, survival probabilities at 12 and 24 months, in combination with periodic quantification of recruitment costs as key indicators.

In this context, continued structured support for knowledge sharing between countries and stakeholders on lessons learned in implementation of policies to improve rural retention, such as is supported by the Regional Office, can be an important source of relevant information and analysis. There is also a need for donors and foundations to support analysis and independent evaluation research which adopts a common template and analytical frame to maximise the benefit and transferability of results of commissioned work on what works for improved retention.

Education interventions are most commonly reported, and more policy attention needs to be given to new roles, including mid-level cadres, when determining functions and competence of health workforce in responses to SDG commitments

The findings of the case studies highlighted that educational interventions are the most commonly reported types of intervention, sometimes in combination with others. This finding echoes the original evidence review published in 2010, but requires more detailed examination. Education-related evaluation is most commonly published, but this may reflect the fact that educators may have more dedicated time available for analysis, more analytical skills, and a greater stake in educational interventions than policy-makers, management and staff involved in service delivery; so there may be a type of evaluation bias.

This suggests that future support for assessment and evaluation should ensure that other types of intervention intended to improve rural retention, i.e. regulation, financial incentives and professional/peer support should be given fuller attention. In particular, the scope to implement new roles and alter the skills mix is likely to be a major potential source of improved and safe access to health care in rural and remote areas. This includes looking at the potential for introducing and expanding the use of various types of mid-level health workers and assessing the potential to enable non-physicians to give prescriptions *(48).* The Regional Office is already providing support to countries in the Region which are assessing or implementing new roles, often with mid-level health workforce categories.

The sustainability and alignment of funding sources needs to be improved

Some initiatives to improve rural retention are funded only for a limited time period from non-core sources such as external donors, or locally raised, time limited funds. This creates a vulnerability in the process of implementation, and is likely to limit the full effectiveness of implementation, particularly if the funds are targeted directly at employing additional staff, or improving the compensation packages of existing staff. In addition, where there are multiple sources of funding targeted at improved rural retention, it can add to the transaction costs involved if these funding streams have to be coordinated at a local level where administrative capacity may be limited. There is a need for funders, donors and others to work together to simplify and better align different funding streams to aim for longer term coherence and sustainability in funding flows.

Health service design and technology are part of the solution

Improving rural retention of the workforce is not just about the workforce. It is also about examining the current structure and processes within the local health system, with a view to examine the scope for improvement and change that will enable the workforce to be more effective. In part, this is about looking at how referral processes are designed, identifying the optimal geographical location and structure of different services and prioritizing primary care services to ensure that the overall system is based on a solid foundation. In addition, it requires a focus on the extent to which technology can improve service delivery and development of the competencies of the workforce, e.g. through e-learning.

4.3 Conclusion

This report is based on six country case studies. In combination, the evidence provides a wealth of detail about recent country experiences in addressing issues related to retention of health workers in remote and rural areas in the WHO SEA Region. A range of different interventions have been tried, some with reported success, but few have been adequately tested in context through assessment of outcome and impact, in part at least because of capacity constraints. There has been overall progress in the Region with attempting to coordinate interventions, and there is awareness of the WHO 2010 guidelines. Retention of the health workforce continues to be a major issue in all six countries, which points both to a continued need to have access to a policy framework such as is set out in the 2010 guidelines, and an updated assessment that the guidelines can continue to be fit for policy and practice.

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Part 2

Country case studies on rural workforce retention

Bhutan

Case study on health workforce rural retention

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1. Background and context

Bhutan adopted the Constitution of the Kingdom in 2008 and witnessed the first elected government in power. The democratization of the country has accelerated the power shift from the centre to the community. Bhutan has always followed a systematic way of progressive development as per the needs of the country. The key transformations that have shaped the current systems of thinking and vision for the future of the country are (i) institutionalized, progressive, decentralized policy; (ii) establishment of a form of government that is a "democratic Constitutional monarchy"; and (iii) espousing Gross National Happiness (GNH) as the guiding vision for development. These key approaches underpin the health and developmental activities and provide a people-centric guiding policy framework for all other strategies. With more than 60% of the Bhutanese population living in rural areas, many health services reforms and initiatives and all developmental activities are largely rural focused.

The Constitution of Bhutan mandates the State to provide free essential health-care services to the people. Health has always been on the core agenda and in political demand, and candidates make many pledges and promises related to health services. Sometimes these pledges, which could constitute the establishment of new health centres, deployment of the health workforce or provision of new services, may not be in line with the overall direction and priorities for health policy and strategy.

Bhutan follows a five-year planning cycle and currently the country is implementing the 12th Five-Year Plan (2018–2023). The current Plan period has a major shift in budget allocation, with 50% of the planned budget allocated to the districts and gewogs (blocks), including the health budget. Budget allocation needs to be augmented to engage competent/adequate human resources to implement health services effectively and deliver results. This will have a direct impact on the health workforce.

1.1 Health situation and trends

Life expectancy at birth in Bhutan increased from 38.5 years in 1968 to 70.6[1] years at birth in 2016. Healthy life expectancy in Bhutan was estimated by WHO at 60.7 years in 2016 *(1)*. As a result of improved access to maternal and child health services, the maternal mortality ratio reduced from 423 in 2000 to 183[2] per 100 000 live births in 2017, and the under-five mortality rate reduced from 77.7 in 2000 to 29.7[3] deaths per 1000 live births in 2018 *(2,3)*. On the other hand, sanitation coverage increased from 66.3% in 2012 to 74.8% in 2017 *(4)*.

Despite progress on various fronts, Bhutan faces a triple burden of disease of communicable diseases, emerging/re-emerging issues/diseases and an escalating prevalence of noncommunicable diseases (NCDs). About 60% of all deaths are due to NCDs. The preliminary report of the 2019

1 Country reported value: 70.2 years at birth in 2019; *source:* 2017 Population & Housing Census of Bhutan: national report. Thimphu: National Statistics Bureau of Bhutan; 2017.
2 Country reported value: maternal mortality ratio 255 in 2000 and 89 in 2017; *source:* National Health Survey
3 Country reported value: under-five mortality rate 84 in 2000 and 34.1 in 2017; *source:* National Health Survey

STEPwise approach to surveillance (STEPs) survey revealed that 28% of the population had a raised blood pressure and 1.9% had a high blood sugar level. In 2017, the number of people aged 60 years and above was 63 775, constituting 8.8% of the total population. By 2027, it is expected to increase to 10.7%. The old age dependency ratio has slowly increased from 7.5 in 2005 to 8.7 in 2017 *(4).*

1.2 Health system in Bhutan

Bhutan's modern health system started in 1961 with two hospitals, two doctors and two nurses. Bhutan became a signatory to the Alma-Ata Declaration in 1978. Since then, Bhutan has ascribed the utmost importance to the health of its people and seen a progressive improvement in the health-care services *(5).*

The Royal Government of Bhutan provides free health-care services, including ward admissions, essential medicines and referrals not only within Bhutan but also outside the country, mostly to India. The Health Policy, with a vision of "Nation with the best health" guides the Ministry of Health (MoH) in the provision of services, recruitment, deployment, education and retention of human resources for health (HRH) *(6).*

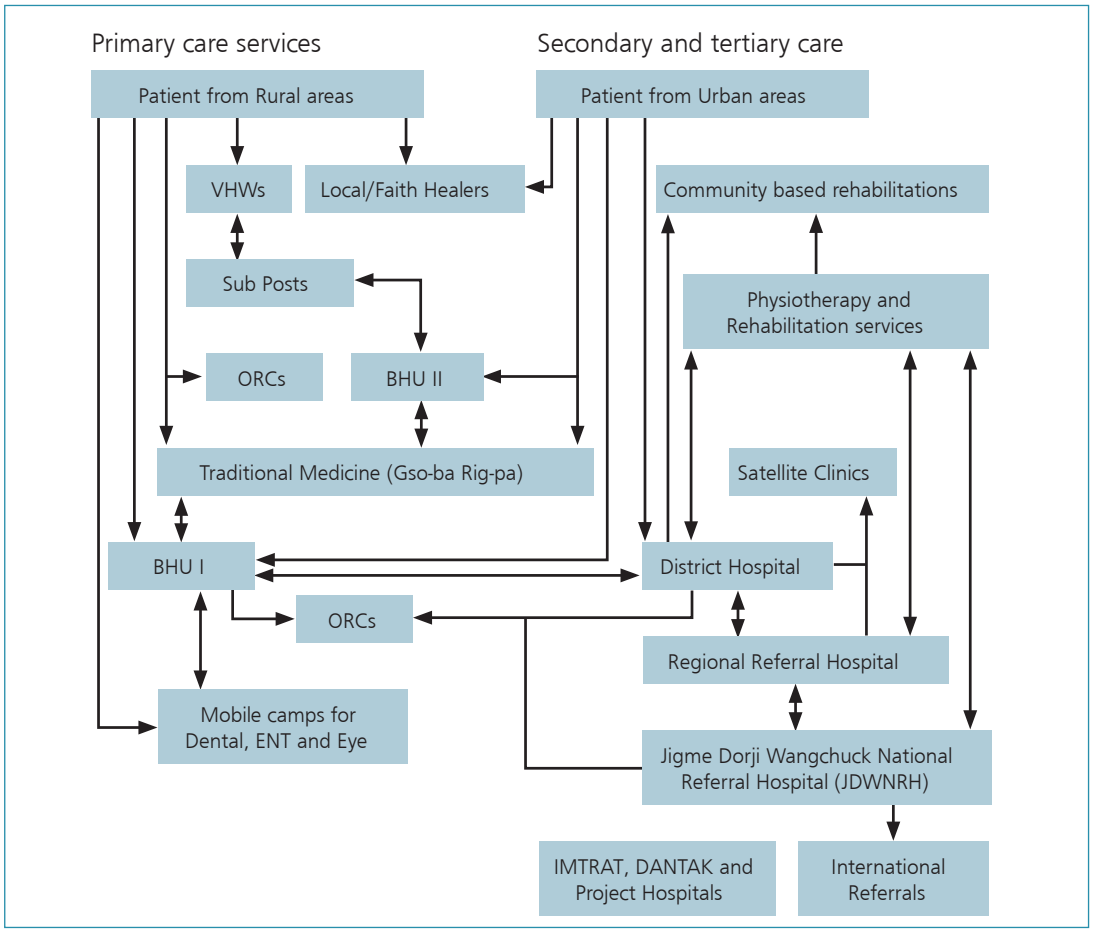
There is no private practice in Bhutan, apart from twelve private diagnostic centres and many retail pharmacies. The government provides all health care in a systematic, contextualized manner to meet the needs of the people and fulfil the mandates of the government. All health workers are governed by the Bhutan Civil Service Rules and Regulations (BCSR) and Financial Act and Regulations of the Kingdom.

The health policy also states, that "*The Royal Government of Bhutan shall continue to follow the Primary Health Care approach with primary health care workers at the primary level, general practitioners at the districts and specialized professionals at the tertiary level.*" Bhutan follows a four-tier health-care delivery system with the basic health unit (BHU) at the lowest level, followed by district hospitals (DHs), regional referral hospitals (RRHs) and National Referral Hospital (NRH) at the apex of care. BHUs largely deliver public health and primary health care services, including for NCDs. To support villages in far-flung areas, outreach clinics (ORCs) have been set up. Scheduled services for immunization and basic family health check-ups are provided from these facilities.

Currently, there are 27 hospitals, 23 BHUs Grade I, 186 BHUs Grade II, 53 sub-posts and 551 ORCs across the country *(7).* Human resources in the health system are structured, with health assistants (HAs) at the sub-posts and BHUs, general medical doctors at the BHU I and DHs, specialists at the RRHs and superspecialists at the NRH.

Although there are good patient pathways with a functional referral system, bypassing the designated health centre is not uncommon (Figure 1). The proper pathway of referral is from HA to health centre, where there is a medical doctor, and then to a specialist, i.e. BHU I to BHU II to DH and then to referral centres. People perceive the qualification of health workers, the availability of specialists, and the presence of modern sophisticated technology as indicators of the quality of care, and often bypass the BHUs and DH and go directly to referral and tertiary hospitals *(8).*

Figure 1: *Patient pathways for urban and rural residents*



Source: WHO, The Kingdom of Bhutan Health System Review, 2017

1.3 Overall HRH issues in Bhutan

The need for the number and type of health workforce is based on the service standards. These aim to ensure that the health centre has the right services with the necessary health professionals to deliver services competently and professionally. The MoH developed service standards in 2017 for all levels of health facilities (Health Service Standard [HSS] and Human Resource Strategic Plan [2017–2026]. Thimphu: Ministry of Health, Bhutan; 2017 [unpublished report]). The service standard clearly indicates the type of services to be introduced and which existing services need to be strengthened at various levels of health facilities, including hospitals, BHUs and sub-posts. Currently, there are 4120 health workers (Table 1) compared to 66 in 1985 (9).

Table 1: *Existing health staff and gaps*

Category	Requirement as per service standard	Existing	Gap	Vacancy rate (%)
Specialist	312	81	231	74.0
CMO/GDMO/MO	331	181	150	45.3
Dental surgeon	65	53	12	18.5
Drungtsho*	86	48	38	44.2
Smenpa*	247	122	125	50.6
Clinical counsellor	31	0	31	100.0
Medical technologist	224	108	116	51.8
Clinical nurse (BSc)	578	252	326	56.4
Staff nurse (Diploma)	1349	1106	243	18.0
Health assistants	609	589	20	3.3
Medical technicians	1392	701	691	49.6
Admin. & support staff	1873	879	994	53.1
TOTAL	7097	4120	2977	42.2

**Drungtsho* is the Bhutanese traditional physician and *Smenpa* is a traditional physician assistant.
CMO: Chief Medical Officer; GDMO: General Duty Medical Officer; MO: Medical Officer
Source: WHO, The Kingdom of Bhutan Health System Review, 2017

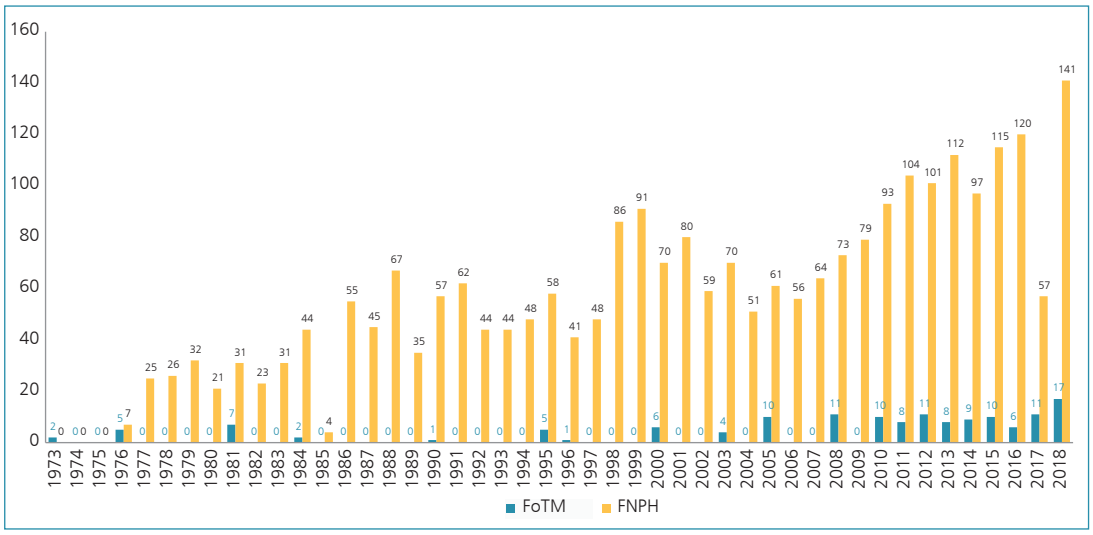
As indicated in Table 1, the major gap between existing staff in various posts and the projected requirement as per service standard is of medical doctors, nurses, technicians and clinical counsellors. There are various groups of medical technicians, which include pharmacy, X-ray, dental, physiotherapy, laboratory and others.

At the village level, village health workers (VHWs) provide treatment for minor ailments, carry out health promotion activities and refer patients. VHWs can be either male or female. There are 1149 VHWs working across remote villages. Since, all VHWs are volunteer workers from the community, they are not even included in the overall health workforce numbers. Preference is given to someone who can read and write and is married. The rationale for giving preference to married local persons is that they are less likely to migrate from the village as they are settled at the existing place of residence. Once selected, they are trained to carry out the activities using the VHW manual. They are also supplied with the VHW kit, which contains about 10–12 items, including emergency sets.

The Khesar Gyalpo University of Medical Sciences of Bhutan (KGUMSB) is the only medical and health university in Bhutan. It provides diploma courses, bachelor's and MD residency programmes, in addition to various short certificate courses. The University also offers diploma, bachelor's and master's courses in Bhutanese Traditional Medicine. All these initiatives are in line with Bhutan Vision 2020, which mandates that health of the Bhutanese people will be in the hands of the Bhutanese health workers (10).

The establishment of the KGUMSB was a significant step towards accelerating and achieving self-sufficiency in HRH. As shown in Figure 2, there is an upward trend in the production of HRH since the 1970s.

Figure 2: *Number of students who have graduated from the Faculty of Nursing and Public Health (FNPH) and Faculty of Traditional Medicine (FoTM)*



Source: Khesar Gyalpo University of Medical Sciences of Bhutan; administrative information

Having a university within Bhutan means that it can tailor the courses as per the health needs and also adjust production of the health workforce according to the market. For example, the MoH has planned to deploy female HAs to every BHU. To fulfil this need, the KGUMSB has instituted gender-based selection of students. Similarly, the KGUMSB develops courses as per the needs of the MoH. The University has strengthened, upgraded and expanded the existing courses, and introduced new courses. The HA course was upgraded from a Certificate course to a "Diploma in Community Health" in 2015 and a BSc in Nursing and Midwifery has been initiated at the Faculty of Nursing and Public Health since 2016.

At the Faculty of Postgraduate Medicine, nine MD residency courses are offered currently, with plans to further expand courses to other departments. The KGUMSB and MoH plan to further introduce a technical diploma course in the specialties of ENT, Ophthalmology, Orthopaedic surgery and Anaesthesia.

However, the country is dependent on other countries for undergraduate education in the fields of medicine, nursing, pharmacy, laboratory and other allied subjects. All MBBS graduates are trained abroad. Most countries have very stringent regulations on allowing foreign students to study in their country. Only through good diplomatic relations have countries such as Bangladesh, India and Sri Lanka provided limited seats for Bhutanese students to undergo undergraduate medical training and postgraduate specialist-level training. On average, 30 students are sent annually, on full or partial scholarship from the government, to study in the MBBS course in various countries. As per the records of the Department of Adult and Higher Education, currently there are 365 students undergoing MBBS courses abroad, including in Sri Lanka (177 students), Bangladesh (56 students), India (14 students), Cuba (12 students), Thailand (5 students) and Georgia (1 student). The remaining 100 MBBS students are self-funded. The limited availability

of seats for Bhutanese students to study medicine is also compounded by the long duration of courses and limited funding. These challenges in developing an adequate health workforce have created a wide gap in services, particularly for medical doctors. With people demanding quality health care with higher-qualified professionals, this gap will widen over time.

Similarly, government scholarships are provided to study abroad in laboratory technology, pharmacy, nursing and other areas based on priority needs. In addition, students can also opt to study in these fields privately if they are unable to qualify for government scholarship. To obtain the government scholarship, students are selected based on their academic ranking in the 12th grade examination and their areas of interest.

All diploma-level health workers are trained at the KGUMSB. After the 12th grade, all students are registered for tertiary education in Bhutan. Depending upon the merit score/assessment, the students can either choose tertiary education outside the country; within the colleges of the Royal University of Bhutan (RUB); the KGUMSB; or other private tertiary education in Bhutan.

In addition to the KGUMSB, there are two private nursing colleges in Bhutan that are affiliated with the KGUMSB. All the students enrolled at the KGUMSB are through government scholarships. The government also provides scholarships for students to study nursing and related health fields in other countries. However, students can also study both within and outside the country with private funding. Students who receive government funding then have to serve with the Royal Government of Bhutan for a minimum period of twice the duration of their study or pay the equivalent of twice the actual expenditure spent on the candidate by the government for tuition fees. While most students abide by this regulation, there are a few cases where students have not returned after studies or have paid the bond in order to work outside the country.

1.4 HRH issues in remote/rural areas

Despite numerous initiatives and investments in the health workforce, a shortage of health workers, particularly specialized and skilled health professionals, has been pervasive for much of the past decades. As shown in Table 1, there are notable gaps in medicine, nursing and various categories of technicians. To address this perpetual problem, the MoH developed a comprehensive Health Human Resource Master Plan 2011–2023 *(11).* The Master Plan outlines the competencies required at each level of the health-care delivery system and their mandates. The document also identifies the human resource gaps and estimates the total staff required for each health facility.

The HRH Master Plan has been developed in cognizance of the rapid socioeconomic development of Bhutan. Despite the reach of all basic amenities across the country, health workers often experience many challenges living in rural areas, including the high expenditure of commercial products such as household items; lack of good schools for children; lack of opportunities, including professional development; lack of modern amenities; high transportation charges; and limited access to tertiary education and health services (Wangdi K. A research report on attraction or retention of primary healthcare workers in the remote and rural health facilities in Bhutan; 2016 [unpublished report]). So far, there is no published research on retention of the rural health workforce in Bhutan.

During the in-depth interviews conducted by the local research team in February 2019, one senior-level official said, "Health assistants often request transfer to urban areas when their children reach higher grades, as they perceive that colleges and schools in urban areas are better." In very remote areas, only primary-level schools are available. He also highlighted that staff who had been brought up in urban areas prefer urban postings, as there are no social entertainment facilities in rural areas. In rural areas, there are only basic health and education services. Therefore, health workers prefer to get transferred to urban areas where they can obtain better health and education services. Female health workers commonly express these preferences. One of the district health officers (DHOs) said, "The female health workers prefer to get transferred due to marital issues and also due to health issues."

2. Policy interventions to improve retention of HRH sin rural/remote areas

Bhutan's developmental policy has always been rural-centric, with more than 60% of the Bhutanese population living in rural areas *(4)*. Under the aegis of the GNH policy that shapes the country's vision and reforms, the MoH undertook various interventions to improve the quality of health-care services. Many of these national-level policy interventions are not rural-specific but have been developed for the majority rural population. Ultimately, they have had a major impact on rural health and the rural health workforce.

These policies are summarized by using the WHO 2010 evidence framework to improve rural retention. In addition, a situational analysis was conducted by the main authors of the country case study as per the WHO recommendations to improve the recruitment and retention of health workers in remote and rural areas (detailed HR planning is given in the annex. In Bhutan's context, all rural primary health care centres are staffed by HAs; therefore, the narratives of the findings summarized below specifically revolve around HAs in rural/remote areas as a successful working model in Bhutan.

A. Educational interventions

The reliance on a single country-based university provides an opportunity to have uniformity in the level of skills and expertise as per the competency requirements of the health services, in accordance with the disease burden. The main educational intervention that has a direct impact on the rural workforce is the training of HAs, which began in 1974. Since then, there has been a steady production of HAs who served in the country as the only heath workforce. The University also started a two-year upgrade to Bachelor's in Public Health (BPH) course in 2011. This was an opportunity for HAs to upgrade their qualifications and move further up the career ladder. Some HAs, upon completion of professional upgradation, were posted as DHOs or programme officers in the MoH. Further, the MoH and KGUMSB are also developing online courses for health workers to update their knowledge and obtain continuing medical education (CME) credits.

B. Regulatory interventions

The regulation and governance of the health workforce in Bhutan is mainly based on a countrywide, systemwide approach. There is little specific focus on the requirement of specific cadres to work in rural areas for designated periods, other than the dedicated HA's role. All categories of health workers with a Bachelor's degree wishing to join as government employees must pass the Royal Civil Service Examination (RCSE). This category includes medical doctors, dentists, pharmacists and technologists, among other professionals, and their deployment in rural or urban settings is based on the marks obtained in the RCSE. As noted above, health

workers educated in Bhutan are required to work in the public sector for twice the time period of their education.

The Bhutan Medical and Health Council (BMHC) was established in line with the Medical and Health Council Act of the Kingdom of Bhutan 2002 *(12).* The Council envisions the "best health care delivery by competent medical and health professionals". All the Council's regulations aim at improving and sustaining quality services by ensuring that health professionals meet the minimum competency level and ethical standards. Health workers are registered and licensed after evaluation of their degrees and certificates.

All health professionals are required to earn a minimum of 30 credits in 5 years, based on which their registration will be renewed by BMHC. CME credits can be earned by attending training and workshops related to their profession *(13).* The Council is also responsible for ensuring the quality of medical and health education imparted by the universities and private institutions. The BMHC can enforce the deployment and retention of health workers trained in rural health at the BHU.

The service standards of the MoH govern the deployment of human resources in different categories of health facility. The current service standard sets a need for three HAs per BHU inclusive of at least one female HA in the team. This requirement was stipulated as per the demand of women in the community, who prefer a female HA for their maternal and child health services. Although this is required as per the standards, there is often a shortage of staff, and therefore the standard is not always met.

Although standards are set, the country is yet to reach to the set standard, as indicated in Table 2.

Table 2: *Percentage and number of health facilities with HAs*

Indicators	Number	%
No. of BHUs with 3 HAs	17	7
No. of BHU with 2 HAs	130	55
No. of BHUs with only one HA	77	32
No. of BHUs with at least one female HA	134	57

Source: HMIS & MoH administrative data

The MoH, in collaboration with the BMHC, conducts the registration examination for the supervisor- and support-level health staff (health workers who have a diploma or lower-level qualification). As mentioned earlier, all categories of health workers with a Bachelor's degree wishing to become government employees must pass Bhutan Civil Service Examination conducted by the Royal Civil Service Commission (RCSC) *(14).*

If candidates clear the examination, they are deployed in health facilities based on their merit ranking and on the availability of a vacancy. Once posted, they have to serve for a minimum of three years before any further transfer can be initiated.

As per the Bhutan Civil Service Rules and Regulations 2018, civil servants in rural areas are provided with preferential incentives for promotion, training and scholarships. Service in rural area(s) is given an additional 5% preferential weightage. In addition, during the selection interview for promotion or training, a candidate with rural service is given a preferential addition of 5 points out of 100 as compared to a candidate who has not served in any rural posting.

C. Financial incentives

The remuneration and allowances of civil/public servants must be reviewed by the Pay Commission and approved by the Parliament. Health workers are considered within the broader designation of civil/ public servants *(15).*

Currently, a range of financial packages is given to civil servants posted in rural areas. Civil servants are entitled to a difficulty allowance of Nu. 2000 (US$ 28) per "dholam" (1-day walking distance of a horse) subject to a maximum of Nu. 10 000/- per month; high altitude allowance of Nu. 2000/- per month for places between 10 000 feet and 12 000 feet; and Nu. 3000/- per month for places above 12 000 feet (Table 3) *(16).* The Pay Commission has already been constituted, and the MoH has proposed additional allowances for health workers, particularly for clinical staff.

Table 3: *Medical and health professional allowances source: Ministry of Finance, Financial Regulation)*

Allowance	Existing	Remark
Medical allowance	10%–40% of basic pay	This is provided to all clinical health workers to retain the health workforce in clinical areas. The amount varies according to the qualification and number of years in service
High altitude & difficult allowance	Nu. 2000 and Nu. 3000 per month, depending on altitude	Health workers working at very high altitudes and in extreme cold climatic conditions and people who serve in very remote areas
Nursing dress allowance	Nu. 4500 per year	All health workers, particularly nurses, must compulsorily wear a uniform

Source: WHO, The Kingdom of Bhutan Health System Review, 2017

In addition to the allowances listed in Table 3, civil servants are entitled to travel allowance and daily allowance (TA/DA), when they have to travel a distance more than 10 km from the duty station; HAs need to make many travel plans for ORCs, health promotion activities and professional development activities; the additional travel allowances that this triggers can add a significant proportion to the overall earnings. The travel allowance may sometimes constitute more than the actual monthly pay and is often cited as a motivation to stay in rural areas. Further, the high living cost and shortage of rental housing in urban areas is another reason cited by many HAs for continuing to serve in rural health facilities.

D Personal and professional support systems

Bhutan has seen rapid socioeconomic growth with visible developmental activities across the country. Over 95% of the communities have basic amenities such as roads, telecommunication services, including mobile phone connections, electricity and educational facilities (Table 4) *(17,18).*

Table 4: *Increase in basic amenities between the years 2010 and 2017*

	2010	2017
All roads (km)	8 366.2	18 181.3
No. of electricity consumers	95 500	182 500
Mobile phone subscriptions	389 118	730 623

In addition, unlike many other civil servants in rural areas (e.g. teachers), workers in most BHUs have access to housing within the health facility compound. This may be a major incentive to work in rural areas, given that there is a major housing shortage in the urban areas of Bhutan, coupled with house rent inflation. Workers in rural areas also receive 100 units free electricity from the government to prevent the use of wood-based fuel. The availability of a kitchen garden along with staff quarters can be an additional motivation for a peaceful and healthy rural life.

Furthermore, over the past decade, the government has established Early Childhood Care and Development (ECCD) facilities for children. In the past, these facilities were available only in urban areas operated by private individuals. The opening of ECCDs in rural areas has provided working parents with a place to leave their child in the ECCD while they are at work. Health workers enjoy good social trust and respect from the community, which may be of added value in rural retention.

Bhutan prides itself in having a functional health system down to the lowest health-care delivery system. All basic health facilities have more than 95% of essential drugs and other medical consumables and equipment available throughout the year. They are also supported by an effective referral system and backed by emergency helicopter services and mobile health camps.

These mobile health camps are regularly conducted by teams from the referral districts, RRHs and the NRH to provide specialized services. The camps include basic eye, dental, ENT care to operations. In addition, a team from His Majesty's welfare health camps moves across the country on a periodic basis providing specialized services and supporting health workers in taking care of patients who cannot come for referral treatment to higher health facilities. All these provide professional satisfaction while working in rural areas.

3. Successful interventions to improve retention of health workers in rural/remote areas

The *sui generis* of the successful primary health care of Bhutan is the functional BHU manned by HAs. The HAs serve the rural and unreached population of Bhutan and provide clinical and public health services. This section focuses on the HA's role as a major "success story" in achieving a well-functioning system dedicated to rural health, with a historically high retention rate.

3.1 Health assistant's training

HAs have a formal three-year qualification of Diploma in Community Health from the KGUMSB. Selection of students is based on their academic performance in 12th grade. All Bhutanese students apply via an online selection system to the university and students are selected based on their merit and preferences. There is a gender preference to recruit sufficient females to keep in line with the government policy to post at least one female HA per BHU. On average, the intake of HAs by the Faculty of Nursing and Public Health (FNPH) is about 25 students per year and 50 students for the General Nursing and Midwifery course.

The selected students at the KGUMSB undergo a one-year foundation course, during which they are equipped with basic science knowledge, communication skills, computer skills, etc. Upon successful completion of the course, students choose from various diploma courses, including Diploma in Community Health, Diploma in Technician courses (Pharmacy, Dental, X-ray and Laboratory) on merit basis.

The Diploma in Community Health stream is more popular among students. This is because, compared to other diploma courses, there is a relatively good intake by the MoH, and the HA gets an opportunity to work in communities independently with good career and professional development opportunities. The HA also has better opportunities to become a DHO and to move to the MoH as a Programme Officer and health leaders.

During the three-year course, trainees are taught theory and get on-the-job clinical practice in all aspects of competency required to function independently at the BHU.

The three-year diploma aims:

- to develop clinical skills in diagnosing and providing prompt treatment of common health problems to adults and children;
- to enhance knowledge of human pregnancy and provide women- and family-centred midwifery care;
- to communicate effectively with individuals, families, communities and other members of the health team;

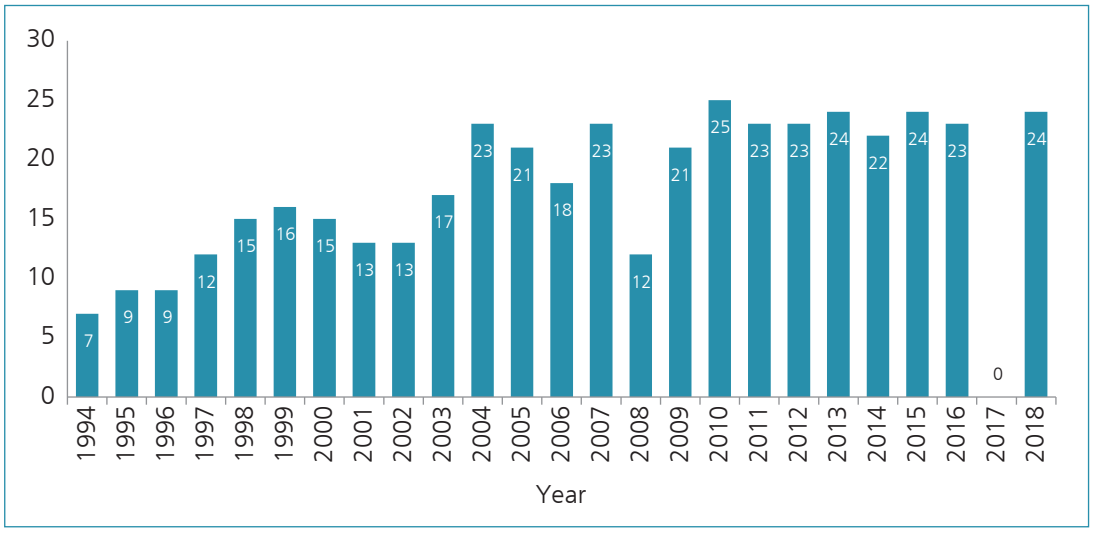
- to have multisectoral collaboration with other sectors in achieving well-defined health goals of the country;
- to understand the research process and apply it in relation to the delivery of health-care activities;
- to develop leadership qualities in the initiation of change and decision-making;
- to inculcate skills to practise within a framework based on a code of ethics for health workers and the government's regulations.

3.2 Targeted recruitment and deployment

There are no private health-care services in Bhutan, apart from retail pharmacies and a few diagnostic centres. Therefore, the KGUMSB's intake of students for a Diploma in Community Health is determined by the requirements of the MoH and by the capacity of the faculty to deliver quality training (e.g. number of faculty numbers, classrooms and other amenities, capacity for field practicum, etc.).

As shown in Figure 3, in 2018, there were 24 HAs (14 female and 10 male) who graduated from KGUMSB. The reason there were no graduates in 2017 was attributed to upgradation of the two-year certificate course to a three-year Diploma course in 2015.

Figure 3: *Number of HA graduates from KGUMSB*



Source: KGUMSB administrative data

After graduation, the MoH, in collaboration with the BMHC, conducts a registration examination. To date, all graduates have been able to pass the annual registration examination and have been employed by the MoH. Based on the registration examination marks and the availability of vacancies, new staff is deployed by the MoH in health facilities. HAs are mostly posted in the BHUs and, occasionally, if there is a vacancy, they may be posted to the hospital and community units of the hospital. HAs can have career options such as DHO and Programme Officer in the Ministry after qualifying for Bachelor in Public Health, and being selected through the RCSE Examination.

There has been an increasing demand for female health workers in BHUs-II to provide maternal and reproductive health services in the communities. However, the MoH faces challenges in deploying and retaining an adequate number of female HAs in rural areas. About 30% of BHUs do not have female HAs. The HRH targets for the 11th Five-Year Plan (2013–2018) were: to have 100% of districts with three medical officers each, a nurse-to-bed ratio of 1:6, 100% of BHUs-II with three health workers each, 100% of BHUs-II with one female health worker each (*19*).

In line with the HRH targets, deploying at least one female HA was included in the Ministry's Annual Performance Agreement (APA) 2017–2018. However, the Ministry's Annual Performance Appraisals (APA) indicator to post one female HA in every BHU-II could not be fulfilled. Most of the transferred female HAs were not willing to go on transfer due to their family, health and personal commitments. Some were retained due to their specialization training, e.g. in the intensive care unit (ICU), in dialysis and the operation theatre (OT).

During the 12th Five-Year Plan, with the objective of improving access to quality health-care services that are inclusive, responsive and equitable, the Ministry plans to deploy female HAs to 68% of BHUs-II in the first year, 70% in the second year, 75% in the third year, 80% in the fourth year and 85% in the final year of the planned period. Female students will be given preference during the application process at the KGUMSB to achieve this goal.

3.3 Professional development and career path

As HAs are the key health staff in rural communities, they have more opportunities for continuous professional development through meetings, training and workshops. The MoH and district health sector conduct a series of workshops/meetings/training in all relevant topics, including community engagement, health promotion, mental health and immunization to clinical subjects, particularly when treatment and management guidelines have been revised.

All HAs are civil servants and governed by the Royal Civil Servant Rules and Regulations for promotion, transfer, training and other benefits. As per the Regulations, they can get promotion within 2–4 years, depending upon their performance. A comprehensive evaluation is done on an annual basis and HAs with a Diploma in Community Health can get promoted up to position level 2 (P2).

As per the need of the Ministry, some HAs are also transferred as programme officers in the Ministry, as DHOs and assistant district health officers to the community health units of hospitals. This progressive career path has been reported as one main reasons why the HA course at the KGUMSB and working as an HA have been popular.

3.4 Basic health unit and services: the role of the HA in the team

As the service standard of the MoH, the HA at the BHU is required to perform the clinical, public health and administrative work of the BHU. Their services range from general services, maternal and child health, basic clinical services (dermatology, medicine, mental health, dental care, forensic services, etc.) and public health services. They also carry out basic laboratory

services, including microscopy for tuberculosis (TB) and malaria to rapid HIV diagnostic tests and water quality testing.

There is at least one BHU in each *gewog*, which is at the block level of jurisdiction. Each *gewog* has around 400–500 households with about 2000–3000 population. In each BHU, there are at least two trained HAs, although some BHUs may have three HAs as per the service standard.

HAs are the main providers of public health and primary health care at the doorstep of the rural community. They are supported by the VHW, who is a lay health worker selected from the community to serve the community. Due to the specific nature of the health systems set up in Bhutan, the retention of HAs in rural communities has not been a major challenge.

Prior to their training, HA recruits are already aware about, and committed to serving in, the rural health setting. Nonetheless, the Royal Government of Bhutan, in its endeavour to improve the quality of health-care services, has initiated various measures that are expected to improve the availability, accessibility and acceptability of quality human resources in general but, more particularly, in rural areas.

The government has initiated an e-health system and developed an e-health strategy *(20).* The current web-based District Health Information System 2 (DHIS2) was introduced in 2014, as the platform to collect and compile information on disease morbidity and mortality from all health facilities. It has been rolled out to all hospitals and BHUs. Most BHUs are supplied with at least one desktop computer and a printer. A web-based mother and child health tracking system was incorporated in the DHIS2 in 2016. This system is designed to track pregnant women, mothers and children to ensure that they receive antenatal care during delivery and postnatal care on time. All health workers from BHUs have been trained to correctly report in the system. The system is expected to reduce the workload of health workers in manual reporting and enhance the tracking of pregnant women, mothers and children.

4. Conditions for success and future plans for interventions to improve HRH retention in rural/remote areas

4.1 Conditions for success

Bhutan is a stable country with thriving political systems, a growing economy. The people have utmost veneration of the King, who serves the people with humility. Unity, stability and progress have been the strengths of the nation, which underpin the successful implementation of government policies, development activities and investment. The country's development philosophy of GNH, rather than mere economic growth, has provided a platform to advocate for the health and well-being of the people. This national policy framework has facilitated the government and the MoH in developing health systems that are rural-centric with a strong focus on the primary health care system.

The conditions for the success of the rural health system in Bhutan can be attributed to the following:

- HAs are mentally prepared and accept that they will be required to work in the BHU prior to opting for training at the KGUMSB.
- The curriculum and training at the KGUMSB is based on the competency requirement to function as an HA and serve the population in rural Bhutan.
- There are good support systems at the BHU to enable the HA's role to be effective, including availability of medicines and other basic facilities to manage and treat patients at their professional level, as well as good emergency services for referral, if the medical condition is beyond their capacity to manage.
- As compared to most health workers with equivalent qualifications, HAs have a more attractive career pathway, with good opportunities to advance professionally.
- The HA's work requires that they go to the community for ORCs/household activities and they are also required to participate in many meetings/training/workshops, which not only give them professional satisfaction but also provide additional remuneration.
- Most BHUs have a good working environment, with staff quarters, kitchen garden and beautiful compound, and other basic amenities.
- Working to improve the health of a rural community provides HAs with social value, status and trust among the community.

4.2 Plans for future interventions

However, with rapid development and urbanization, there is an increasing demand for quality health care, where people prefer health workers with higher qualifications and greater use of technology, which may challenge the current system of health-care delivery. This may force the government of the day to promise the people "better" care and not necessarily cost-efficient care.

As the burden of NCDs increases, the HA's role in the prevention and care of NCDs will increase and may need to expand. Already, most of the HAs are trained in the WHO Package of Essential NCD interventions (PEN) and supplied with a glucometer and medicines to manage non-complicated hypertension, diabetes and promotion of a healthy diet and lifestyle. Further, the government is planning to equip BHUs with basic laboratory and ultrasound facilities, and trying out modalities for sending blood samples to higher laboratory facilities. BHUs can also indent medicines through referral and district hospitals on a named patient basis for drugs that are not available at the BHU.

For example, if there are patients with chronic illnesses in the community, the BHU can indent medicines for these patients and deliver them without the patients needing to travel to the higher health facility. All these are done to provide patient-centred health-care services. Currently, team-based patient-centred NCD services are being piloted in two districts. This model of improving patient care, the referral system, proactive patient follow up and building the team through mentoring and coaching will be expanded after piloting in these two districts of Punakha and Tsirang.

Over the past three elections, health service improvement has been on the agenda and the people demanded good health services, including posting of medical doctors in their constituencies. These have put pressure on political parties and leaders. In the 2018 election, Druk Nyamrup Tshokpa won by pledging to provide good health-care services right at the community level, with deployment of medical doctors and diagnostic services at the BHU *(21)*. This may require a significant shift in policies and the human resource recruitment and deployment strategy.

Further, the MoH is in the process of drafting a Health Bill, which will be put to Parliament for enactment of the Health Act. The Bill empowers the MoH to act as the nodal agency for implementing and developing regulations. The implementation of the Act may see an unprecedented transformation of the health-care delivery system, with the MoH using full legal power to transform health systems.

While the positive energy thrives for the betterment of health-care systems in Bhutan, there is a risk of adding stress on the primary health care system, which has been successfully implemented thus far. The posting of medical doctors may undermine the social status of HAs in the community and, consequently, they may not have the motivation to perform. Further, qualified medical doctors may not be willing to stay in rural areas and may move to areas where there is more opportunity, unless proper incentives and services are instituted. These would, in turn, pose significant new challenges in rural health workforce retention, particularly in relation to more qualified medical doctors.

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INDIA (CHHATTISGARH STATE)

Case study on health workforce rural retention

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1. Background and context

India has a federal structure, with powers and subjects distributed between the states and the Centre or Union Government. Public health is a state subject as per the Constitution of India, which means that the primary responsibility for it lies with the state government. The Central Government can make laws and provide the overall framework for public health services.

Chhattisgarh is a relatively new state, carved out of Madhya Pradesh (MP) in 2000. A predominantly rural state with 77% of families living in rural areas *(1)*, it is also called a "tribal state" as around one third (31%) of its population consists of tribal or indigenous communities, categorized as scheduled tribes (ST) *(1)*. Another 13% are from the scheduled caste (SC) category, which is also a highly marginalized group. Chhattisgarh is very rich in mineral, forest and other natural resources, with 41% of its geographical area consisting of forests *(2)*.

1.1 Health situation and trends

In 2000, the newly formed state of Chhattisgarh was almost at the bottom among the Indian states in terms of health indicators but has subsequently reached close to the national average in mortality indicators. Chhattisgarh has achieved a faster improvement in infant mortality rate (IMR) compared to the national average. Chhattisgarh's IMR was 79 per 1000 live births in the year 2000, the year of the state's formation. By 2008, it had declined to 57 per 1000 and then to 38 per 1000 in 2017 *(3)*. This represents a decline of 52% from the year 2000 to 2017. At the national level, the IMR fell from 68 to 33 per 1000 from the year 2000 to 2017, a decline of 42%.

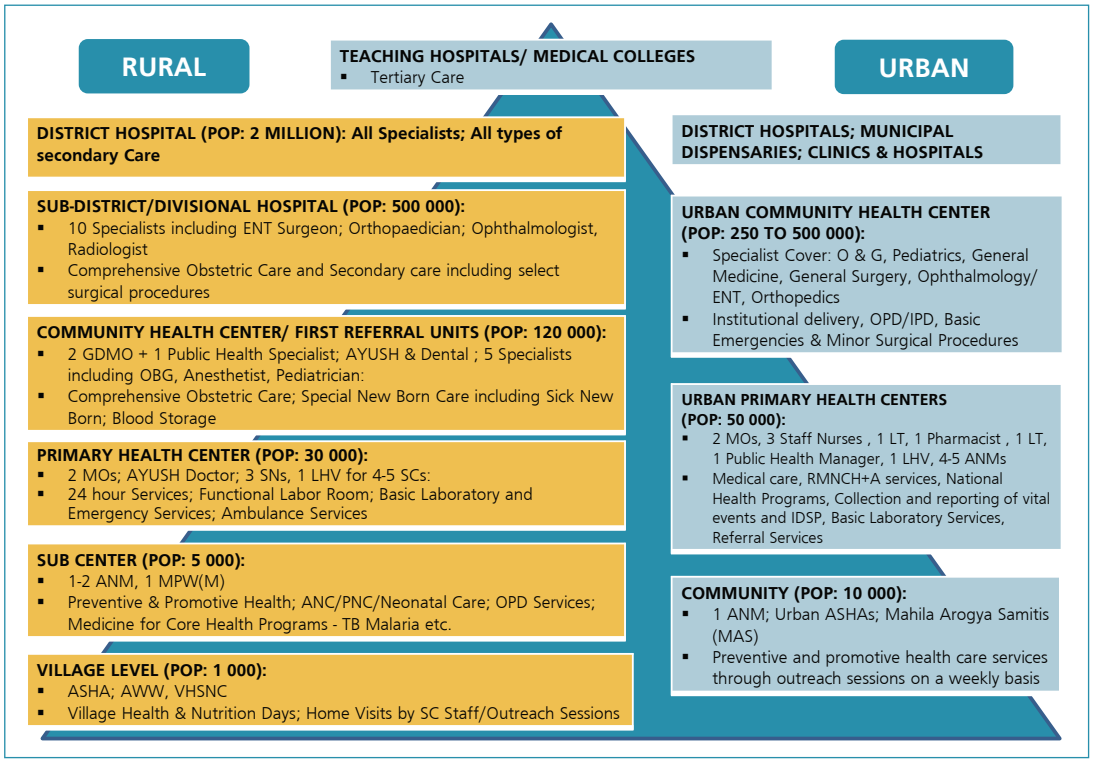
Similarly, the maternal mortality ratio (MMR) in Chhattisgarh declined from 269 per 100 000 live births at the earliest available measurement in 2007–2009 to 141 per 100 000 live births in the 2015–2017 period *(4,5)*. The national MMR in the corresponding periods was 201 and 122, respectively. Thus, Chhattisgarh achieved a decline of 48% in MMR over the eight-year period as compared to 39% at the national level. Life expectancy (at birth) in Chhattisgarh was 65.2 years in 2013–2017 while it was 69.0 years at the national level *(6)*.

Chhattisgarh is experiencing an early epidemiological transition. While it still has a significant prevalence of infectious diseases, the burden of noncommunicable diseases (NCDs) has been increasing. NCDs are now the leading cause of mortality in the population above the age of 40 years, with 33.5% deaths due to cardiovascular diseases and 11.6% due to cancer *(7)*. Hypertension, diabetes, sickle cell disease and epilepsy are among the key challenges faced by the health system of Chhattisgarh along with tuberculosis (TB), leprosy, diarrhoeal diseases, respiratory infections and vector-borne diseases. The state continues to face challenges in improving emergency obstetric care and facility-based neonatal care. This situation has posed new demands on its health system, including on the human resources for health (HRH).

1.2 Health system in Chhattisgarh

The government health system in India has an overall uniform structure, with adaptations by the states as per their requirements (Figure 1). The structure of the public health system extends from the village level (community health worker) to primary-level health-care provisioning and subsequently to secondary and tertiary levels of health-care provisioning in the public sector. The structure differs slightly for rural and urban areas.

Figure 1: *Organogram of the government health system in India*



Source: developed by DS Mairembam

India faces shortages of HRH, with more severe shortages in rural and remote areas *(8)*. Inequity in health and access to health services is seen across the state, determined by geography, socioeconomic status, gender, class and social group (ST and SC communities) *(9)*. Being one of the more rural and remote states in India, the shortages in HRH are more pronounced in Chhattisgarh.

Soon after the formation of the state, realizing that a lot needed to be done in terms of improving health-care provisioning, the state launched a series of health reforms aided by the European Union (EU), civil society organizations and the Central Government *(10)*. Though there is no one document outlining the health workforce strategy, Chhattisgarh has launched a number of initiatives that attempted to address the issues of the health workforce. These will be discussed in subsequent sections.

The National Rural Health Mission (NRHM), introduced by the Central Government in 2004, and now renamed as the National Health Mission (NHM), has provided the overall policy framework for HRH at the state level. The NHM has led to expansion and improvements in medical, nursing and technical education, and provided opportunities for more flexible and innovative measures to recruit and retain the health workforce *(11)*.

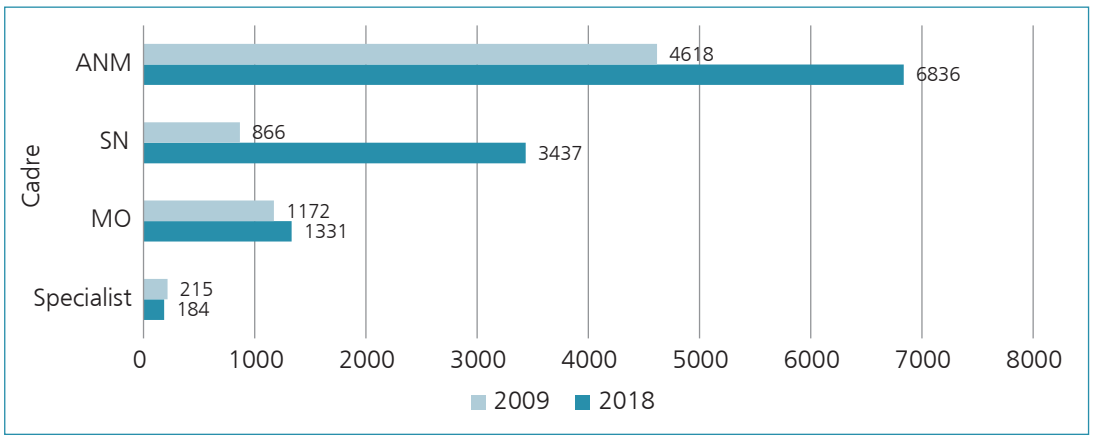
1.3 Overall HRH issues in Chhattisgarh

Chhattisgarh has always faced severe gaps in the health workforce. The districts that made up the new state were themselves considered as "remote" within the undivided MP state and therefore historically the area has faced neglect. At the time of its formation, it faced numerous challenges, one of the most severe being that of lack of skilled human resources (HR), including for health. Until then, most of the higher education facilities were concentrated in Bhopal, the capital city of MP and other cities of the state. The absence of higher education facilities meant that when the state was formed, it did not have enough local health professionals available and, moreover, people from other parts of MP state were not willing to join the new state service.

A study undertaken in 2003 on issues of workforce management found that inadequacy of staff, especially at the levels of primary health centres and higher, lack of training and clarity of roles, issues in the transfer and promotion policy, and problems in accommodation and personal security constrained health service provision *(12)*. Additionally, geographical spread of villages, inadequate health infrastructure, equipment and drugs exacerbated the situation *(12)*.

The availability of health personnel in most of the cadres in the health system has improved since the state was formed, as seen in the difference in the numbers posted in 2009 and 2018 (Figure 2). Despite improvements, huge gaps still remain between the number of health personnel required and the number actually posted. The 8th Common Review Mission (CRM is undertaken annually by the Ministry of Health and Family Welfare) highlights the implications of shortages of doctors and other health staff for the provision of universal and quality health care to the people of Chhattisgarh. It states: "despite scaled up efforts, shortage of specialists and doctors still remains an impediment to providing universal access to quality health care" *(13)*.

Figure 2: *Difference in number of health personnel posted in Chhattisgarh in 2009 and 2018*



Source: Annual Administrative Reports, Department of Health and Family Welfare, Government of Chhattisgarh (2010 and 2019) *(14)*; NHM PIP, Chhattisgarh (2010–2011 and 2019–2020) *(15)*

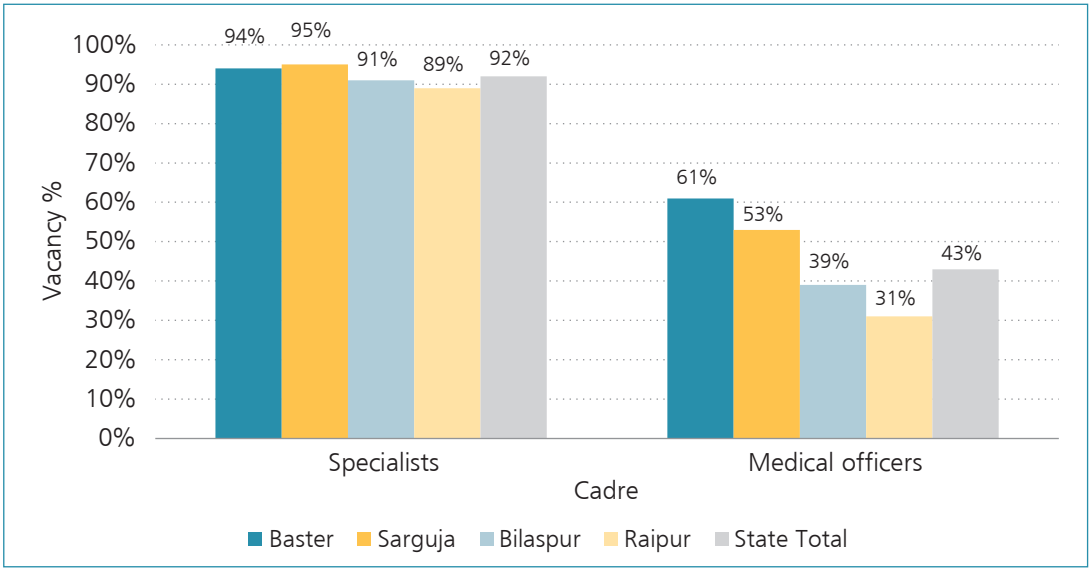
Medical officers and specialists

Currently, there is one doctor per 15 000 population in the state. Around one fourth of the medical officers (MOs) and 19% of specialists currently posted are women, highlighting great gender disparity among government doctors. In terms of social group, 32% of MOs and 23%

of specialists are from the ST category or indigenous tribal groups. Sixteen per cent of MOs and 17% of specialists are from the SC category, which is another marginalized group.[4] The proportion of ST and SC doctors in the government is similar to their proportion in the state's population and this representation is made possible to a great extent due to reservations in medical education and employment.

Overall in the state, the shortage in HR is greater in the cadre of specialists than MOs. The state has a 92% shortfall (vacancies) of specialists and a 43% shortfall (vacancies) of MOs (Figure 3).

Figure 3: *Vacancy (%) of specialists and medical officers in four divisions of the state*[4]



Auxiliary nurse midwife (ANM) and staff nurses

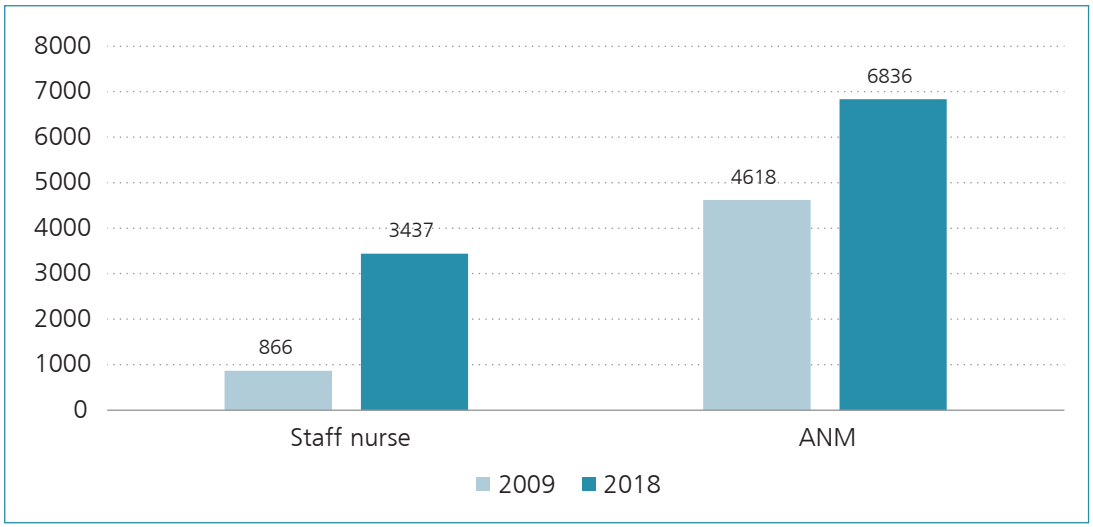
There has been an increase in the number of staff nurses and ANMs recruited to the public health system (Figure 4). However, shortages still persist *(16)*.

There are a large number of nursing cadres and ANMs available within the state.[5] There is capacity in the state to produce 6635 nurses annually (GNM – 2855 and BSc Nursing – 3780). Between 2013 and 2018, 24 195 nurses were registered with the State Nursing Council.[5] A study undertaken with the objective of identifying gaps in the nursing workforce in Chhattisgarh has raised concerns regarding shortages in all nursing cadres, inadequate and poor quality of nursing education, weak management, and poor promotion policies and discontinued cadres such as midwives and public health nurses *(17)*. In the coming years, nurses are slated to play a major role as mid-level health-care providers (MLHPs) in the newly introduced health and wellness centres.

4 Draft presentation on the Health Labour Market study in Chhattisgarh. State Health Resource Centre, Chhattisgarh and WHO India Office, 2019.

5 Draft presentation on the Health Labour Market study in Chhattisgarh. State Health Resource Centre, Chhattisgarh and WHO, India Office, 2019.

Figure 4: *Increase in availability of staff nurses and ANMs in the public health system between 2009 and 2018*



Source: *(14), (15)*

Mitanin community health workers (ASHAs)

The Mitanin Community Health Worker programme was initiated in 2002 with the aim of providing preventive, curative and promotive services closer to the people, reducing alienation of the community vis à vis the public health system, especially in rural areas, and facilitate community empowerment *(10)*. The Mitanin programme has achieved improvements in health outcomes and facilitated community action around monitoring of health services and the social determinants of health *(18–20)*.

A career progression strategy has been developed for the mitanins, in which eligible mitanins are provided scholarships for undergoing ANM, General Nursing and Midwifery (GNM) and BSC Nursing training and then recruited by the government in their respective districts. Currently, 1500 mitanins have been trained as ANMs, 200 as GNMs and 25 in BSC Nursing. Out of these, 700 ANMs, 20 GNMs and all 25 BSC Nursing graduates are in government service.

A study conducted in 2015 revealed the progress and challenges in implementing this policy *(16)*. The study found that 82.4% of the 1351 mitanins trained as ANMs were from 14 left wing extremism (LWE) districts. Of the ones who had been recruited as ANMs, most were serving in LWE districts. The ones who were employed as ANMs reported having economic stability, work satisfaction, participation in family decision-making, increase in social status and self-confidence. However, they reported facing discrimination during their training course. The biggest problem that still persists is that a large proportion (around 60%) has not yet been recruited. The government has not yet developed any policy to recruit the trained cadre that has emerged from the Mitanin programme proactively, despite its obvious benefits.

1.4 HRH issues in remote/rural areas

In Chhattisgarh, considerations such as the percentage of the rural population, geographical spread, tribal population, conflict-affected areas, means of access, are often taken as indicators for categorizing areas as rural and "remote". The NHM considers an area with a population of 50 000 and below as rural and anything above that comes under the urban health programme.

The challenges and shortages of HRH enumerated in the previous section become more severe in the rural and remote areas of the state. Chhattisgarh is divided geographically into five divisions – Sarguja, Bilaspur, Raipur, Durg and Bastar. Of these, the Sarguja and Bastar divisions consist of predominantly tribal blocks that also face a higher burden of communicable diseases. The shortage of HR and especially of MOs and specialists are found the most in these two divisions (Figure 3). Additionally, shortages are also severe in the new districts created in the other three divisions – Raipur, Durg and Bilaspur.

In Bastar division, most of the districts are affected by long-drawn armed conflict between the state and LWE districts *(21)*. These districts have always faced challenges of geographical remoteness and underdevelopment, including shortages of infrastructure and HR. The conflict has exacerbated challenges in health care and access in these districts. It has created further barriers in infrastructure development, especially of roads and telecommunications. Community outreach in remote villages has reduced due to reluctance among the health workforce to travel to those areas.

2. Policy interventions to improve retention of health workers in rural/remote areas

The state has adopted various policies to attract and retain HRH. The policies are discussed below. Further details are provided in the template in the annex.

A. Educational interventions

The policy intervention that had a significant effect is the three-year medical diploma course introduced to prepare medical personnel for rural and remote areas in 2001. This initiative is described in Section 3. There are national- and state-level norms for reservation of seats for vulnerable social groups such as ST, SC, and Other Backward Classes (OBC) for all medical courses. Coaching institutes and scholarships for students from vulnerable social groups and rural/remote areas have been introduced in the state so that they get admission in higher education, including medical education. For instance, coaching institutes such as Prayas educational institution in Dantewada district and Sankalp in Jashpur district have been set up.

B. Regulatory interventions

Recruitment of assistant medical officers (AMOs), previously known as rural medical assistants (RMAs), who have done the 3-year medical course, has led to improvement in services in rural and remote areas. Multiskilling training for emergency obstetric care (EmOC) and life-saving anaesthesia skills (LSAS) is being done in the state, and a cadre of mid-level health-care providers has been introduced. Bonds mandating rural service for MBBS and postgraduate doctors and marks for admission to a postgraduate degree in lieu of service in rural and remote areas have had a significant impact.

C. Financial incentives

The Chhattisgarh Rural Medical Corps (CRMC) was introduced in 2009 to address the issue of lack of HR, especially of doctors, specialists and nurses in rural and remote areas. Additional efforts have been undertaken in Bijapur, Dantewada and Sukma districts. Both these initiatives have been detailed section 3.

D. Personal and professional support systems

The process of improving living conditions and ensuring a supportive work environment for health personnel is ongoing. It has been accelerated in a few districts, which is discussed in section 3. There are some efforts to provide training to existing health personnel on specific skills.

Section 3 gives details of three of these policy interventions, which have had a significant impact: (i) three-year medical course; (ii) Chhattisgarh Rural Medical Corps (CRMC); and (iii) initiative to improve the availability of MOs and specialists in LWE-affected districts.

3. Successful interventions to improve retention of health workers in rural/remote areas

3.1 Three-year medical course and incorporating RMAs/ AMOs into government service

Soon after formation of the state, a three-year medical diploma course (initially called Practitioner in Modern and Holistic Medicine) was started in 2001. The course aimed to train medical personnel with the hope that they would go to the villages and towns to serve, thereby reducing the gap in workforce availability in underserved and remote areas. However, the course was suspended after 2004 due to various legal and political reasons *(22)*. The course could not be certified by the Medical Council of India or by the Chhattisgarh State Medical Council as per existing law *(22)*. By then, quite a number of students had graduated or were in the process of graduating, but they would be unable to practise medicine independently.

In 2008, the state took the decision to incorporate the course graduates into the government health system as rural medical assistants (RMAs), later designated as assistant medical officers (AMOs), to provide health care mainly at primary health centres (PHCs). They underwent a 10-day refresher training at CMC Vellore, a premium medical institution, with facilitation from the State Health Resource Centre. The AMOs were initially recruited under contractual employment through the NHM. In 2013–2014, the state government created one regular post for the AMO in every PHC.

Table 1: *Availability of AMOs (RMAs) in the public health system*[6]

Type of post[6]	Contractual post	Regular post	Total
2008–2012	1228	0	1228
2018–2019	596	615	1211

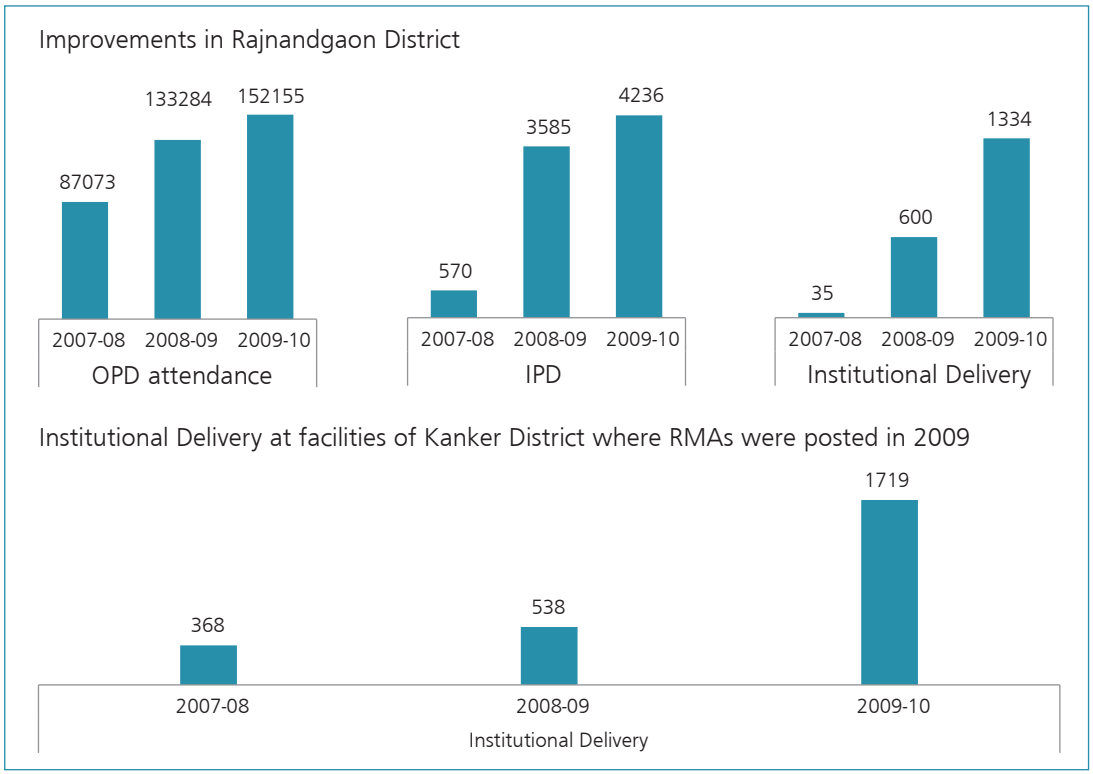
Source: Annual administrative reports, DHFW, Government of Chhattisgarh *(14)*

Recruitment and posting of the AMOs at PHCs have led to many PHCs becoming functional after many years and improved provision of primary health care services in rural and remote areas *(22)*. Evaluations found that the issues of shortages and retention of HR, especially in remote areas, including the gap in MBBS doctors, had been somewhat filled by the RMAs and doctors from AYUSH *(23)*. Posting AMOs at PHCs led to an increase in provision of various clinical services (Figure 5). In terms of quality of care, a study found that MOs and RMAs were equally competent *(24)*.

6 Regular posts are appointments of permanent employees of the health department. Contractual posts are those that are appointed on one-year contracts. Recruitment rules and remuneration policies are different for both.

AMOs are now providing support to the newly developed health and wellness centres (HWCs) as MLHPs. Due to their presence, Chhattisgarh has been able to accelerate progress towards implementation of the HWCs.

Figure 5: *Illustrations of improvement in services after AMOs were posted at PHCs*



Source: *(25)*

3.2 Chhattisgarh Rural Medical Corps (CRMC)

The Chhattisgarh Rural Medical Corps (CRMC) was initiated in 2009 in order to attract and retain the health workforce in rural, remote and conflict-affected areas of Chhattisgarh state. This policy emerged out of the crisis in availability of HR in these "difficult" and "inaccessible" areas *(26)*. This scheme incentivizes specialists, medical officers, assistant medical officers, nurses working in health facilities according to "difficulty" and "inaccessibility" *(26)*. Financial incentives are provided as well as additional marks for admission into a postgraduation course after two years of service *(27)*.

The policy was developed jointly by the State NRHM (NHM) unit, State Department of Health and the State Health Resource Centre (SHRC) and proposed to the NHM in the Chhattisgarh state Programme Implementation Plan (PIP) of 2009–2010 *(15)*. The proposal was approved by the NHM and it has been funding the scheme. The objective of the policy was to attract and retain the health workforce in "inaccessible" and "difficult" areas of the state. The initial grading of facilities was revisited in 2011–2012 when the National Health Systems Resource Centre provided a standardized protocol to grade the facilities *(28)*. The tool set out four themes that had various criteria as indicators. The themes are Accessibility; Environment: Social and Natural; Housing and Family Amenities; and Vacancy Assessment *(26)*. Marks were given to each facility

as per the indicators and then consolidated. Then they were graded according to percentages as "rural not remote" (not incentivized), "difficult", "most difficult" and "inaccessible" *(26)*.

The CRMC was conceptualized as a comprehensive incentive package that was to provide financial and non-financial incentives. The financial incentives are provided as per the grade of a facility after evaluating the performance of the health facility, and marks for postgraduate admission given as per the length of service of the health staff *(29,30)*. For specialists, the incentive ranges from INR 30 000 (US$ 438) to INR 40 000 (US$ 584) per month, depending on the type of area *(29)*. For MOs, the incentives range from INR 20 000 (US$ 292) to INR 35 000 (US$ 511) per month.

The actual monthly amount of financial incentives to be distributed is subject to performance appraisal. Initially, the performance indicators included the number of services to be provided monthly at the facility. An evaluation of the CRMC in 2014 found that such an appraisal system unduly penalized individual health personnel for lapses in the overall health systems, such as non-availability of paramedical staff, drugs, diagnostic services, etc. *(26)*. Moreover, it did not capture individual performance of the particular health personnel. Subsequently, in 2017, the state government revised its performance indicators, giving higher weightage to the health staff residing at the place of posting than to performance of the facility *(29)*.

Under non-financial incentives, MOs who have served for a minimum of two years under the CRMC and have cleared the National Eligibility cum Entrance Test (NEET) for postgraduate studies are eligible to get bonus marks for admission. Those who have served in "difficult" areas are eligible for 5% bonus marks for every year served, while those from "most difficult" and "inaccessible" areas get 10% bonus marks per year *(30)*.

All regular staff and most contractual staff are eligible for CRMC incentives. The NHM implements and manages this scheme at the state level. The CRMC facilities are mostly in the northern and southern parts of the state, which are hilly, forested and have a large proportion of tribal populations. It also includes districts that are subject to conflict.

Studies and evaluations of the CRMC have found that financial incentives and bonus marks for postgraduate admission have been instrumental in attracting and retaining the health workforce in rural and remote, and "difficult" areas of the state *(26–28)*. An evaluation undertaken in 2014 found that "since the introduction of CRMC, 1319 health workers had joined CRMC areas in 2010–2011, bringing down the vacancy rate of 90% to 45% across facilities. It had increased to 1658 in 2011–2012, and the majority of the workers were deployed in difficult areas" *(28)*. In 2018, of the 50 postgraduate admissions in the state, 14 (28%) were of those who had got bonus marks due to service in remote areas.

The Ninth CRM applauded the CRMC initiative and said that "provision of performance-linked CRMC incentive package was found to be helpful in retention of skilled care providers in difficult and inaccessible areas in the state" *(31)*. However, studies have also found that implementation gaps were slowing down the progress, such as irregular payments and non-payments that were affecting the morale of the beneficiaries, and inadequate publicity about the CRMC. The evaluation highlighted the lack of supportive facilities such as adequate infrastructure, equipment and staff at the facilities, resulting in a challenging work environment and demotivation of the health workforce *(26)*. Though the CRMC was visualized as a comprehensive intervention, only

the financial incentive and bonus marks for postgraduation were being implemented *(26)*. The Sixth CRM report (2012) recommended that under the CRMC, "incentives to doctors and paramedics are proving helpful but the gradient needs to be increased for more difficult districts like Dantewada. The scheme should be evaluated to improve its performance and assess the adequacy of incentives and the mode and terms of payment" *(23)*.

3.3 Initiative to improve the availability of medical officers and specialists in the LWE-affected districts of Bijapur, Dantewada and Sukma

As discussed above, though articulated as a comprehensive scheme providing a package of financial and non-financial incentives, the CRMC has been operationalized mainly as providing financial incentives and bonus marks for postgraduate admission *(26,27)*. These two aspects have played a very important role in attracting and retaining the health workforce in these areas; however, continuing gaps in the larger health system functioning, lack of residential facilities, etc. have reduced the efficacy of the scheme.

A recent initiative in Bijapur, Dantewada and Sukma (three of the most conflict-affected districts in the state) has been an expansion of the CRMC and implementation of its principles as a comprehensive intervention. This has led to positive results in some of the most "difficult" districts of the state. The following description of the initiative has been developed through review of official documents, programmatic reports, study reports, media reports, interviews of key informants involved in the policy and its implementation, and observations made during visits to these districts and facilities.

Background

The initiative started from Bijapur in 2016 when the Collector (a medical doctor himself) gave a call to specialists and MBBS doctors to join the Bijapur District Hospital at a negotiated salary that was much higher than the regular salaries being given to contractual and regular doctors and specialists. The initiative subsequently spread to the neighbouring districts of Dantewada and Sukma. The districts have made use of a combination of funds from the District Mineral Foundation (DMF), corporate social responsibility (CSR), NHM and the state to finance the interventions.

The DMF is a non-profit statutory trust that is formed in all mining-affected districts to ensure that the interest of local communities is served (CSE, undated) *(32)*. One of the main tasks of the DMF is to manage a fund that is collected through mandatory payments by mining companies operating in the district. The DMF is expected to collect, plan and spend the funds as per stipulated guidelines, according to the need of the district and the mining-affected people *(32)*.

There have been previous attempts to attract specialists and doctors to these districts. In 2009–2010, the Collector of Dantewada district had tried to get doctors by offering them a salary of INR 100 000 (US$ 1460), which was much higher than the usual salaries. In 2013–2014, the district health team in Bijapur went to neighbouring states and made presentations in medical colleges. A team member recalls: "That time roads were bad. We were not successful in getting doctors" (personal communication, Bijapur district health official, April 2019).

The current initiative, from 2016, was initiated by the Bijapur district administration along with the district health team. The state health department and NHM supported the initiative. In 2016, the Bijapur district administration organized a workshop with the deans and representatives of medical colleges from various parts of the country. They were given a tour of the district hospital and tourist spots and they interacted with the local community through a cricket match, as "it was important to change perceptions" (personal communication, district health team interview, April 2019). Subsequently, two gynaecologists and a paediatrician joined. After a lull, the Collector put up the advertisement on social media to which they got many responses. The district officials interacted with interested candidates at great length and invited them to visit the district (personal communication, district health team interview, April 2019). The Public Health Foundation of India also helped the district to contact a few medical colleges.

While this process was ongoing, the district administration prioritized establishing all relevant services and infrastructure at the District Hospital. Once the specialists and MBBS doctors joined, the need was felt for more paramedical staff and therefore staff nurses, laboratory technicians and other necessary staff were recruited using DMF funds. Once the district hospital and maternal and child wing were established, this process was repeated for community health centres (CHCs) and PHCs in the district.

Dantewada and then Sukma districts emulated Bijapur and undertook a similar process. Administrators of the three districts also discussed and fixed the salaries so that they would all make similar payments, so as to not disadvantage any one district. "We saw the Bijapur experience and similarly recruited HR. Then we saw how they improved their hospital, so we are trying to do the same" (personal communication, Dantewada district health official, April 2019).

While the first priority was strengthening the district hospital, subsequently HR has been recruited, transit hostels planned/built, and health facilities upgraded or are in the process of being upgraded at the block CHC and PHC levels. The initial recruitments were for specialists and doctors. Subsequently, staff nurses, laboratory technicians and other staff were recruited.

Aim of the policy

The aim of the policy was to attract specialists and doctors to join health facilities in these districts and, alongside, improve the health facilities so that the people living in the district, including people affected by conflict, could receive services within the district. The goal was to first improve the district hospital and then block-level hospitals. These hospitals used to previously refer most of the patients to higher facilities that were very far off. Therefore, the objective was that these facilities should be able to cater to most of the patients who came there for treatment.

Design of the policy

The initiative includes a bundle of interventions. These include existing provisions and additional elements introduced by the districts. Their implementation differs among the three districts in terms of design and timelines. However, similar principles were followed.

1. Financial incentive – this includes incentives under the CRMC (since 2009) and its evolution into negotiated higher salaries for specialists and MOs. This was part of the NHM national policy to allow flexible salaries for doctors, to be decided by states on their own. Many other states such as Odisha have also made use of the policy in their tribal areas.

2. Bonus marks for postgraduate admission for working in "difficult" areas. This policy was being implemented as part of the CRMC since 2009. The state government formally notified these rules in 2017 *(30)*.
3. Increase in the bond money against compulsory service in rural areas after completing MBBS;
4. Provision/facilitation of residential facilities, housekeeping support, library and gymnasium membership, Internet connection, mobile phone connection, etc.
5. Facilitation of employment for spouse;
6. Transport facilities for local travel;
7. Strengthening the health facilities, which includes recruitment of paramedical and support staff, building, upgradation and renovation of health facilities, operation theatre and wards, setting up of essential services and infrastructure, such as laboratory, X-ray services, blood bank, haemodialysis centre, laundry, etc. and ensuring the availability of medicines, consumables, instruments and equipment;
8. Improvement in organizational culture, delegation of duties and tasks, increase in motivation, autonomy, flexible leave policy;
9. Decentralized recruitment, use of social media for recruitment.

The responsibility for implementation and management of the bundle of interventions is distributed between the state health department, NHM unit, district administration and district health unit (Chief Health and Medical Officer [CMHO], District Programme Manager [DPM], Civil Surgeon [CS] and others). The elements that are part of the state-level policies are implemented from the state level. This includes regular recruitments, CRMC incentives, bonus postgraduate marks and implementing compulsory rural service. The rest of the elements are mainly implemented by the district administrative and health teams. Strengthening of health facilities and planning for HR and other interventions is done in consultation with and support from the state health department.

In these districts, most of the recruitments are being done mainly under the DMF and NHM. Initially, specialists were recruited only through DMF funds. Subsequently, the district sent a proposal to the NHM to sanction more posts, some of which have now been sanctioned. The initiative (salaries, buildings, etc.) has been financed through a combination of the DMF, CSR, NHM and state funds.

All the tasks (whether state level or district level) converge at the level of the district health team, which is responsible for overall monitoring.

Costs of the policy

The costs for this initiative include the increased salaries, cost of building and maintaining residential facilities, and cost of upgrading and renovating health facilities.

In terms of salaries, contractual MBBS doctors and specialists receive around 10–20% more than the regular salaries.

For the Bijapur District Hospital, the following finances were made available (*source:* CMHO Office Bijapur, April 2019):

- Salary of contractual staff: INR 15 million (US$ 0.22 million) from the NHM and INR 25 million (US$ 0.37 million) from the DMF
- Transit hostel modification: INR 9 200 000 (US$ 134 405) from the DMF
- Blood bank, mortuary, OPD development: INR 6 000 000 (US$ 87 655) from the Chief Minister's Hospital Development Fund (CMHDF)
- 50-bed maternal and child health hospital, modular operation theatre (OT), laboratory, two ICUs, casualty department: INR 26.7 million (US$ 0.39 million) from the DMF and NHM
- Approach road, mechanized laundry: INR 3 000 000 (US$ 43 828) from CSR funds.

Implementation and its impact

The negotiated salaries, which were higher than usual, seem to have played a big role in attracting doctors. A monthly salary of INR 120 000 (US$ 1753) to INR 300 000 (US$ 4383) per month has been offered to specialists and INR 80 000 (US$ 1169) to INR 100 000 (US$ 1460) per month to MOs (MBBS). The Collectors of the three districts subsequently decided on the amounts that they would be giving so that there is parity among the three districts and to not disadvantage anyone by giving less.

Initially, this amount was provided solely through DMF funds. However, the NHM also had a policy for flexibility in salaries for "difficult" areas. The state NHM policy shows flexible salaries with higher amounts for Bijapur and similar districts from 2014 onwards. Currently, it allows for negotiated salaries as per grading of the facilities, to up to INR 250 000 (US$ 3652) for specialists and INR 120 000 (US$ 1753) for MBBS doctors and so some posts have been shifted to the NHM *(15)*. Some of the posts have gradually been shifted to the NHM in order to ensure sustainability. The salaries from the NHM include the CRMC incentive. In some cases, there is a top-up from the DMF of around 10% (INR 20 000 [US$ 292] to INR 40 000 [US$ 584]), depending upon the speciality. All such appointments are contractual appointments.

Discussions with block health officials revealed that, in addition to financial incentives, the bonus marks for postgraduate admission remain a great attraction for young MBBS doctors (personal communication, interviews in Bijapur district, April 2019). For instance, there are two MOs in one CHC who have come via regular service posting. In another CHC, one MBBS doctor had worked in the area as a contractual employee. When he became a regular employee, he was given the choice of transferring to Mungeli, which is in a plain area near the state capital. However, he chose to remain in the "difficult" area because of the CRMC and for the benefit of getting additional marks for postgraduate admission.

There has also been an increase in the availability of doctors in the past year due to a huge increase by the state in the bond money amount against compulsory rural practice after completing MBBS. Recently graduated MBBS students, often from the same medical colleges, are now joining these areas as they also have the incentive of getting higher payment through the DMF and the advantage of bonus admission marks.

"Two MBBS have joined in X PHC. They have come through the bond process but are getting high salaries through DMF funds" (personal communication, Dantewada block health official, April 2019).

In many locations such as Bijapur and Dantewada towns and Bhairamgarh, health personnel have been provided accommodation at the transit hostels. These rooms are fully furnished along with TV, airconditioning and Internet connection. Canteen, laundry and other services are also available. They also find the premises safe and feel a sense of security.[7] In Dantewada, vehicles have been made available for travel to and from the hospital.

Alongside these interventions, health facilities have been or are in the process of being upgraded and renovated. In Dantewada and Bijapur district hospitals, OTs, laboratory facilities, X-ray machine, a haemodialysis centre and blood bank are operational. Bijapur has a new mother and child health wing that caters to maternal, neonatal and child health. The CHCs and PHCs in the districts are also being improved gradually. Most of the infrastructure and equipment have been made available through the DMF and CSR funds that may not be available in all districts of the state.

District-level leadership has played a role in mobilizing and motivating health personnel in the districts.[7] Other than administrative heads, district-level health officials too seemed to have ownership over the initiative. It has also provided an example for Block Medical Officers (BMOs) and other health officials to emulate. Some degree of autonomy along with responsibilities was given to individual doctors/health personnel, which helped in building ownership among the health workforce even in the health facilities.

"There is ownership in this hospital. I have distributed work and given responsibility for specific tasks to each doctor. For example, the paediatrician has complete charge of the Nutrition Rehabilitation Centre" (personal communication, Bijapur block health official, April 2019).

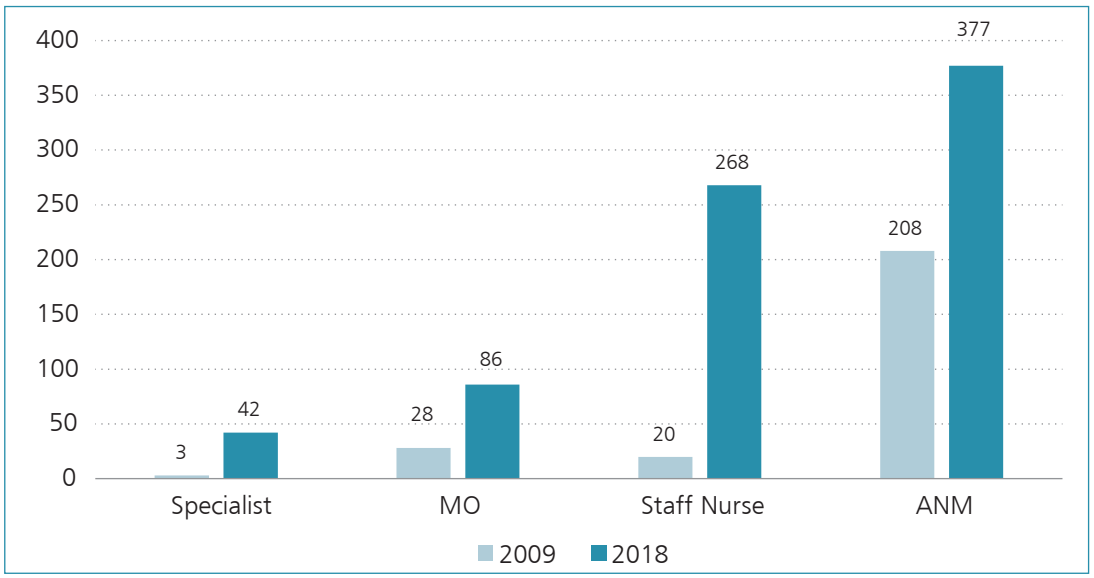
Assessing the impact of the policy through specific measures

Increase in availability of MBBS doctors and specialists in health facilities

Though a large number of posts still have to be filled, there has been a huge increase from previous years in the number of MOs and specialists at the district hospital and CHCs. Attempts have also been made to recruit more staff nurses and ANMs (Figure 6).

7 Draft report on the Human resources for health (HRH) Plan for Comprehensive Primary Health Care in Dantewada, Bijapura and Sukma districts of Chhattisgarh. State Health Resource Centre, Chhattisgarh and WHO, India Office, 2019.

Figure 6: *Increasing trend in the number of staff of different categories (specialists, medical officers, staff nurses and auxiliary nurse midwives)*



Source: Draft report on the Human resources for health [HRH] Plan for Comprehensive Primary Health Care in Dantewada, Bijapura and Sukma districts of Chhattisgarh. State Health Resource Centre, Chhattisgarh and WHO, India Office, 2019; *(14)*).

Improvements in the availability of the health workforce are seen both in terms of the number of MBBS doctors who are now available at CHCs and PHCs and the number of specialists at district hospitals and CHCs. For instance, in Bhairamgarh block, six doctors had joined in the past two years. Data from Bijapur District Hospital shows that in 2016, only four specialists and four MOs were working there; this has now increased to 17 specialists and 13 MOs (Table 2). This is reflected in the increase in services being provided at these facilities (Figure 7 and 8).

The specialists are mostly young people who come from states such as Andhra Pradesh, Odisha, Madhya Pradesh and Tamil Nadu.[7] They were motivated to join due to the high salary being paid, along with the opportunity to learn and serve in remote areas that were in need of health-care services.

"One of the anaesthesiologists from Andhra Pradesh said that 'yes, I joined here because there is very good salary and ample opportunity to learn'. One orthopaedic surgeon from Odisha said that 'I joined here because I wanted to work in a remote needy area in early phase of my career and in this part of Chhattisgarh there is huge need of specialist care. I am satisfied with salary and residential facility.' One general medicine physician from Andhra Pradesh said 'this place is the best for learning in the early part of our career; hospital administration is very supportive and there is a good work environment. At the end of the day we feel very satisfied with our services'".[7]

Increase in the type of services and number of persons availing services at the facility

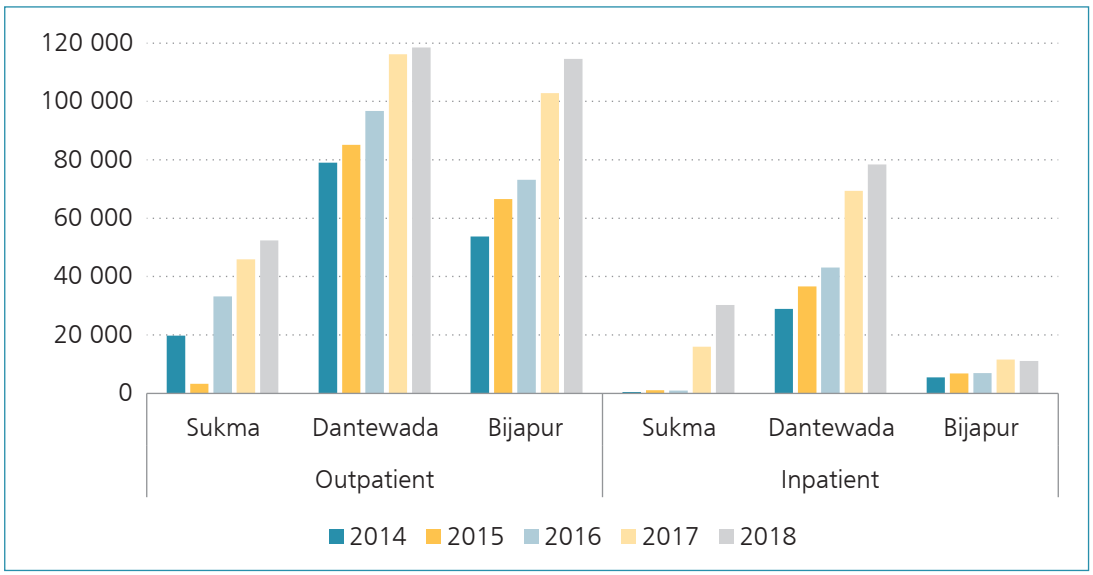
There has been a steady increase in outpatients and inpatients in all three district hospitals in the past five years, with a significant rise after 2017 (Figure 7).

Table 2: *Availability of staff in Bijapur District Hospital, along with population density*

Designation	Availability of staff (2015–2016)	Population/unit health personnel (2015–2016)	Availability of staff (present status)	Population/unit health personnel (present status)
Orthopaedic surgeon	1	255 180	2	127 590
Medical specialist	1	255 180	1	255 180
Gynaecologist	1	255 180	3	85 060
Anaesthetist	0	–	2	127 590
Paediatrician	0	–	0	–
Ophthalmologist	0	–	1	255 180
ENT surgeon	0	–	2	127 590
Pathologist	1	255 180	2	127 590
Radiologist	0	–	1	255 180
Microbiologist	0	–	1	255 180
Surgeon	0	–	2	127 590
Medical officer	4	63 795	13	19 629
Staff nurse	14	18 227	44	5 800

Source: CMHO Office Bijapur, 2019

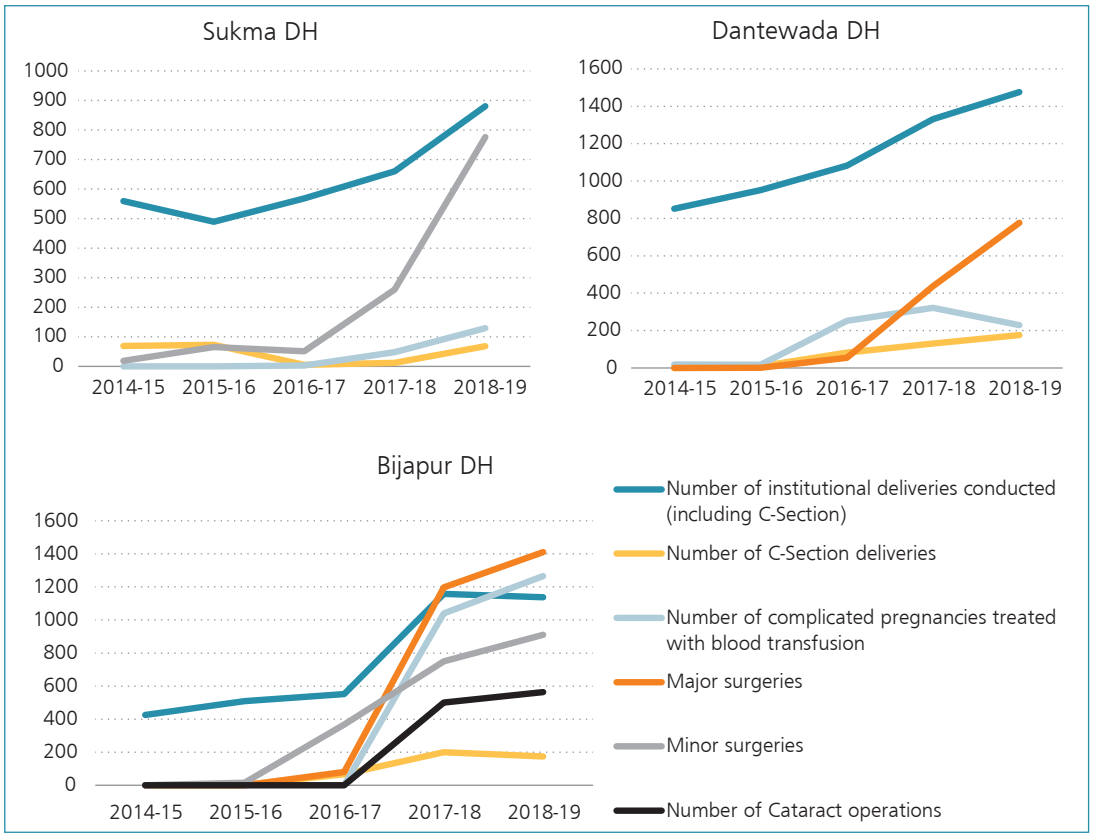
Figure 7: *Utilization of outpatient and inpatient services in the district hospitals of Sukma, Dantewada and Bijapur in the state of Chhattisgarh (India)*



Source: District Health Information System [HMIS]

There has also been an increase in and expansion of services not available previously, such as normal deliveries, caesarean section, cataract operation, haemodialysis, and minor and major surgeries. In Dantewada, caesarean sections increased significantly after 2017, and in Bijapur, after 2016 (Figure 8). Major surgeries that were not being done previously were also started. Blood transfusions started in Bijapur and Sukma over the past two years when the blood bank became functional. In Dantewada, cases that received blood transfusion increased from 2016–2017 to 2018–2019. In Bijapur District Hospital, dialysis started in January 2019 and, in three months, 118 cases received treatment. Similarly, cataract operations also started only in 2017 and, in two years, 1064 operations have been done. However, in Sukma District Hospital, though two ophthalmologists are available, cataract operations are not being done as there is no eye operation theatre.

Figure 8: *Indicators of service provision in the three district hospitals from 2014–2015 to 2018–2019*



Source: District HMIS

District hospitals and CHCs that would earlier refer most cases are now able to cater to most of the patients coming to the facility. Interviews with service providers reveal that they keenly felt the increase in services in their facilities. "Earlier this was a referring centre. We were forced to refer patients. Now we cater to 80–90% of the patients who come. Earlier we had 16–17 inpatients per day, now we have 35 per day" (Bhairamgarh CHC). There was also a sense of pride among health personnel regarding the upgradation of the facilities and being able to work in such a supportive environment with all kinds of infrastructure and equipment available to them. A nurse working in the operating theatre of the Bijapur Maternal and Child Health Hospital proudly said, "now we have everything" (personal communication, interviews in Bijapur district, April 2019).

In summary, these interventions have improved the availability of doctors by 207% (from 28 to 86), specialists by 1300% (from 3 to 42) and nurses by 1240% (from 20 to 268) in the three district hospitals of Sukma, Dantewada and Bijapur from 2009 to 2018. Similarly, the uptake of health services in the three district hospitals has also increased. Outpatient (OPD) visits increased by 87% (from 152 607 in 2014–2015 to 285 432 in 2018–2019). Similarly, inpatient attendance increased by 243% (from 34 863 admissions in 2014–2015 to 119 668 in 2018–2019).

Other assessments/evaluations on implementation of the policy

A study has recently been undertaken by SHRC Chhattisgarh and WHO. No other independent evaluation or research has been conducted as yet.

The CRM teams have also commented on this initiative. The report of the 11th CRM states that "good leveraging of the resources from District Mineral Fund, Panchayat funds, Zila Nirman Samiti and CSR for strengthening the health facilities across Bijapur district was observed" *(33)*. It further recommends that the Bijapur model should be emulated elsewhere in the country. It states: "....an urgent need to engage specialists in most of the states, Bijapur model in Chhattisgarh can be used for filling the gaps" *(33)*.

There have been various media reports on the Bijapur initiative describing the process, highlighting the improvements, what motivated doctors to join, role of the then Collector and the gaps that remain.

Effect of bundling/sequencing of the interventions

As discussed above, the interventions were wide-ranging, and their implementation has been both bundled and sequential. The initial recruitments comprised a bundle of policies that included high salaries and residential, housekeeping and communication facilities. The sequential interventions were in terms of improving the health facilities, recruiting doctors and then recruiting other necessary support staff. The state policies of providing bonus marks for postgraduate admission and increasing the bond money also played a role in making HR available. The attempt is now to incorporate the posts into the NHM along with a top-up from DMF funds, so that posts remain secure and the initiative has greater sustainability.

4. Conditions for success and future plans for interventions to improve retention of health workers in rural/remote areas

4.1 Conditions for success

1. *Bundling of financial and non-financial interventions*. Experience in the state had shown that achievements in attracting and retaining the workforce under the CRMC were compromised due to a reduction in the package of interventions that were finally implemented. Therefore, the bundling of new interventions implemented in the three districts brought about higher achievements and more positive impacts. The bundling included financial incentives along with other interventions aimed at improving the living and working conditions of the health workforce, along with incentives for further studies, and improvement of the health facilities. In Bijapur, this was done in a sequential manner, with the infrastructure being prepared before recruitments were done. In the other two districts, implementation of the various strategies was simultaneous.

2. *Combination of national and state policies and district innovation*. The interventions were developed within the larger framework of the NHM and state's previous policies, with scope for innovation at the district level. The districts were responsible for planning and implementing the policy, with financial and technical help from the state and NHM. They were able to plan as per their situation and need. The state government has been interacting regularly with the districts, more so in recent months. For instance, inputs for sustainability of the initiative have been given by the state government and public health experts. These are being implemented, such as using DMF funds only to supplement and not replace NHM or state interventions. Having a policy framework that provides the basic principles along with the opportunity to adapt as per the area's needs and situation has had a positive impact.

3. *Flexibility*. The flexibility in DMF funds and NHM salary norms helped to plan for the district as per its requirements, which led to recruitments, especially of specialists.

4. *Ownership and leadership at the district level*. There is a high level of ownership at the district level, among the health department officials, NHM staff and the district administration. This has ensured, for instance, that the interventions continue even after the Collector who had initiated the process got transferred out. Leadership is distributed among a team of people, which has led to more people taking ownership and thinking about improving the situation further.

5. *Significance of mid-level health-care providers*. The state's initiative in developing mid-level health-care providers such as AMOs gave dividends in terms of expanding and increasing

service provision in rural and remote areas, especially at the primary level. Fortunately, the advantages of MLHPs have been widely recognized. MLHPs have now been integrated into the health system through the HWC. However, doctors' associations continue to oppose such initiatives.

Barriers that have contributed to policy implementation being less successful than anticipated

1. *Gaps in CRMC implementation*. Under the CRMC, certain implementation issues such as delayed payments have reduced the impact of the scheme. Studies have found that unless health facilities are improved, and adequate paramedics and other HR, equipment and drugs ensured, the impact of financial incentives can be limited in motivating health personnel. Moreover, the amounts need to be increased to make it more attractive for doctors and specialists in regular service. It should also be increased for other cadres such as AMOs, staff nurses and ANMs who are on contract and get lower salaries than those in regular service.

2. *Uncertainty and lack of institutionalization under the DMF.* DMF funds are variable and are dependent on the interest of the district leadership. The government policy for DMF continues to evolve. There have been instances where staff under the DMF has faced the risk of removal due to insecurity about funding. Therefore, DMF funds are useful for funding capital costs, such as building transit hostels, acquiring laboratory equipment and so on, but are not a good solution for salaries. For better sustainability, the necessary staff should be merged with the NHM or regular service, while ensuring adequate financial and non-financial incentives. The state has the flexibility to increase NHM salaries for doctors. The CRMC incentive needs to be increased. The HR already sanctioned in the NHM should get recruited under the NHM by the appropriate authority (state, division or district) and the progress in recruitment monitored by the state NHM and collectors.

3. *Lack of a systematic posting and transfer policy*. One of the reasons that regular service posts remain vacant in the districts is that people fear that if they once come to these districts, they will be forced to remain there for a long time. The health workforce can be transferred only if someone comes in their place to relieve them. Without a "reliever", their chances of transfer to a less "difficult" district are poor. Having a system for posting and transfer that incentivizes people coming to work in "difficult" areas for a few years by ensuring that they can get a posting of their choice after that, can help to attract and retain doctors and specialists in regular service.

4. *Delays in recruitment.* There are policy and implementation issues that lead to delays in recruitment of the health workforce. Sometimes there are delays in state-level guidelines and orders reaching the districts. Often, the reason given for non-recruitment is the lack of trained ST and SC candidates. However, studies have found that there are enough nurses and ANMs in these categories trained in the districts who could be recruited.[8] Moreover, there are enough doctors in neighbouring states and they could be reached out to. There is scope for improvement in monitoring recruitments at the state level.

5. *Issues in filling regular posts.* In these districts, most of the regular posts for doctors and specialists are still empty. There are a number of reasons for this, the one related to

8 Draft presentation on the Health Labour Market Study in Chhattisgarh. State Health Resource Centre, Chhattisgarh and WHO India Office, 2019.

transfers and posting is enumerated above. The main reason is that regular salaries are lower than the contractual ones. Government rules for regular recruitment do not provide any flexibility in terms of increased salaries nor do they allow recruitment from outside the state. There is a need to improve salaries through increasing the non-practising allowance and CRMC incentive. The rules should be amended to get doctors such as gynaecologists and anaesthetists from outside the state to fill regular posts.

6. *Absence of a specialist cadre.* The state does not have a specialist cadre. Hence, a doctor with a postgraduate degree is recruited as an MO and put on a par with an MBBS doctor, with no consideration for their specialized skills. This is demotivating for postgraduates and also leads to a loss of skills over time.

7. *Absence of area-based admission policies* in medical education. In the past few years, higher institutions for medical education have been opened in the more remote divisions (predominantly tribal areas) of the state. However, in the absence of area-based reservations in admission, it has no impact on increasing the availability of doctors in the district or area where the medical college is located. Admission policies providing area-based reservations are implemented in countries such as Thailand, and India should learn from this and introduce it too.

8. *Opposition of doctors' associations to MLHPs.* The Indian Medical Association has been opposing all moves to train and promote MLHPs, which is slowing down the process of formalization of this cadre *(34)*.

Attempts to overcome these barriers

- There have been some improvements in payment schedules for the CRMC. Quarterly payments are now being made.
- In the past year there has been an attempt to integrate DMF posts with the NHM for greater sustainability.

Unplanned outcomes of implementation of the policy, which have had a significant impact

Over-reliance on the use of DMF funds for recruitments as a shortcut measure might have reduced the initiative to undertake recruitments through regular methods for NHM and regular government posts. Some district and block health officials were of the opinion that regular posts should be filled first and then the contractual posts.

There is dissatisfaction among doctors who are in regular government service in these districts. Though they have the benefits of job security and pensions, they receive much lower salaries and facilities (residential, transportation, etc.) than those on contractual appointment and negotiated salaries. There is a need to bring some level of parity in the salaries and provide similar facilities to them.

4.2 Plans for future interventions

An exercise is being done as part of the universal health coverage initiative of the state to institutionalize these programmes. It has also been suggested that, in addition to the districts affected by conflict, such policies need to cover newly formed districts such as Mungeli and

Gariaband that lack a health workforce, and improve salaries there. The state is planning a number of reforms related to HRH. It is considering restructuring of salaries, development of a specialist cadre and rational deployment of specialists.

Training for capacity-building to improve/expand services, such as dialysis, cancer follow-up, laboratory services, paediatric services, training in emergency management protocols and behavioural issues, and a mentorship programme for nurses, EmOC and LSAS multiskilling are planned. The state is also looking at a rational deployment plan for doctors who have been trained along with revising financial incentives for those who have undergone training and are functioning. The CRMC area is under review and other cadres of health personnel may be included.

The experience in Chhattisgarh shows that even though there are numerous challenges in retaining the health workforce in rural and "remote" areas, it is possible to make a positive impact through implementing comprehensive and complementary strategies. The combination of financial and non-financial incentives, along with a degree of flexibility and decentralization, innovation and leadership led to positive results. A clear link is also seen between strengthening public health facilities and motivation of the health workforce, leading to improved services for people.

The challenge now is to institutionalize the interventions that have made a positive impact and expand them to other areas facing similar issues in retention of health workers. This case study has lessons not only for rural, remote and conflict-affected areas, but also for health systems strengthening elsewhere in India and other lower-middle-income countries with similar issues.

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INDONESIA

Case study on health workforce rural retention

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1. Background and context

As the world's fourth most populous country, Indonesia has 264 million people spread over 17 000 islands, including six major islands: Java, Bali, Sumatera, Kalimantan, Sulawesi and Papua. More than half of the population lives in urban areas. Administratively, the country has 34 provinces, 514 districts, more than 7000 subdistricts and 143 districts categorized as remote, island and border areas *(1)*.

Throughout Indonesia's period of decentralization, administrative and financial responsibilities shifted to the local government. Each provincial government is responsible for health employment, deployment and payment. The Central Government performs the role of policy formulation, standards and guidance to the province and district/city government levels, but regional development has to be undertaken by the district/city.

1.1 Health situation and trends

Indonesia is making a great effort to meet all of the 17 Sustainable Development Goals (SDGs). Several health-related SDG indicators have shown an improvement over the past 5–10 years. The infant mortality rate decreased from 25.3 in 2013 to 21.9[9] per 1000 live births in 2017 *(2)*. This is in line with the increase in life expectancy from 68.7 years in 2013 to 69.3[10] years in 2016. The latest data show that the under-5 mortality rate is 39.1 per 1000 population. Currently, the Indonesian Government has also set up a target of reaching a maternal mortality rate of 102, as in 2015 there were 216 maternal deaths per 100 000 live births *(2)*.

In 2018, 67% of Indonesia's population was 15–64 years of age. Both noncommunicable and communicable diseases contribute to mortality and morbidity in Indonesia. Diarrhoea (21%) and dengue haemorrhagic fever (17%) are the top two causes of morbidity nationally, while cardiovascular disease accounts for 35% of national mortality *(3)*. Several efforts are ongoing to adapt the global and regional strategies for control of noncommunicable diseases (NCDs) and develop a national strategy. Three major components have been adopted; surveillance of risk factors, integrated health promotion and reform of service delivery *(4)*.

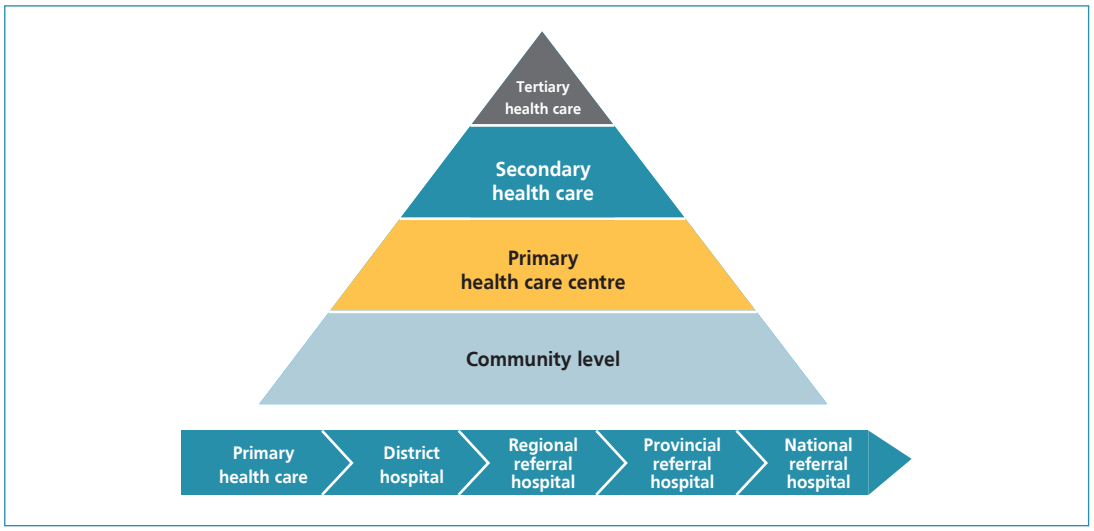
1.2 Health system in Indonesia

Figure 1 will help to clarify the organizational structure of the health system in Indonesia.

9 Country reported value: infant mortality rate 27.2 in 2013 and 25.1 per 1000 live births in 2017; *source*: Statistical yearbook of Indonesia, 2018

10 Country reported value: life expectancy 71.4 years in 2013 and 72.2 years in 2017; *source:* Statistical yearbook of Indonesia, 2018

Figure 1: *Decentralized health service delivery system*



Source: Indonesia country profile, 2019

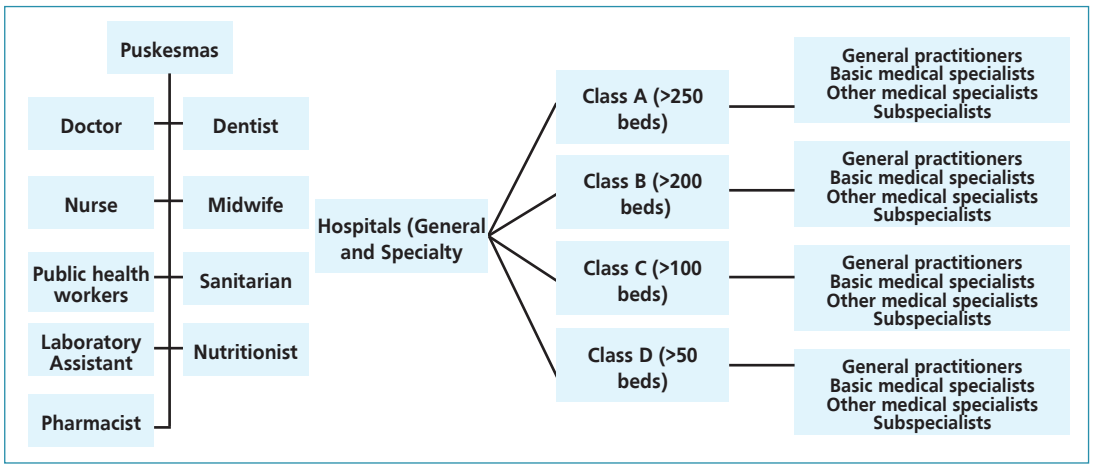
Health-care services follow a referral system that starts from the primary level to the secondary and tertiary levels. The public primary health centre (*Puskesmas*) works as a gatekeeper and is where the patient's first medical contact is made. Each subdistrict in Indonesia has at least one *Puskesmas*, which is usually headed by a doctor and supported by two or three subcentres headed by nurses. *Puskesmas* focus on providing promotive and preventive care.

According to the Ministry's regulation, the availability of nine types of health workers is mandatory in a public primary health centre: doctor, dentist, nurse, midwife, public health workers, sanitary worker, medical laboratory technician, nutritionist and pharmacist. But in practice, this is not always the case due to workforce shortages and maldistribution (Figure 2).

To improve community access to health services, in 2006, the Ministry of Health (MoH) launched the Alert Village (*Desa Siaga*) and village health posts (*Poskesdes*) as a community-based health programme to cover more than 74 000 villages throughout Indonesia. A village health post is served by one midwife and one nurse *(5)*. By 2014, only 2% of 76 026 villages had no midwives *(6)*. For referral, hospitals are available at the district, provincial and national levels. About 63.3% out of the 2825 hospitals are owned by private institutions and State for-profit enterprises (Figure 2) *(7)*.

The distribution of human resources for health (HRH) working in hospitals is distinguished by hospital class and number of beds *(8)*. All types of hospitals have general practitioners, basic medical specialists, other medical specialists and subspecialists, but the number varies depending on the hospital class.

Figure 2: *Types of human resources for health working in Puskesmas (public primary health centre) and hospitals*

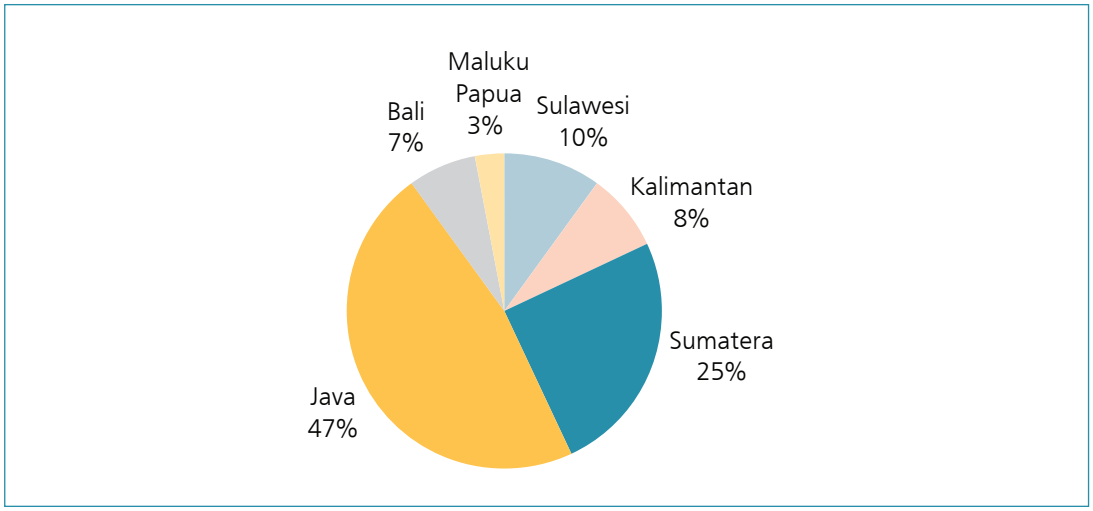


Source: Ministry of Health Regulation no. 75/2014 and Ministry of Health decree no. 3/2020

1.3 Overall HRH issues in Indonesia

Access to rural health services is compromised in Indonesia due to health workforce shortage and maldistribution. A massive deployment programme has been created to improve the availability and equity of distribution of health workers across the country (Figure 3).

Figure 3: *Regional/provincial HRH distribution*



Source: Indonesia country profile data 2019, Board for Development and Empowerment of Human Resources for Health

Figure 3 shows the distribution of health workers between provinces in Indonesia. Rural and remote areas suffer from a shortage of all essential health workers. Indonesia's large size and difficult geography present a tremendous challenge for health service delivery, causing uneven distribution across the region. Papua, for example, which has an area 2.5 times larger than that of Java, has only 3% of the total health workforce in Indonesia *(9)*.

JKN (Jaminan Kesehatan Nasional or national health insurance) is one of the goals set by the Central Government. It aims to improve the health status through financial protection and equitable access to health services. It covers 208 million people, or 80% of the total population in Indonesia, and has become one of the largest national health insurance schemes in the world *(10).*

To improve health services, insurance coverage needs to increase in a linear fashion with the availability of medical personnel. Therefore, HRH development and empowerment programmes in 2019 aimed to increase the availability and quality of HRH. The MoH Strategic Plan 2015–2019 uses the following factors as indicators in monitoring and evaluating the accomplishments of the policy:

- A total of 5600 public health centres must have a minimum of nine types of health workers (doctor, dentist, nurse, midwife, public health workers, sanitary worker, medical laboratory technician, nutritionist and pharmacist). Currently, 3236 public primary health centres have already achieved the target *(6,7).*
- Sixty per cent of Class C hospitals must have four basic specialists and three supporting specialist doctors. Data show that 61.4% have met the target *(9, 11).*
- The competence of the health workforce has been upgraded through scholarship.

1.4 HRH issues in remote/rural areas

The number of medical graduates has increased significantly to around 12 500 doctors per year *(8).* Midwifery and nursing schools have also increased and, by 2019, 1183 midwifery and nursing schools in Indonesia were producing about 60 107 nurses and 52 534 midwives every year (Table 1). The large number of nurse and midwife graduates makes a big difference to the total number of doctors and nurses. However, even though the HRH-to-population ratio and production have increased, inequitable distribution persists, causing shortages in several regions.

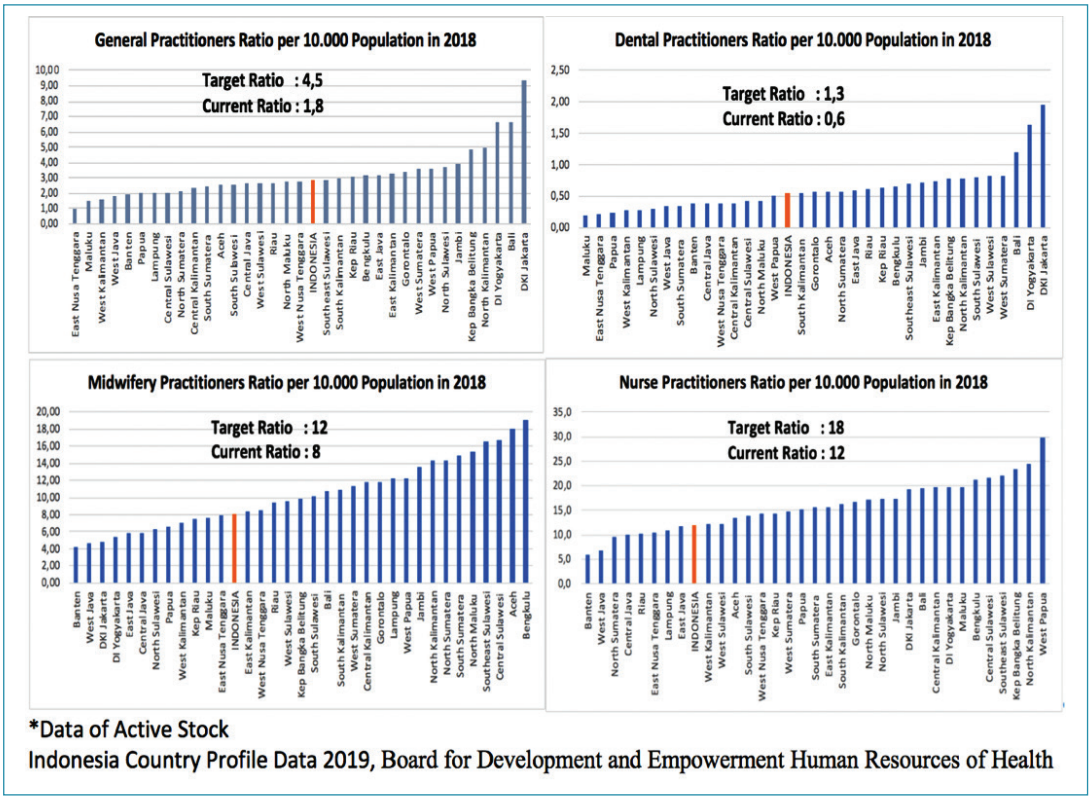
Table 1: *Number of institutions by ownership type*

Type of training institution	Public	Private not for profit	Private for profit	Total institutions	Average number of graduates per year
Medicine	36	-	49	85	12 500
Dentistry	16	-	15	31	2 229
Nursing` and Midwifery	144	3	1 036	1 183	112 641

Source: Ministry of Research Technology and Higher Education 2017

The MoH has set a target ratio that must be achieved by the end of 2019. Figure 4 shows the current ratio that has been achieved. The current ratio for medical practitioners is 1.8 per 10 000 population. The ratio is still below the target of the previous MoH Strategic Plan ratio of 4 general practitioners (GPs) per 10 000 population. There is a fairly large disparity between provinces in Indonesia, where the lowest ratio is found in Eastern Indonesia, East Nusa Tenggara Province at 1.0 medical practitioner per 10 000 population, while the highest ratio is in the capital city Jakarta province at 9.4 per 10 000 population.

Figure 4: *Total HRH per 10 000 population in 2018*



Source: Indonesia country profile data 2019, Board for Development and Empowerment of Human Resources for Health

Table 2: *Facility-level HRH distribution between urban and rural areas in Indonesia, 2018*

No.	Type	Urban	Rural	Total
1	Specialist	18 176 (61%)	11 342 (39%)	29 518
2	General practitioner	27 502 (58%)	19 787 (42%)	47 289
3	Dentist	7 673 (59%)	5 357 (41%)	13 030
4	Nurse	172 030 (54%)	148 742 (46%)	317 772
5	Midwife	107 190 (49%)	107 497 (51%)	214 687

Source: Indonesia country profile data, 2019

Table 2 shows the distribution of facility-level health workers in urban and rural areas. The percentage of the population living in urban areas is 54% while 46% live in rural areas *(6)*. Health workers prefer to serve in metropolitan areas because of easier access to better facilities. Most health workers serving in rural areas generally have a very short period of service. The reasons for this include communication difficulties, lack of resources and medical equipment, lack of basic and social facilities, low salary and high living costs *(8)*.

Table 3: *Staffing gap between actual number and national staffing norms at hospital level, 2018*

No	HRH	Number of hospitals	Actual number	National staffing norms (minimum requirements)	Overstaffing	Understaffing
1	GP	2 825	28 788	18 003	12 552	1 768
2	Dentist		5 877	4 382	2 386	891
3	Dental specialist		2 458	2 742	1 161	1 445
4	Paediatrician		6 792	4 688	2 842	738
5	Obstetrician		7 872	4 700	3 774	602
6	Internist		6 626	4 709	2 633	716
7	Surgeon		4 968	4 692	1 330	1 054
8	Anaesthesiologist		4 748	3 221	2 131	604
9	Nurse		245 407	241 962	59 526	56 558
10	Midwife		54 832	44 572	23 572	13 312
	Total		368 368	333 671	111 907	77 688

Source: Board for Development and Empowerment of Human Resources for Health, 2019

Table 3 shows the calculation of HRH needs consisting of national staffing norms and actual numbers of HRH with a cut-off point in December 2018. National staffing norms for hospitals and public health centres are determined at the beginning of every year. The calculation of HRH needs in the national staffing norms is based on the MoH's regulations of the minimum standard number of HRH that must be fulfilled. For example, based on the regulation, a Class D hospital might be allowed to have a maximum of two internal medicine specialist doctors. If they have four doctors, then it might be calculated as overstaffing. But then, the MoH will give the recommendation for the hospital to be upgraded to a Class C hospital to be able to expand their services, including to have more than one specialist doctor *(12).*

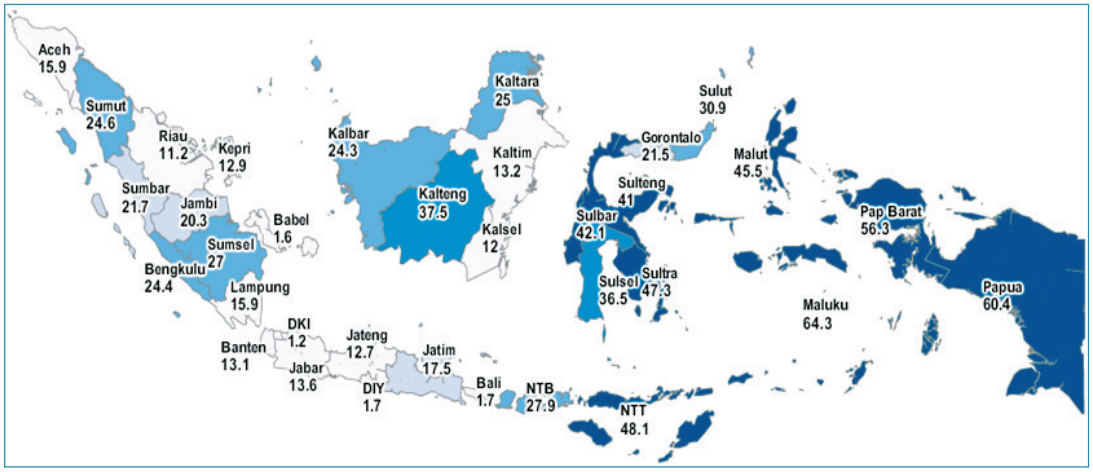
Table 4: *Staffing gaps between actual number and national staffing norms at Puskemas (public primary health centres) level in 2018*

No.	HRH	Number of Puskesmas	Actual number	National staffing norms (minimum requirements)	Overstaffing	Understaffing
1	General practitioner	10 017	21 197	13 542	10 456	2 801
2	Dentist		7 507	10 017	2 235	4 561
3	Midwife		147 388	60 660	91 764	5 036
4	Nurse		182 655	50 643	135 516	3 504
	Total		358 747	134 862	239 971	15 902

Source: Board for Development and Empowerment of Human Resources for Health, 2019

Table 4 shows that the actual number of doctors, nurses and midwives has already met the national staffing norms and even exceeded the minimum standard. However, the distribution is not even; several public health centres continue to have a shortage of health workers. There are still 2801 public health centres that fall below the government standard of minimum requirements. Based on the regulation, public health centres with an inpatient room must have two general practitioners, so if they only have one doctor, then they will be categorized as understaffed.

Figure 5: *Percentage of Puskesmas (public primary health centres) with shortages of doctors*



Source: HRH needs document plans, 2019

According to the MoH's regulations, a public primary health centre without an inpatient room must have at least one doctor. But there are still 15.1% public health centres with no doctor at all *(7).* Figure 5 shows the percentage of public health centres in each region, which do not have a doctor. The shortage is most prominent in the eastern parts of Indonesia such as Papua, West Papua and Maluku.

Observing the general conditions and problems mentioned above, the Health Human Resource Development and Empowerment system is facing the following challenges:

1. HRH shortage and maldistribution at the primary as well as hospital levels. Some hospitals are "overstaffed" while others are "understaffed"; there are large variations in the percentage of public primary health centres that are adequately staffed as measured against the norms.
2. Adequate financial and non-financial incentives should be implemented to attract and retain health workers working in these regions, especially in eastern Indonesia, in rural, remote and border areas.
3. Regulatory measurement. Regulations should be strengthened both at the central and local levels to ensure the quality and distribution of health workers.

2 Policy interventions to improve retention of HRH in rural/remote areas

One of the strategies in the Indonesia HRH Development Plan 2015–2019 was to improve the availability, distribution and quality of HRH. Retaining health workers has become a priority for the Indonesian government. Therefore, the MoH has implemented numerous policies (annex).

A. Educational interventions

A.1 Students from rural backgrounds

Use targeted admission policies to enrol students with a rural background in education programmes for various health disciplines, in order to increase the likelihood of graduates who choose to practise in rural areas.

HRH shortages are most prominent in the eastern part of Indonesia, not only because of the difficult environment, but also because of a relative lack of local educational institutions. Many rural students who have good academic potential do not have access to university education.

In order to improve the quality of education and increase the willingness of the candidates with a rural background to return and work in a rural area after graduating, the Ministry of Higher Education initiated the ADIk Papua Scholarship programme by which Papuan students from remote, border and island areas could obtain higher education. Candidates must take the selection test and are able to choose any programme at any of the 48 public universities and 22 polytechnic schools all over Indonesia.

A.2 Health professional schools outside major cities

Locate health professional schools, campuses and family medicine residency programmes outside of capitals and other major cities, as graduates of these schools and programmes are more likely to work in rural areas.

Forty-two of 83 medical faculties are located outside Java Island. There are also 38 health polytechnic diploma schools under the MoH all over Indonesia. To help rural teachers, the Ministry of Higher Education has a tutoring programme where type A-accredited medical, nursing and midwifery schools assist the other lower-accredited schools in terms of curriculum and lecturer support. It is expected to improve the quality of graduates, particularly in universities located outside metropolitan areas, with a specific focus on rural areas.

A.3 Clinical rotations in rural areas during studies

Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.

After passing the preclinical terms (the first three years of medical education), medical students will have a clinical rotation for 1.5–2 years in different subjects based on the curriculum of the university. Not all universities specifically target rural areas but some of them have already sent their students to rural areas as a part of their clinical rotation. Nursing and midwifery schools also include a rural community rotation as a part of the curriculum. Rural clinical rotation is expected to give students an opportunity to explore B.epidemiological conditions in rural areas and teach them how to serve in conditions with limited resources.

B. Regulatory interventions

B.1 Compulsory rural service

Ensure that compulsory service requirements in rural and remote areas are accompanied by appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.

Since 2010, every new medical graduate (GP) in Indonesia must undergo a one-year compulsory service called the internship programme to get a medical license. Each medical graduate is allowed to choose the placement area based on the MoH's mapping.

In 2017, the government implemented another compulsory service for medical specialist graduates to serve in a designated area for one year. Some of the medical specialist graduates disagreed with the policy, so in 2019, after a court resolution, this programme became optional for medical specialist graduates.

B.4 Subsidized education for return of service

Provide scholarships, bursaries or other educational subsidies with enforceable agreements of return to service in rural or remote areas to increase recruitment of health workers in these areas.

Indonesia has a scholarship programme with a bond to serve in the rural area for all types of HRH with civil servant status, which includes GPs, medical specialists, nurses, midwives and other health science majors, and which upgrades their education level from Diploma to BSc and BSc to MSc. This programme has been one of the most effective ways of increasing retention among health workers. Between 2008 and 2019, 73% of medical specialists with scholarship support have committed to return to rural areas after graduation.

C. Financial incentives

C.1 Appropriate financial incentives

Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention.

Since 1992, the government has conducted several policies regarding the distribution of HRH. The government also ensures that every policy is supported by sufficient incentives for each category of health worker.

Financial incentives are one of the most important factors in attracting many health workers to return to work in rural areas, even after their initial assignment period ends. Even though the number of health workers in rural areas is still low, the existence of financial incentives has already increased the number of health workers in rural areas from year to year.

D. Personal and professional support systems

D.1 Outreach support

Identify and implement appropriate outreach activities to facilitate cooperation between health workers in better-served areas and those in underserved areas and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.

District hospitals provide services to relatively small populations (100 000–500 000) but are geographically scattered and often lack access to other hospitals. In this context, it has been difficult for the district government to attract specialists to provide services at the district hospital level. A few district hospitals have attracted some specialists, while others have none. Therefore, in 2010, Indonesia established the Sister Hospital Programme, which provides medium-term (3–5 years) partnerships between teaching hospitals in large cities and remote district hospitals.

The teaching hospitals provide rotating expert clinical teams for specific specialist services, while also building the capacity of the district hospital health-care workers to take over and continue the provision of services. The Sister Hospital Programme was started in six hospitals in Nusa Tenggara Timur Province, which had no specialist services, and expanded to a further five hospitals that have only some specialist services. The programme has helped the hospital to decrease the number of maternal and newborn deaths and also improve the complication management rate by 90%.

3. Successful interventions to improve rural/remote retention of HRH

3.1 Scholarships to improve rural/remote representation among medical students

The first intervention to be described in detail is "B.4. Provide scholarships, bursaries or other educational subsidies with enforceable agreements of return to service in rural or remote areas to increase recruitment of health workers in these areas."

As community demand for health services continues to increase, there is a need to enhance access to quality health services, and an intervention is needed not only to improve HRH capabilities and professionalism but also to meet regional, provincial and national hospital needs *(13)*.

The government provides scholarships for all types of HRH under a bond to serve in rural and remote areas. The objective of the policy, implemented in 2008 *(10)*, was to develop health worker capacity; to improve organizational performance and personal development of HRH through further education; to improve the ability and professionalism of HRH to support the successful implementation of health development; and support the career development of all HRH.

Scholarships are available for health workers willing to expand their studies or specialization with a bond to return to their rural area after their studies, for minimum of n years and maximum of 2n years (n=length of study). For medical specialist doctors, the length of studies is 4 years, so they must return and stay in rural areas for a minimum of 4 years and maximum of 8 years.

Candidates who receive scholarships must be health personnel with civil servant status or post rural service as a contracted staff, and have at least 2 years' rural experience. The selection process takes place in two stages; at the provincial level and then at the central level. Candidates who pass the administrative selection may be required to undertake academic selection in the university. Scholarships are available for all types of health workers to obtain a higher education level, including for GPs who want to pursue a specialist education. In the final stage of specialist training, doctors and dentists are assigned to work in hospitals located in remote areas that lack specialists.

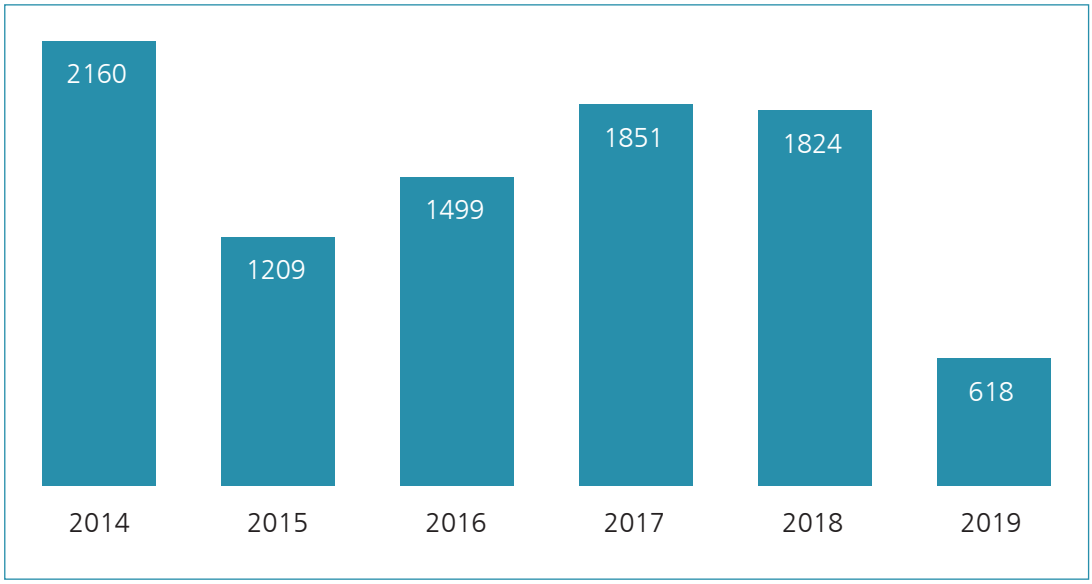
All scholars under this scheme have some privileges, such as (a) receiving tuition assistance during the education programme according to the curriculum set by each educational institution and specialization field; (b) getting assistance if a legal case occurs as long as the students perform their educational training assignment according to the standard operating procedures; and (c) receiving incentives for participants who carry out special assignments. All students are

obliged to send daily reports to the supervisor; obey and follow all provisions of the education programme, including provisions that apply to educational regulations; report the progress of the education programme every semester to the MoH through the Head of the HRH Development and Empowerment Board; and perform the rural service period after completing their education.

The HRH Development and Empowerment Board under the MoH is responsible for developing and enforcing the policy by involving the local government, medical council and professional organizations. The MoH will provide full funding for these health workers from the beginning until the end of the education period.

A previous study had reported that changes in the salary scheme, providing scholarships and better-quality facilities are required to overcome the problems of retaining health workers in remote areas *(14)*. Scholarships are considered to have the potential for making a major contribution to health development to achieve equity and fulfil the needs of referral health services nationally. In the past six years, there were a total of 9161 scholarships for all health worker cadres in Indonesia (Figure 6). So far, 618 scholarships have been awarded in 2019, and those in the second period will soon be implemented.

Figure 6: *Total HRH with scholarship support, 2014–2019 (source: Board for Development and Empowerment of Human Resources for Health, 2019)*



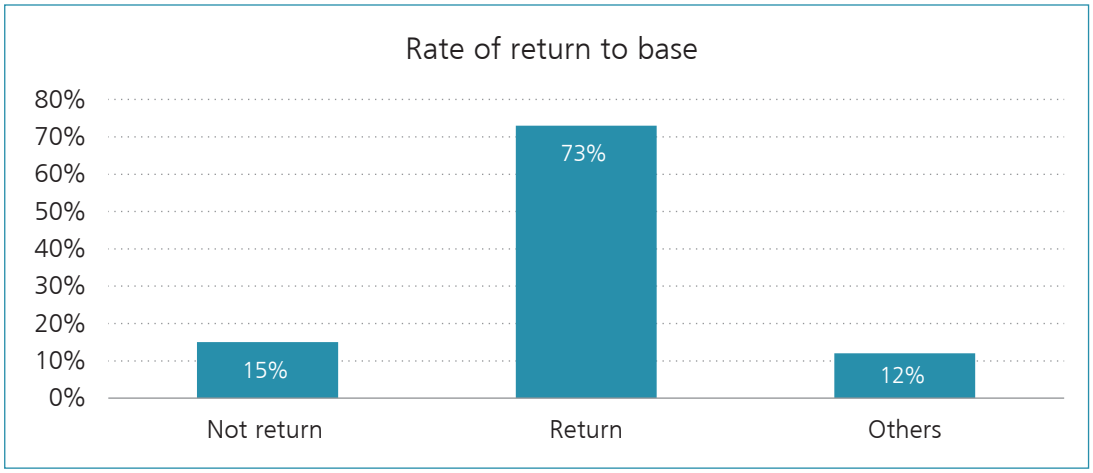
The use of these scholarships has been seen to be an effective way of retaining health workers. Table 5 shows the number of health workers in each year. There has been an increase in medical specialist doctors in remote, island and border areas from 1084 to 2273 between 2016 and 2018 *(15,16)*.

Table 5: *HRH in remote, island and border areas*

Year	GP	Specialist	Dentist	Dental specialist	Nurse	Midwife
2016	4755	1084	2248	90	40 970	27 283
2017	5162	1152	2522	86	48 927	33 862
2018	6564	2273	2491	100	69 427	49 370

Source: Board for Development and Empowerment of Human Resources for Health, 2019

Figure 7: *Percentage of doctors who returned to their area after graduating from the medical rural bonded scholarship scheme, 2008–2019*



Source: Board for Development and Empowerment of Human Resources for Health, 2019

Figure 7 highlights that 73% of scholarship students across the period 2008–2019 returned to the area of their personal origins, while 15% did not return/have not yet returned to their regions, and the remaining 12% returned but then moved to another province. The current location of the 15% doctors who did not return is not tracked *(16)*.

According to the regulation, doctors who did not return to their previous workplace need to pay a penalty that is 10–20 times more than the total money that the government had spent on their scholarship *(10)*. The Board for Development and Empowerment of HRH sends a warning letter to those who do not return, but some are unreachable. Greater technical and managerial support is required to enhance health worker commitment, recruitment and retention strategies in rural areas *(14)*.

3.2 Government deployment programme

The second intervention is "C.1. Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention".

Indonesia has been implementing various HRH deployment programmes to improve the distribution of the health workforce throughout the country. The programmes are divided into

permanent programmes through the recruitment of HRH, such as Pegawai Negeri Sipil (PNS or civil servant), and temporary ones such as Pegawai Tidak Tetap (PTT or contracted staff) *(17)*, Nusantara Sehat, internship programme *(12)* and Wajib Kerja Dokter Spesialis (WKDS or compulsory service of medical specialist) and Pendayagunaan Dokter Spesialis (Medical Specialist Empowerment Programme) *(18)*.

All deployment programmes are focused on improving the availability of health workers, particularly in rural and remote areas. They are combined with incentives, including remuneration and salary, grants for housing and additional local incentives intended to increase retention, motivation and performance.

Table 6 shows the evolution of the different financial incentives, based on the deployment programme across the period since 1992.

Table 6: *Incentives for HRH working in government deployment programmes*

Year established	Deployment policy	Incentive
1992	*Pegawai Tidak Tetap* (*PTT* or contracted staff programme): 1–3 years compulsory rural service for doctors (Presidential Decree 37/1991)	Financial incentive
1994	Midwives as a contracted staff (*PTT*) for 3 years in remote areas (Presidential Decree 23/1994)	Financial incentive
2007 till date	Compulsory *PTT* contract was abolished and changed to optional contract	IDR 2 245 000–13 051 750 (US$ 158–922)
2010 till date	MoH regulation no 299/2010 for newly graduated physicians. They are obliged to undergo a 1-year medical internship in designated areas to be registered and obtain a medical license	Financial incentive IDR 3 150 000–3 622 500 (US$ 222–255), health insurance, additional financial incentive from local government and hospital
2015 till date	MH regulation no 23/2015; *Nusantara Sehat*; optional two years team-based health service in remote and very remote public health centres	Financial incentive IDR 4 287 000 and IDR 11 181 000, respectively (US$ 302 and 790)
2015 till date	MoH regulation 80/2015, Medical specialist residents special assignment; 6 months serving period at the end of their study in Classes C and D hospitals	Financial incentive, housing and additional incentive from local government

Year established	Deployment policy	Incentive
2017	Presidential Regulation No. 4/2017. *Wajib Kerja Dokter Spesialis* (*WKDS* or compulsory service of medical specialist). Newly graduated specialists (internist, obtetrician-gynaecologist, paediatrician, surgeon and anaesthesiologist) are obliged to serve in the province and regional reference hospitals, and remote, border and island areas for 1 year	Financial incentive, housing, transportation and additional incentives from local government IDR 22 500 000–30 012 000 (US$ 1589–2120)
2019 till date	Presidential Regulation No 31/2019. Due to human rights issues, compulsory service of medical specialists was changed to optional service for all medical specialist graduates	Financial incentive, housing, transportation and additional incentives from local government

Source: Board for Development and Empowerment of Human Resources for Health, 2019

The MoH and the Ministry of Finance, together with the local government, are responsible for developing and managing the incentive policies. The actual amount of financial incentives given to individual workers varies, depending on the sources of incentive funds, education level, placement area and employment status. Health workers recruited by the Central Government receive their salary and incentive from the MoH sourced from the State budget. The local government may also offer additional incentive payments from the local budget based on the respective economic capabilities of each district *(17–19).* The amount of financial incentive provided is differentiated by the three regional categories of common, remote and very remote areas. Table 7 gives details of the criteria for categorization *(19).*

Table 7: *Criteria for remote and very remote areas*

Criteria	Remote area	Very remote area
Geographical position	⊙ Difficult-to-reach areas ⊙ Mountains, islands and swamps ⊙ Prone to natural disasters such as earthquakes, landslides and volcanic eruptions	⊙ Difficult-to-reach areas ⊙ Mountains, islands and swamps ⊙ Small islands, coastal areas ⊙ Border regions with other countries, such as land, small island or outermost island
Access to transport	⊙ Public transport use (land/water/air) routinely, maximum twice a week ⊙ Travel time (round trip) >6 hours	⊙ Public transport use (land/water/air) routinely, maximum once a week ⊙ Travel time (round trip) >8 hours ⊙ Only air transport available to reach the site ⊙ Transport system impeded by climate or weather conditions (e.g. waves or typhoons) ⊙ No public transport
Social economy	⊙ Difficult to meet basic needs ⊙ Security issue	⊙ Difficult to meet basic needs ⊙ Security issue

Source: Ministry of Health. Regulation Number 90 year 2015

According to Table 7, very remote areas are generally in eastern Indonesia, and can be reached only by air transportation, while remote areas can still be reached by air, land and water transportation a maximum of twice a week. This criterion is also used to determine the amount of incentives received, where health workers in very remote areas receive bigger incentives than remote area workers (*see* Table 8 for details).

Table 8: *Monthly salary and incentives for contracted staff*

HRH	Salary*			Incentive	
	Common	Remote	Very remote	Remote	Very remote
Doctor/dentist	2 847 280	2 847 280	2 847 280	5 267 900	7 659 950
Specialist (doctor/dentist)	2 847 280	2 847 280	2 847 280	10 367 400	13 051 750
Midwife	2 35 370	2 356 370	2 356 370	2 245 000	3 565 900

* In Indonesian rupiah (IDR; US$ 1=IDR 14 270)

Source: MoH Decree No. 412/2015

The financial incentive policy for PTT doctors and midwives has undergone several changes over time since it was first implemented in 1991 *(20)*, along with the evolution of a broader PTT policy. Research by the MoH Indonesia in 2007 found that the incentive package was moderately satisfactory for contracted staff *(11)*. More recent research published by the World Bank in 2014 reports that higher financial incentives have improved the distribution and availability of HRH, particularly in remote areas *(21)*.

Research completed in 2010 conducted in the Indonesian province of Papua described human resource policies implemented at the province and district levels, which had influenced health workforce availability in the district of Puncak Jaya *(22)*. The research highlighted the importance of financial incentives in improving and stimulating staff retention in remote areas.

To improve the availability of health workers, in 2015, the government initiated a two-year team-based deployment programme called Nusantara Sehat. Teams of five health personnel consisting of a doctor, nurse, midwife and two other health workers (sanitarian, pharmacist, nutritionist, public health workers or medical laboratory technician) are deployed to serve in a rural and remote area. In 2018, a total of 7377 health workers were deployed through this programme. Nusantara Sehat graduates also receive financial incentives, are given the opportunity to become a civil servant and are able to apply for scholarships to continue their education after completing the programme. However, the retention rate of this programme requires further evaluation.

In 2017, the MoH implemented a one-year compulsory service programme in the location determined by the government for new medical specialist graduates *(23)*. All doctors are supported by a financial incentive, housing and additional incentive from the local government. Through this compulsory service, 2298 medical specialists have been deployed in hospitals throughout Indonesia, mainly in remote areas. Research has been conducted in two different regions to measure what factors influence physician retention and the role of incentives in attracting specialist doctors. It shows that doctors who remain working in rural areas even after their initial compulsory assignment period ends consider family and the amount of incentives given by the government as the two most important factors for working in rural areas (Ariasthapuri G. Compulsory service for medical specialist, factors leading to retention [thesis]. 2019 [unpublished]).

Deployment programmes and supporting rural workers with incentives have successfully increased the number of health workers and the sustainability of health care in rural areas. However, financial incentives alone are not sufficient, and policies should be focused not only on increasing the availability and widespread distribution of health workers but also on retaining available workers by improving the working conditions through safety and career advancement opportunities.

4. Conditions for success and future plans for interventions to improve HRH retention in rural/remote areas

4.1 Conditions for success

One enabling condition for overall success is to have a complete HRH information base. Currently, a major problem for HRH planning, particularly in rural and remote areas, is the incomplete and fragmented HRH database. There is a need for data on vacancies, and attrition and retention rates.

Another related issue is that at the time of this report, decentralization of policy in the health sector had not fully been implemented at the regional level, which means that data collection and analysis are not well integrated between the regional level and the Central Government. There is a need for improvement in the HRH information system databases, particularly to enforce commitments from local governments and from the workers themselves to participate in data collection.

In order to improve access to health care, as well as having the right staff in the right locations, a related condition for success is having an effective health service referral system, especially in rural, remote and border areas. There must be alignment and coordination between various levels of government (provincial government and Central Government) by adding and improving infrastructure, support for medical devices, and availability of medicines for the health-care services.

The doctors' opposition to the compulsory service policy occurred because they felt that the approach compromised their rights *(22)*. This highlights another enabler and condition of success, which is that some deployment programmes, notably those with a compulsory element, would require effective coordination between central ministries and local governments to ensure that all relevant policies are in alignment. The focus must be to ensure appropriate conditions in rural areas, especially those related to the availability of resources such as equipment, housing and incentive packages.

This report highlighted earlier that 15% of medical specialists supported by scholarships do not give any information about why they do not return, and some of them cannot be tracked. To maximize the function of the scholarship, another condition is to have more effective monitoring and evaluation systems, which can reveal which factors caused scholarship recipients to not return to rural areas.

In the education sector, one of the reasons that there is a limited number of students with rural backgrounds at the best universities in the bigger cities is because of the gap between the quality of secondary education between rural and urban students. In order to be able to

support rural students to pass the university entrance selection, there is a need to empower more rural teachers and improve the quality of infrastructure that supports education in rural secondary schools.

At the university level, more qualified lecturers are needed. The government should consider developing more partnerships between rural universities and urban universities in terms of curriculum improvement, so that higher education in rural areas will be as good as in larger cities. This will produce high-quality graduates and increase their willingness to serve again in rural areas.

More research and detailed data can assist the government in setting priorities and determining which interventions will be the most effective in retaining and motivating health workers. A clear mechanism for periodic monitoring and evaluation of the progress in implementing policies and initiatives are also needed for the HRH development and management system.

4.2 Plans for future interventions

The number and distribution of health workers need to be improved to achieve equitable distribution of health services. For this reason, it is necessary to plan a more equitable distribution of health workers in each province. The number of health workers has exceeded the MoH's target, but when the distribution of health workers is viewed, most provinces in Indonesia have still not reached the targeted number of health workers. To overcome this problem, there are several recommendations in terms of improving the distribution and retention of health workers in Indonesia.

Suggested interventions for future consideration

- *Rural admission strategy*. There are no data about which universities have applied quotas for students from a rural background. Policy-makers need to implement new regulations that require all universities to have targeted admission schemes and special quotas to recruit students with rural backgrounds, which will ultimately increase their interest in and likelihood of returning to rural areas as their place of origin after graduating from medical school.
- *Creating an HRH information system for tracing those supported by scholarship*. This information system would help the government to control the process more effectively and would assist in establishing an enforcement system for administering penalties to those who do not return.
- *Making a policy to provide more scholarships* to students with the potential to become health workers from areas that still lack doctors so that they can return to work in their province after their education is completed.
- *Developing more systematic evaluation and monitoring* to maintain the sustainability of HRH deployment programmes and a team-based HRH distribution
- *Strengthening the recruitment system and economic capacity* of the local government at the regional level to increase personal and professional support for health workers. This may influence the choice of health-care professionals to practise in underserved areas.
- *Assigning health workers in remote areas*, which involves collaboration with local governments, local hospitals as basecamps, through assignments that are 2–3-month shifts.

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MYANMAR

Case study on health workforce rural retention

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1. Background and context

Myanmar is a sovereign state in the South-East Asia Region. It shares borders with the People's Republic of China to the north and east, Lao People's Democratic Republic and the Kingdom of Thailand to the east, and the Republic of India and People's Republic of Bangladesh to the west. The current population is 53 million and 70% of the population resides in rural areas *(1)*.

1.1 Health situation and trends

Based on global estimates, the maternal mortality ratio (MMR) was 250 deaths per 100 000 live births in 2017, and the under-five child mortality rate (U5MR) was 46.2[11] deaths per 1000 live births in 2018 *(2,3)*. Malnutrition is highly prevalent, with stunting in more than one third of children under the age of 5 years. The burden of noncommunicable diseases (NCDs) is increasing; it is estimated to account for more than 40% of all deaths, and diabetes and hypertension are particularly prevalent. Myanmar has the lowest life expectancy at birth among member countries of the Association of Southeast Asian Nations (ASEAN).

Despite all these challenges, Myanmar has made progress towards the Millennium Development Goals (MDGs): its infant mortality rate (IMR), U5MR and MMR declined between 1990 and 2010. The progress in reducing the IMR and U5MR is on track, but reduction in the MMR is slow. With efforts to tackle the spread of the three main communicable diseases – malaria, tuberculosis and HIV/AIDS by the Global Fund – the country was largely able to meet the targets associated with MDG 6. The target for the proportion of households using an improved drinking water source has already been achieved for 2015, and the proportion of households using an improved sanitary facility is also on track[12] *(4)*.

1.2 Health system in Myanmar

Government spending in the health sector has increased significantly over the five years to 2013/2014, but from a very low base (US$ 1.6 per capita with 80% out-of-pocket spending in 2012). Despite increases in the budget of the Ministry of Health and Sports (MoHS), the proportion of total health spending to gross domestic product (GDP) and proportion of government spending on health are among lowest in the South-East Asia Region and do not currently cover the costs of an essential package of services *(5)*.

The country still has many health systems challenges to overcome and these relate to the availability and distribution of inputs such as human resources, physical infrastructure, supply chain and financial resources. Weaknesses also exist in key functions such as supervision, referral, health management information system and public financial management. There is also a lack of oversight, leadership and accountability.

11 Country reported value: maternal mortality ratio (MMR) is 282 deaths per 100 000 live births, and the under-five child mortality rate (U5MR) is 72 deaths per 1000 live births; *source:* Preliminary estimates from the 2014 Census

12 WHO Country Cooperation Strategy 2019–2023 (draft)

However, to sustain the momentum of various positive health achievements and to overcome the challenges, Myanmar's political leadership has expressed a strong commitment to implementation of the National Health Plan (NHP 2017–2021). This Plan aims to strengthen the country's health system and paves the way towards universal health coverage through provisions that will increase coverage for the poorest citizens. The main goal of the NHP (2017–2021) is to extend the basic essential package of health services (EPHS) to the entire population by 2020 while concomitantly increasing financial protection and strengthening the four pillars of health systems *(6)*.

The Health Workforce Strategic Plan 2012–2017 *(7)* was developed in 2012 with the aim of meeting one of the objectives of the National Health Plan (2011–2016). It has been a guide for the Ministry of Health and Sports (MoHS), which made notable efforts to strengthen HRH, as reflected in the progress in health status in the past decade. Even so, significant and chronic challenges remain for the country, as given below:

- shortage of workforce in the public sector, due to factors such as new graduates not finding positions in the health service, many doctors emigrating abroad or working in the private sector usually in main towns and cities;
- inequitable distribution between levels of care and states/regions. This has been a persistent challenge, with more pronounced difficulties in rural deployment and retention, especially for medical doctors in rural areas (station hospitals);
- lack of appropriate incentives and support, and low salary have pushed many doctors from the service or has meant that others have not entered it at all. Consequently, posts are not being filled regularly, especially in rural and remote hospitals, making it impossible to guarantee adequate service access in those areas;
- a similar situation exists for nurses and other health and paramedical professionals *(7,8)*. For the latter, recruitment has been ongoing but there are not enough posts for them to enter into the workforce.

The National Health Plan (NHP) 2017–2021 highlighted human resources for health (HRH) as one of four pillars for progress in health systems strengthening and universal health coverage. Important efforts to strengthen the health system nationwide were set out at all levels in the first year's Annual Operational Plan (2017–2018) of the NHP *(9)* and those formed the foundation of national policies, strategies and guidelines in key areas, such as HRH, community-based health, accountability, procurement and supply chain, health financing, health information system, etc.

In line with the Annual Operational Plan Year-1 and the urgency of the HRH challenges mentioned above, the Minister for Health formed a technical working group with representatives from different departments chaired by the Deputy Director General (Academic Affairs) of the Department of HRH. The group is working to develop the HRH Strategic Plan, with involvement at the central/state/regional levels as well as a wider group of stakeholders, including university rectors, professional councils, the World Health Organization (WHO) and other like-minded agencies. With this inclusive process, insights from all actors were provided that culminated in the successful development of the HRH Strategic Plan (2018–2021) by the end of 2017 *(10)*. In this HRH Strategic Plan, a situation analysis of the health and human resource situation in Myanmar has highlighted three areas for the action needed to strengthen the health workforce: planning, quality, and governance and financing.

1. Planning, including: (a) research, information and planning; (b) workforce classification; (c) workforce numbers; (d) workforce recruitment; (e) workforce distribution; (f) workforce retention; (g) non-MoHS health workforce; and (h) workforce migration and mobility.
2. Quality, including: (a) education and training; (b) career development; (c) registration system; (d) standards for ethical conduct; (e) gender and ethnic inclusivity; (f) performance appraisal; and (g) common standard across the entire health workforce.
3. Governance and financing, including: (a) leadership; (b) roles and functions; (c) regulation; (d) accountability; (e) occupational health and safety; (f) industrial relations; (g) remuneration; (h) special allowances; (i) budget and finance.

In this HRH Strategic Plan, according to the planning of health workforce retention, Strategy 1.7 highlights the need to determine factors that will retain health staff in the service with the following strategic actions:

Strategic Action 1.7.1. Acquire evidence on the motivational factors that would retain the health workforce in the health system (e.g. routine data collection, exit interviews and reviewing existing literature to be conducted by relevant research departments and institutions).

Strategic Action 1.7.2. Address the issues revealed by evidence with actions to reduce the number of staff leaving service.

Strategic Action 1.7.3. Integrate HRH planning into the re-contracting of competent and needed health professionals beyond their retirement age, which is to be explored by the Department of Public Health (DPH), Department of Medical Service (DMS) and Department of Human Resources for Health (DHRH).

There is limited broader evidence and data on labour markets. In Myanmar, the most recent national labour market study was published by the Ministry of Labour, Immigration and Population, and this was an Annual Labour Force Survey, 2017, Department of Labour, Quarterly Report (1st Quarter, January–March 2017) *(11).* It informed that the informal-to-formal percentage distribution ratio of the country's employment status was 83:17. Key findings were that employment is heavily concentrated in the agricultural sector (48.8%), followed by the wholesale and retail trade (15.9%), manufacturing (10.8%), transportation and storage (4.7%) and education (3.0%). However, it is of limited utility to the assessment of health worker retention because the Labour Force Survey did not include health professional categories, other than to assume that it accounts for less than 3.0% of total employment.

1.3 Overall HRH issues in Myanmar

Myanmar administratively consists of seven regions (Ayeyawady, Bago, Magway, Mandalay, Sagaing, Taninthayi and Yangon), seven states (Chin, Kachin, Kayah, Kayin, Mon, Shan and Rakhine) and Nay Pyi Taw, the capital, designated as a Union Territory, which is under the direct administration of the President. All the states have hilly and mountainous areas. The regions and states are subdivided into 70 districts and 330 townships, 84 subtownships, 398 towns, 3063 wards, 13 618 village tracts and 64 134 villages *(12,13).*

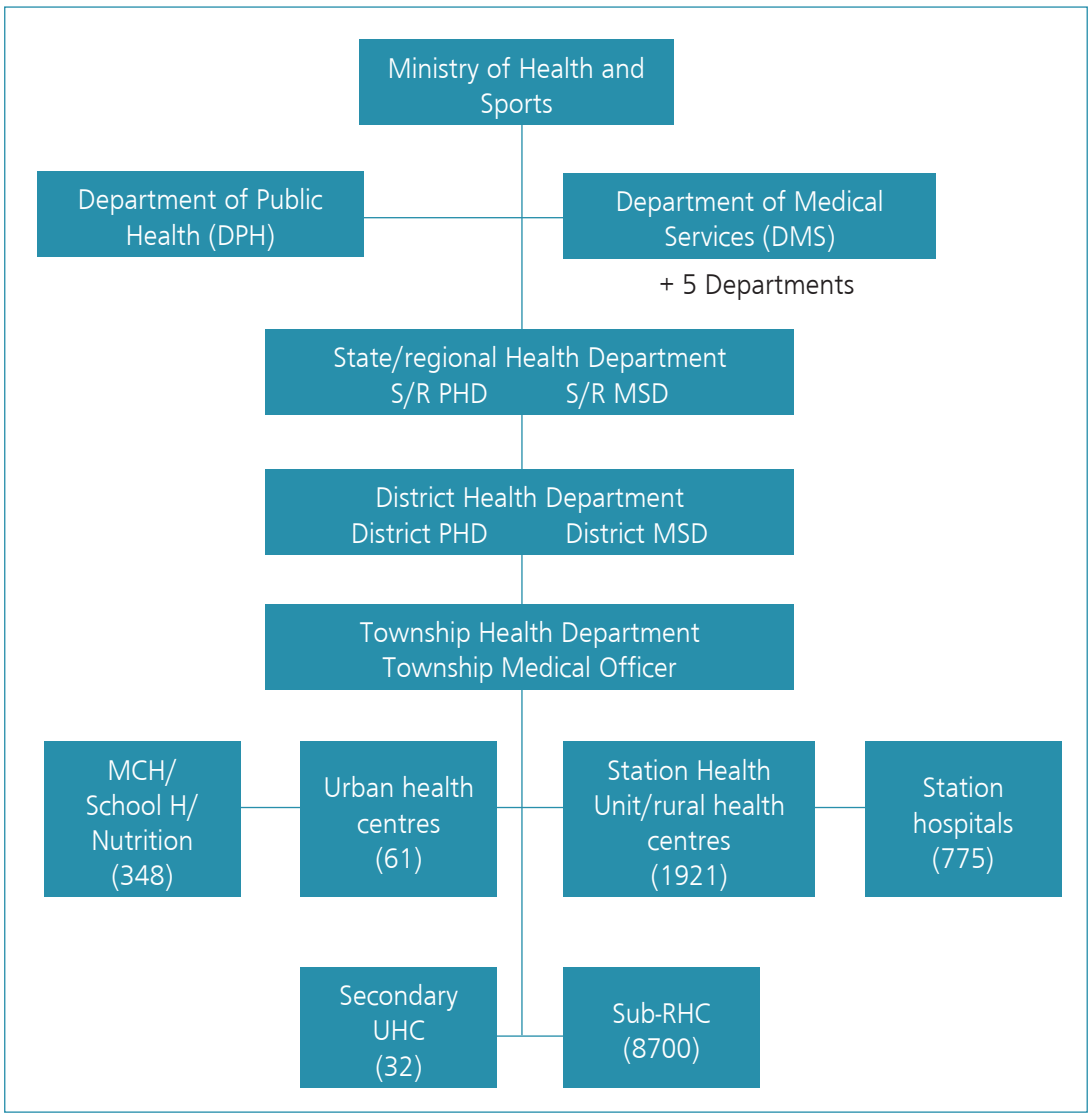
Health facilities at the primary health care level

At the national level, the Department of Health was subdivided in 2015 into the Department of Medical Service (DMS), which caters to hospitals from the tertiary level to the 16-bedded Station Hospital (SH), and the Department of Public Health (DPH), which caters to public health departments in states/regions, districts, townships, maternal and child health (MCH), urban health centres (UHCs), rural health centres (RHCs) and below (*see* Figure 1).

At the township level, there is usually a 25-bed township hospital, headed by a Township Medical Officer (TMO) with a hospital team of 55. Township hospitals provide emergency care and treatment, primary care for prevalent diseases, general administrative and auxiliary services, and clinical care such as general medicine, surgery, obstetrics and gynaecology, and paediatric care. Each township serves approximately 100 000–300 000 people, with some township hospitals upgrading to 50 or 100 beds because of an increase in the population *(13).* Table 1 shows the change and increase in the number of health facilities over the country since 2011–2012 *(13).*

Urban areas in some townships have a UHC, which provides ambulatory care and dental care for general patients. MCH centres take care of pregnant mothers and children under 5 years of age in urban areas and are also present in all townships in the country. The School Health Team usually takes care of schoolchildren's health and well-being and is situated at the Township Health Department. Disease control teams are also overseen by the TMO. Some station health units (SHUs) are rural health centres (RHCs) that have been upgraded to SHs but remain in the same building/location.

Figure 1: *Organogram of the MoHS showing the township health structure*



Source: DPH

Table 1: *Development of health facilities in Myanmar*

s/n	Health facility type	2011–2012	2018–2019
1	Hospitals (public sector)	987	1144
2	Maternal and child health centres	348	348
3	Urban health centres	87	93
4	Rural health centres	1565	1921
5	Traditional Medicine clinics	237	261

Source: MoHS, 2019

Under each township hospital there are 3–4 SHs, which provide emergency care alongside general medical care, usually in the rural areas. These have 16 beds with 19 health staff and are headed by a station medical officer. A public health supervisor 1 (PHS-1) is appointed at

the SH for provision of public health services. Under each SH there are usually 3–4 sub-rural health centres (SRHCs) run by a midwife (MW) and a public health supervisor 2 (PHS-2). Table 2 shows the standard positions of hospital staff according to the number of hospital beds. The ideal ratio of doctors to nurses has been set as one specialist to two medical doctors and one doctor per three nurses.

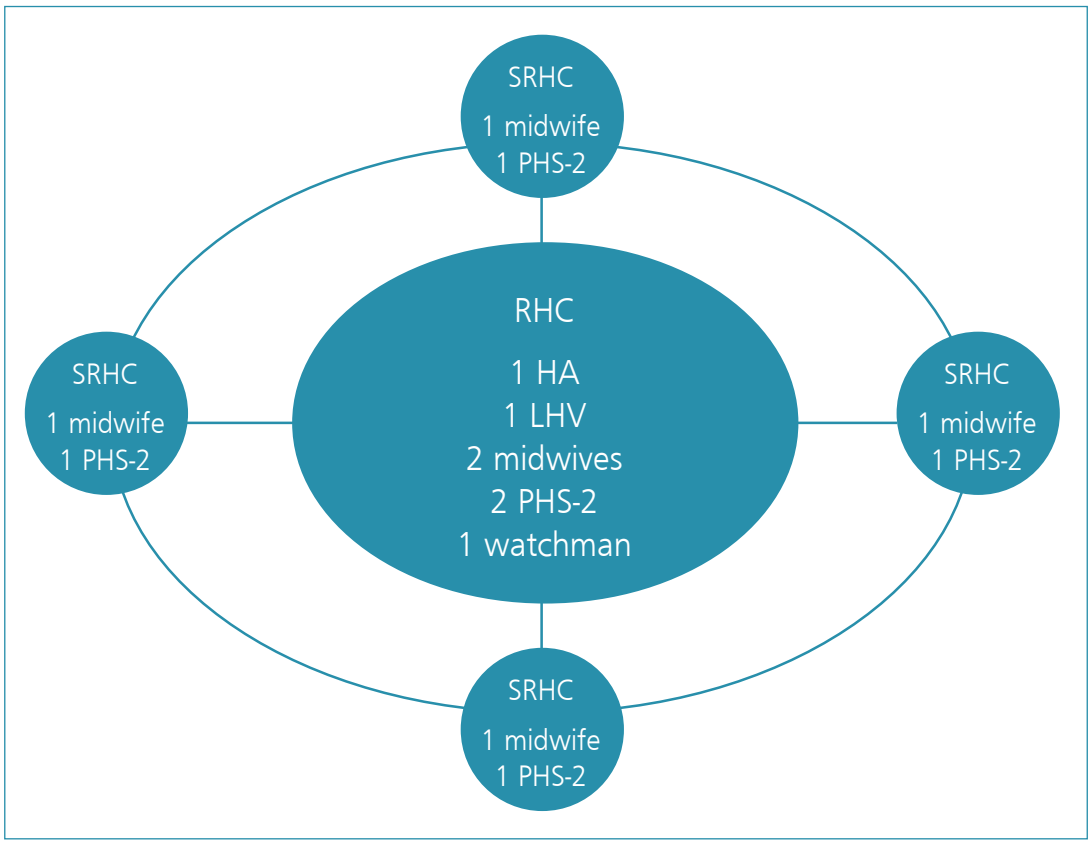
Table 2: *Standard staff positions in government hospitals*

Type of position (sanctioned post)	Size of hospital (number of beds)						
	16	25	50	100	150	200	300
Doctors	2	6	8	29	29	106	107
Nurses	6	16	23	87	92	298	301
Technicians	3	8	17	22	29	55	74
Public health supervisor 1 (PHS-1)	1						
Others (clerical & auxiliary staff)	7	25	33	63	87	135	162
Total	19	55	81	201	237	594	644

Source: Planning Division, DMS Organizational structure of hospitals

In addition to the hospital services described above, primary health care services are provided at the RHC at the village tract level and SRHCs in the villages. The RHC is headed by a health assistant (HA) who has a team of 15 staff (*see* Figure 2). RHCs and SRHCs provide preventive, promotive, curative and rehabilitative care to rural communities.

Figure 2: *New RHC structure*



Health workforce at primary health care level

Doctors and nurses

In the states/regions, station medical doctors are frontline caregivers. In remote and rural areas, some posts are hard to fill because of difficult terrain, communication gaps and lack of transportation. Currently, the vacancy rate of medical doctors is more than 50% in the states of Kachin, Kayah, Kayin, Chin, Shan North and Shan East, and Rakhine (data from DPH, 2016 Township health profiles) (*see* Table 3). In part, the vacancies reflect a situation where doctors and nurses are less willing to serve at district or township hospitals that are situated in hard-to-reach areas than in urban areas *(14)*.

Other workforce-related data from the DMS highlight that, out of 775 SHs across the country, 27% are running without station medical officers (SMOs) or assistant surgeons (ASs), which are the two sanctioned posts of medical doctors in each SH. Previously, in addition to geographical barriers to rural location, there was also insurgency in some states causing insecurity, another factor "pushing" those medical doctors away from rural and remote areas. Nowadays, with the political, social and economic transitions, and greater physical and technological infrastructure, conditions have improved in these states, although there is a persistently high vacancy rate. As seen in Table 3, compared to doctors in 2016, nurses have a lower reported overall vacancy rate, but it varies between 22% and 67% in different states and regions *(14)*.

Table 3: *Medical doctors and nurses in the states/regions*

S. no.	States/regions	Doctors				Nurses			
		Sanctioned	Appointed	Vacant	%	Sanctioned	Appointed	Vacant	%
1	Kachin	740	214	526	71	1 604	1 082	522	33
2	Kayah	336	96	240	71	548	378	170	31
3	Kayin	413	141	272	66	797	572	225	28
4	Chin	537	91	446	83	946	521	425	45
5	Sagaing	1 225	675	550	45	2 742	1201	1 541	56
6	Tanintharyi	462	158	304	66	980	578	402	41
7	Bago	1 049	476	573	55	2 231	1 209	1 022	46
8	Magway	863	430	433	50	1 955	1 255	700	36
9	Mandalay	1 945	1 273	672	35	4 816	2 525	2 291	48
10	Mon	538	283	255	47	975	662	313	32
11	Rakkhine	1 008	236	772	77	1 350	678	672	50
12	Yangon	3 475	2 392	1 083	31	6 398	3 429	2 969	46
13	Shan (South)	865	381	484	56	1 741	794	947	54
14	Shan (North)	1 049	244	805	77	1 228	799	429	35
15	Shan (East)	433	80	353	82	569	443	126	22
16	Ayeyarwady	1 470	463	1 007	69	2 915	1 259	1 656	57
17	Naypyitaw	1 078	443	635	59	2 411	798	1 613	67
	Union	17 486	8 076	9 410	54	34 206	18 183	16 023	47

Source: Department of Public Health, Ministry of Health and Sports, 2016 Township health profiles

Trends in enrolment to education, and deployment from education, are shown in Table 4. Annual enrolment has been variable for both doctors and nurses, but there has been a pronounced increase in nurse enrolments in recent years. Table 4 also shows that not all those who have enrolled have then entered the workforce, especially medical doctors. This is one reason for the many vacant posts in the states/regions, especially in rural and remote areas.

As for nurses, they are given a temporary license after completing training and receive a permanent license once they enter the workforce. There is no system for tracking how many trained doctors and nurses have left the country, entered private clinics/hospitals, or are working in other sectors. The Myanmar Medical Council (MMC) is responsible for giving a registration number (Sa Ma) for doctors but there is no means of tracking them apart from renewal of the Sa Ma every three years. Similarly, the Myanmar Nurses and Midwifery Council (MNMC) is responsible for relicensing of nurses. Table 4 also suggests that fewer doctors enter the workforce than are being produced; in part this may relate to the deployment process that takes significant time, with many steps involving other ministries, such as the Ministry of Planning and Finance, the Union Civil Service Board (UCSB) and the Cabinet.

During past two decades, the government prioritized increasing the number of hospitals and bed capacity, with the idea of increasing human resources. Thus, all state/region hospitals became 200-bedded hospitals and district hospitals now provide services across nine specialties. Posts were created for specialists, AS and nurses but vacancies are still there as doctors and nurses prefer to stay in big cities where they could practise also in the private clinics. A penalty was imposed if they quit the service, yet most of them who quit pay this penalty. Very recently, penalty charges for nurses has increased from 400 000 to 1 000 000 kyats, with the aim of making them enter the workforce and serve compulsorily for at least 3 years, after which they would be allowed release from the service. By this means, retention in service has been managed.

Table 4: *Enrolment and deployment trend of doctors, nurses and midwives for five years*

S. no.	Enrolment/deployment of medical professionals at universities	2014 (2014–2015)	2015 (2015–2016)	2016 ((2016–2017)	2017 (2017–2018)	2018 (2018–2019 March)
1	Total enrolment of medical doctors per year (first year)	1318	1396	1649	1338	1002
2	New deployment of doctors by MoHS per year		913	1537	840	940
1	Total enrolment of nurses per year (first year)	1960	2164	2040	3109	4077
2	New deployment of nurses by MoHS per year			1551	1673	42
1	Total enrolment of midwives per year (first year)	1191	1308	1296	1381	341
2	New deployment of midwives by MoHS per year		2049	1959	1046	839

Source: DHRH for enrolment trend and DMS for deployment trend: enrolment is usually according to calendar year, but deployment is usually according to fiscal year

Basic health staff

Basic health staff (BHS) are the frontline health service providers in rural communities. BHS includes the HA, lady health visitor (LHV), midwife, PHS-1 and PHS-2, who serve at the RHCs (total 1932) and SRHCs (total 8498).

Staff members are provided with a stipend and have to sign bonds to serve in rural areas for at least 3 years or 5 years after completion of training, depending on the type of bond.

After the division and expansion of the Department of Health, a new structure emerged at the township level. TMOs now look after hospital care and the Township Health Department (THD) Officer is responsible for public health services. A lot of public health posts have been created at THDs, district health departments (DHDs) and state/regional health departments, which has raised the overall number of sanctioned posts of HAs.

Table 5 shows the existing sanctioned posts, appointments and vacancies of BHS across the country. The data show a high vacancy rate of HAs, mostly because of the newly created posts at the THDs, DHDs and S/RHDs, which could not be filled. HAs have mainly been posted at the RHCs, but a few are posted in other ministries such as the Ministry of Home Affairs (prisons), Ministry of Mines, etc. which also contribute to the high vacancy rate. In addition, some HAs who were BCom graduates were not willing to wait for postings and have instead taken up work at international nongovernmental organizations (INGOs) working in public health, and therefore were not available when a deployment call was announced. LHV posts were also created at the THDs, DHDs and S/RHCs, as HAs, as both of them are at the supervisor level and need to be at those sites.

PHS-1 have not been recruited for some time as there were plans (1988–2013) for them to be replaced in SHs by trained nurses, sanctioned by senior officials from the Ministry of National Planning and Economic Development (MNPED). In reality, PHS-1 were appointed for public health work in some areas to oversee the SRHC under them. After some years, the need for a PHS-1 at the SH was proposed to the MNPED and, in 2013, PHS-1 posts were created in the organizational set-up of all SHs.

In 2011, during the assessment of townships in the Vaccine Alliance (Gavi) health systems strengthening (HSS) programme, it was found that the midwife:PHS-2 ratio was 10:1 *(15)*. These two types of health workers – midwives and PHS-2 – are the frontline health workforce that serves the community at the SRHCs, and one of the objectives of the Gavi HSS programme was to increase the production of PHS-2 so that the ratio of MW:PHS-2 would become 1:1. Since then, the Public Health Division has significantly increased the recruitment of PHS-2 so that it had nearly fulfilled the target ratio by 2018. Multipurpose health workers (MPHWs) cover a range of roles such as spray man, leprosy worker and some of them have continued their career as PHS-2, and there is now no more production of MPHWs after bulk recruitment of PHS-2 by the Public Health Division.

Table 5: *Percentage of vacancies of BHS across the country (as of February 2019)*

S. no.	Category of BHS	Sanctioned	Appointed	Vacant	%
1	Township Health Assistant (THA)	105	89	16	15%
2	Health Assistant (1) (HA-1)	506	328	178	35%
3	Health Assistant (HA)	3 569	2 139	1 430	40%
4	Lady Health Visitor (LHV)	3 198	2 018	1 180	37%
5	Public Health Supervisor (1) (PHS-1)	2 613	746	1 867	71%
6	Public Health Supervisor (2) (PHS-2)	13 249	10 437	2 812	21%
7	Midwife (MW)	14 576	13 737	839	6%
8	Multipurpose Health Worker (MPHW)	1 124	346	778	69%

Source: Department of Public Health, Ministry of Health and Sports

Table 6 shows sanctioned posts (S), number appointed (A) and % vacancies (V) for the main categories of staff, by states/regions. Higher levels of vacancies are seen in the states than the regions in all categories of BHS. Midwives report the lowest vacancy rate among all cadres, especially in Bago (1%), Kayin and Shan East (2%) and Kayah, Yangon and Naypyitaw (4%). The highest vacancy rate was seen of PHS-1 in all states/regions, except in Kayah State.

Voluntary health workers (community health workers and auxiliary midwives)

In addition to BHS, there is another category of voluntary health worker (VHW), which includes the community health worker (CHW) and auxiliary midwife (AMW), trained for one month and six months, respectively. Since 1980, CHWs and AMWs have been trained as VHWs selected from the villages, given training by the TMO and the team of BHS supported by WHO, United States Agency for International Development (USAID) and United Nations Children's Fund (UNICEF).

These workers have to serve in their own community as a bridge between the midwife and the community. Previously, most of the CHWs helped midwives by fetching children for immunization, and also in the area of environmental sanitation and health education. Nowadays, mothers in the communities have gained more understanding of child immunization and CHWs can perform other higher-level services such as nutrition surveillance, malaria case-finding (using rapid diagnostic tests) and treatment, case management of pneumonia and diarrhoea in children under 5 years (with simple antibiotics) and referral, and identification of a high-risk pregnancy for referral according to need.

Villagers with at least middle school education are recruited to be trained as AMWs. Although many AMWs have been trained, some of them have dropped out as a result of, for example, moving to other places, getting married or finding new jobs. Data for 2017 indicated a total of 13 937 CHWs and 21 825 AMWs across the country (BHS section, DoH, 2017).

Recently, with multi-stakeholder involvement, a new policy has been drafted and submitted to the MoHS for the institutionalization and sustainability of these volunteers, renamed as community-based health workers (CBHWs), in the health system. Mapping of existing CHWs,

AMWs and other malaria volunteers, and promotion of registration of the CBHW in the future was recommended in the drafted CBHW policy and is now being translated in the Myanmar language.

Table 6: *HA, LHV, MW, PHS-1, PHS-2 in the states/regions*

States/ regions	HA			LHV			PHS-1			PHS-2			MW		
	S	A	%V	S	A	%V	S	A	%V	S	A	%V	S	A	%V
Kachin	191	83	57	127	73	43	107	22	79	476	380	20	514	429	17
Kayah	38	19	50	37	33	11	18	16	11	168	118	30	191	183	4
Kayin	90	60	33	86	58	33	68	16	76	427	368	14	428	420	2
Chin	166	33	80	113	62	45	56	12	79	501	329	34	506	340	33
Sagaing	445	284	36	366	182	50	121	74	39	1 662	850	49	1 789	1429	20
Tanintharyi	98	53	46	81	60	26	78	11	86	378	226	40	400	327	18
Bago	367	238	35	280	204	27	184	69	63	1 211	804	34	1 404	1 394	1
Magway	234	213	9	237	186	22	106	47	56	1 134	845	25	1 351	1 209	11
Mandalay	228	179	21	267	186	30	172	41	76	1 174	1 032	12	1 279	1 110	13
Mon	96	79	18	91	78	14	43	21	51	438	290	34	515	485	6
Rakhine	242	140	42	184	120	35	157	44	72	896	736	18	896	806	10
Yangon	295	155	47	298	187	37	211	45	79	807	682	15	944	909	4
Shan (South)	92	82	11	119	110	8	53	31	42	545	374	31	605	574	5
Shan (North)	239	82	66	153	72	53	143	28	80	606	324	47	609	484	21
Shan (East)	82	34	59	65	37	43	45	5	89	256	186	27	283	276	2
Ayeyarwady	413	271	34	329	189	43	108	67	38	1 724	1 389	19	1 964	1 580	20
Naypyitaw	71	39	45	60	36	40	36	10	72	238	226	5	315	303	4
Union	3 387	2 045	40	2 893	1 873	35	1 706	559	67	12 641	9 159	28	13 993	12 258	12

Source: Township health profile, 2016

1.4 HRH issues in remote/rural areas

According to the policy mapping and analysis on rural retention policies in Myanmar (2013) *(16)*, a study conducted by group of researchers from the MoHS, the following challenges were identified by doctors in rural and remote areas:

- insufficient salary,
- lack of support for transportation and accommodation for staff,
- difficulties in communication with family back home,
- difficulty in getting leave from work,
- lack of specific rules or criteria relating to posting in hard-to-reach areas,
- lack of specificity about exactly how long rural posting would last once posted, and
- security problems, especially in insurgency areas.

In addition, non-local staff has to face language barriers and may find it difficult to address local cultural beliefs and taboos. This study focused on doctors, HAs and MWs in the rural communities and was based on results from focus group discussion (FGD) sessions. The FGDs revealed that most BHS would like to have a good relationship and support from the local authority and some were happy and contented with what they had as long as they were able to serve people in the communities. For the BHS in the communities, there are very few retention problems as such, as most of them are local people and agreeable to staying and working in villages.

2. Policy interventions to improve retention of HRH in rural/remote areas

This section focuses in more detail on specific policy interventions aimed at improving rural retention in Myanmar, drawing from the WHO evidence-based recommendations.

A. Educational interventions

A.1 Students from a rural background

Use targeted admission policies to enrol students from a rural background in education programmes for various health disciplines, in order to increase the likelihood of graduates choosing to practise in rural areas.

The MoHS has been implementing local enrolment of students from rural backgrounds for some time. This is especially intended for medical doctors, nurses and midwives to enrol in training schools near/in their locality. Most of these graduates from rural backgrounds enter the workforce as they have contracts to serve at their local posts, if these are available.

A.2 Health professional schools outside major cities

Locate health professional schools, campuses and family medicine residency programmes outside of capitals and other major cities as graduates of these schools and programmes are more likely to work in rural areas.

There are five medical universities, including Universities of Medicine 1 and 2 in Yangon, University of Medicine Mandalay, University of Medicine Magway, and University of Medicine Taunggyi. The University of Medicine Magway was established in 2000, outside major cities and intended for students from rural areas, and the University of Medicine Taunggyi was established in 2014 and admits students from Shan, Kayah and Kachin States.

The University of Community Health (UoCH) was opened in Insein, Yangon since 1954 to produce HAs, PHS-1 and PHS-2, and it was moved out from Yangon to Magway in the year 2000 as there was more intake per year in the new BCom HA course of four years' training and there was not much space.

There are 25 nursing schools and 22 midwifery schools (total of 47) located across the country. The Central Midwifery Training School, Yangon was founded over 100 years ago, and many midwifery schools were established as early as the 1940s–1950s, with others being located in the states/regions from 1993 onwards.

A.3 Clinical rotations in rural areas during studies

Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.

All medical students have to study in rural areas during the final Part 1 (residential field training for 3 weeks). The stated purpose of this rural work is that at the end of three weeks of residential field training to the selected townships and rural areas, the students should: (i) be aware of the community way of life and appreciate community customs, traditions and values; (ii) be familiar with the organization and functions of the health department at the peripheral level; (iii) be observant of significant conditions in the community, which may facilitate or hinder the effectiveness of health-care programmes; (iv) be aware of the roles of governmental and nongovernmental organizations in implementing health-care activities; (v) be familiar with the required knowledge and skills concerning research and health; and (vi) be appreciative of the importance of communication skills in providing health care *(17).*

During their field operation, the students visit the THD, RHCs and SRHCs to learn how these facilities and their health workforce function. They have to learn the organizational set-up, job description of BHS and how they provide comprehensive health care in the communities. The TMO teaches hospital care and administration and even provides hands-on training in some surgical and obstetrics and gynaecology operations. The TMO also travels with the students to villages for health education, medical examination and practical teaching–learning on environmental sanitation.

A.4 Curricula that reflect rural health issues

Revise undergraduate and postgraduate curricula to include rural health topics so as to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and retention.

Curricula for nurses, midwives, HAs, LHVs and PHS mostly reflect the rural health issues (1953 onwards Department of Medical Sciences, Directive) and since 2010, the curricula are being reviewed and revised annually, the latest being in 2017.

The LHV curriculum was reviewed and revised and changed from a "task-oriented" curriculum to a "competency-based" one in 2011, as an output of the National Nursing and Midwifery Education Seminar held in 2010. This competency-based curriculum contains more of leadership and management, communication skills, and community mobilization and participation so that LHVs who are supervisors to the midwives know and practise supportive supervision and hands-on training that motivates staff to gain job satisfaction (personal communication, Nursing Division, DHRH).

A.5 Continuous professional development for rural health workers

Design continuing education and professional development programmes that meet the needs of rural health workers and that are accessible from where they live and work, so as to support their retention.

Continuing education is usually conducted by different programmes and projects for rural health workers as in-service training. New technologies, refresher training and monthly continuing medical education (CME) on pay day at township hospitals have been implemented to increase competency and support retention.

In-service training is usually programme-based and provided at the township level, state/regional level and even at the central level.

A professional development programme was developed for HAs and nurses to enter the Master of Public Health (MPH) degree course at the University of Public Health (UPH), Yangon in 2014 and, to date, 24 HAs have completed the MPH course.

There is an (in-service) arrangement by the DHRH with the DMS/DPH, which acts as a kind of incentive for rural retention. Additional fixed marks/percentage in the postgraduate entrance exam are awarded to candidates serving in rural/hard-to-reach areas for more than 6 months. In the theory paper, 10% of marks are added for those who have served in the hardest-to-reach townships. For viva voce, doctors who have worked in townships outside big cities are given an additional 5 marks, those in hard-to-reach townships 10 marks and those in townships identified as hardest-to-reach are given an additional 15 marks. For those who want to undertake postgraduate studies, staying in rural and remote areas for work counts significantly towards their application.

For rural retention purposes, the MoHS, DHRH, DPH and DMS have to think about opening off-campus training where the health worker could still learn and obtain a diploma or specialty training certificate while in the workplace. This kind of training has recently been initiated as a programme for nursing-midwifery diploma holders to upgrade to BNSc (Nursing). It started in 2019, after the Institute of Nursing in Yangon and Mandalay affiliated with numerous township schools to offer the programme. Nurses with a diploma in nursing, working at public hospitals in 15 townships and having 10 years of service, can attend off-campus training for two years to obtain a BNSc (Nursing). They have to attend short courses in the corresponding nursing and midwifery schools while working. At present, a total of 200 nurses from these 15 townships are attending off-campus training in BNSc (Nursing) and this could further expand to more townships. It could be one answer to the rural retention issue if the MoHS could provide accessibility to continuing education for other health workers from where they live and work.

B. Regulatory interventions

B.1 Enhanced scope of practice

Introduce and regulate enhanced scopes of practice in rural and remote areas to increase the potential for job satisfaction, thereby assisting recruitment and retention.

During the 1970s, midwives were given multiple tasks beyond MCH care. These multipurpose midwives enhanced the scope of practice in rural areas to include TB and malaria treatment. One other example was leprosy elimination through integrated basic health services in 2003; hence the role of midwives was recognized and they were given the name of Red Angels in the Leprosy Elimination Programme using multidrug therapy (MDT), starting in 1988. A total of 8615 midwives, together with vertical staff of the leprosy programme, had implemented MDT

over the whole country, which resulted in the elimination of leprosy by the year 2003. With this expansion in scope, midwives have become well honoured and valued by their communities.

HAs are the leaders of RHCs and supervisors of the SRHCs under their jurisdiction. The RHC usually covers a population of 20 000 and thus HAs and their teams are primary caregivers in their local communities. The HA has four main responsibilities: (i) administration and management of the RHC; (ii) public health activities; (iii) disease control activities; and (iv) curative care. The HA has to lead the evaluation of RHC functions on a three-monthly basis, and take the lead in disease surveillance, outbreak response and disaster preparedness and management, and also prevention and treatment of NCDs. They have to report any outbreak or emergency situation in the community directly to the TMO. The HA is often seen as a leader in the community, and is usually the initiator of the Village Health Committee. Here, the HA can share any information concerned with the community such as outbreaks of disease, unusual events, disasters or fairs and festivals in the village.

B.2. Different types of health workers

Introduce different types of health workers with appropriate training and regulation for rural practice in order to increase the number of health workers practising in rural and remote areas.

Myanmar already has many different types of health workers in rural practice: SMO, nurse, technicians, PHS-1, HA, LHV, midwife, PHS-2. Township health assistants (THAs), township health nurse (THN) and HA-1 are usually posted at the township level. Out of these, the SMO has to provide both outpatient and inpatient clinical care, and nurses and technicians support hospital care and are frontline caregivers. The THA, THN and HA-1 are stationed at the Township Hospital/ Township Health Department and their roles are more or less management and administration, public health and disease control, and overseeing the RHCs and SRHCs in the township. As noted earlier, the HA is the lead of the RHC and has public health, disease control, curative and administrative work. The number of BHS in different categories are shown in Table 5.

B.3. Compulsory rural service

Ensure that compulsory service requirements in rural and remote areas are accompanied by appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.

There have been policy changes related to the needs of doctors as discussed below.

In 1994, due to the shortage of medical doctors, the MoH ordered all graduates to enter into service, either permanently or under 3-year bonds. For the latter, the first one-and-a-half years had to be served in State hospitals and the next one-and-a-half years at rural and remote SHs. Many doctors quit their job during the latter part when they were sent to rural and remote areas and they lost their doctors' registration. This policy was practised till the year 2000.

During the year 2000, all graduate doctors were called to enter the workforce as permanent staff again (National Health Committee Resolution 29/28-6-2000) and sent to big cities, under training for one-and-a-half years, and then posted to townships as AS for the second posting.

However, with the increase in the number of graduates, the MoH shifted the deployment responsibility back to the UCSB. Newly trained doctors have to sit for both a written and oral

examination set by the UCSB. In 2011, 500 doctors were recruited, which increased to 1500 in 2012.Those doctors losing their doctors' registration during 1994–2000 were provided with reorientation training for a month and were given registration in 2010. Bonds were discontinued after 2000 because they were no longer required.

The current situation is that the Agreement (bond) means that for at least 3 years health workers have to serve in the public sector, at any location, after completion of training (for all nurses and BHS – HAs, LHVs, MWs, PHS). Almost all the posts of the BHS are in rural areas (DOH/DMS produced training bonds).

B.4. Subsidized education for return of service

Provide scholarships, bursaries or other educational subsidies with enforceable agreements of return to service in rural or remote areas to increase recruitment of health workers in these areas.

Scholarships for outstanding students and stipends for poor students in medical education have been provided for many decades by the Ministry of Education. Usually around 100 scholarship holders and approximately around 50 stipend holders are provided entry to completion of training, assuming no failure in the exams. Even though the stipend is not directly given to medical students from rural areas, stipend holders are usually from villages in different states/regions.

A stipend is provided to all nurses, midwives and HAs through their entire training. Although this Is not aimed at the rural poor, most of the locals are from the rural poor. Individual donors, organizations and foundations can connect directly with universities to provide named scholarships to outstanding students who are poor. This kind of private provision has helped a lot of poor, talented students obtain a tertiary education. It is likely that at least some of these students will return to their own communities after their graduation (DHRH), but this is an area where further research is needed to explore the cohort of stipend holders and their destinations.

C. Financial incentives

C.1 Appropriate financial incentives

In 2013, all government service workers who were serving in remote and socially difficult areas (identified as 109 townships/subtownships) received double payment (twice the regular salary) (2012–2013 Notification by the Ministry of Finance & Revenue). The hard-to-reach townships were identified by the Ministry of Home Affairs and it provided double the salary to all government servants. While assessing rural retention policies in 2013, focus groups noted that this was not enough for government servants from outside the locality, but was more acceptable for locals who are already living and working in those hard-to-reach areas *(16)*.

As of 2014, the government is no longer providing double salary. Instead, the government provides an allowance for the cost of living in hard-to-reach areas. However, the benefit is not as generous as the double salary.

Apart from this, at the primary health care level, all health workers get per diems and transportation allowance by the Gavi HSS immunization systems strengthening (ISS) for the Expanded Programme on immunization (EPI), which was expanded to hard-to-reach areas during 2010–2016 *(15)*. Other programmes also provide per diems and transportation allowance for training.

D. Personal and professional support recommendations

D.1 Better living conditions

Improve living conditions for health workers and their families and invest in infrastructure and services (sanitation, electricity, telecommunications, schools, etc.), as these factors have a significant influence on a health worker's decision to locate to and remain in rural areas.

The MoHS is implementing the National Health Plan (2017–2021) through rolling out the Annual Operational Plan (2017–2018), which focuses on four pillars: (i) human resources for health (HRH), (ii) health infrastructure, (iii) health services, and (iv) health financing.

This integrated investment plan has a comprehensive list of all health facilities that will be created and regularly updated for construction, refurbishment and/or equipped, taking into account the prevailing need and local context. Investments are prioritized at the township level, as part of the Inclusive Township Health Plan (ITHP), considering the existing community-based organizations (CBO), ethnic health organizations (EHOs) and private sector health facilities to take advantage of potential synergies. It will also align with the human resources deployment plan to avoid empty facilities.

Table 7 shows the progress to date in providing staff housing to ensure staff motivation to serve in rural areas.

Table 7: *Progress made in renovation/building of infrastructure for staff housing and primary health care facilities*

Year	State and region staff housing	District-level staff housing	Township-level staff housing	Rural Health Centre + staff housing	Sub-RHC + staff housing
2016–2017	5	33	0	109	450
2017–2018	8	9	7	123	439
2018–2019	16	19	62	102	236
Total	29	61	69	334	1125

Source: Department of Public Health, Admin and Finance, 2019

D.2 Safe and supportive working environment

Provide a good and safe working environment, including appropriate equipment and supplies, and supportive supervision and mentoring, in order to make these posts professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.

The goal for supply-side readiness under the NHP (2017–2021) is to provide the primary health care level with appropriate equipment and supplies and other supportive measures.

D.3 Outreach support

Identify and implement appropriate outreach activities to facilitate cooperation between health workers from better-served areas and those in underserved areas, and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.

With support from Gavi HSS and other donors, motorcycles were distributed among BHS for outreach services, especially immunization during the Gavi HSS implementation from 2010 to 2016. This had a significant impact not only on vaccination coverage, but also other MCH services, as discussed in successful intervention 3.3. By comparing the achievements of the first 20 townships in 2013 to the status in 2010 (prior to the programme), the evaluation team noted a significant improvement in MCH service coverage: out of 20 townships, 19 demonstrated increased coverage of antenatal care, 15 showed increased skilled birth attendant coverage, 11 demonstrated increased immunization coverage with tetanus toxoid (TT2) and bacillus Calmette–Guerin (BCG). Secondary data analysis showed that outreach services to hard-to-reach communities four times a year boosts antenatal care, skilled birth attenda nce, TT2, DPT3 and BCG coverage. Without these outreach services, people residing in hard-to-reach villages would not gain access to these services *(15).*

D.4 Career development programme

Develop and support career development programmes and provide senior posts in rural areas so that health workers can move up the career path as a result of experience, education and training, without necessarily leaving rural areas.

No special privilege is given to medical doctors who serve in rural or remote areas as part of career development. However, diploma-holder nurses who are working at township hospitals can attend off-campus BNSc training for 2 years.

D.5 Professional network

Support the development of professional networks, rural health professional associations, rural health journals, etc. in order to improve the morale and status of rural providers and reduce feelings of professional isolation.

There are no rural health professional associations. The Myanmar Nurses and Midwife Association (MNMA) and Myanmar Health Assistants Association (MHAA) have been supporting their own professionals in capacity-building and improving their professionalism.

D.6 Public recognition measures

Adopt public recognition measures such as rural health days, awards and titles at local, national and international levels to raise the profile of those working in rural areas as these create the conditions to improve intrinsic motivation and thereby contribute to the retention of rural health workers.

BHS and VHWs are recognized by the MoHS once every two years by holding an "Outstanding BHS and Voluntary Health Worker's Tour". Outstanding BHS who have performed well in the communities are selected and sent together with outstanding VHWs (total around 100–150) for a one-week trip and short training. The Minister of Health hosts a dinner and presents awards to the outstanding BHS and VHWs during this trip. This social recognition provides effective motivation and is a morale booster that helps to retain them as volunteer health personnel for the benefit of their own community. This is conducted by the Public Health Division supported financially by a WHO Agreement for performance of work (APW) on a regular two-yearly basis.

The MoHS had organized best worker competitions among champions and won the Global Health Workforce prize and the Asia Pacific Action Alliance on HRH (AAAH) best Health Worker prize in 2010 and 2012, respectively. These prizes are usually targeted at rural health workers providing services to poor rural communities.

3. Detailed descriptions of successful interventions to improve retention among health workers

3.1 Medical education opportunities outside urban areas

Actions aimed at improving retention of health workers in rural and remote areas have been undertaken for some time. The MoHS and the DHRH have helped to improve rural retention by increasing educational opportunities outside cities, as per WHO recommendations. The opening of midwifery and nursing schools outside cities and two new medical institutes outside Yangon and Mandalay reflects the main aim of increasing the number of locals trained, thereby increasing the number likely to stay and serve their own communities after graduation.

Curricula now also give students an opportunity to explore working in health facilities outside urban areas. Each programme requires that students serve in rural areas for 6–8 weeks during their training, as outlined below:

1. Medical students: the medical students' Final Part 1 curriculum contains Preventive and Social Medicine, which captures a lot of rural health issues as clubbed in with compulsory field experiential learning for three weeks. It contains a detailed Township Health System introduction and lessons on planning and management to link with the MDGs, Sustainable Development Goals (SDGs) and now universal health coverage. The curriculum was reviewed in 2017 and it now includes the subjects of Financing and Social Accountability *(17)*.
2. House surgeons: during house surgeon training (internship), it is a requirement to undergo residential training in Community Medicine for two weeks at Hlegu Training Centre, out of Yangon. (This is based on a DMS directive from the 1970s.)
3. Nursing: the 3-year Nursing Diploma course has a built-in Community Health Nursing curriculum where student nurses have to spend 6–8 weeks in the community each year. Year-1 students have to focus on the individual, family and community as clients. While visiting the communities, they have to assess the most common health problems, and develop plans for preventive measures that could solve the problems, such as health education on handwashing to prevent diarrhoea in under-5 children. In year 2, field training is for 6–8 weeks. Lastly, in year 3, nursing students have to visit the community for another 6–8 weeks for specialty subjects such as management of disabled persons, community mental health nursing, school health and occupational health. All of this field training exposes students

to rural experiences that can make them more familiar with the work in rural communities in future.

4. Midwifery: the midwifery 2-year Diploma course has 6–8 weeks of training in year 1 comprising community practical visits looking into the vital signs of patients, antenatal care and general care of patients at the RHCs, and some MCH and township hospitals. During year 2, students have real exposure to deliveries at the township and MCH hospitals, RHCs and SRHCs for another 6–8 weeks. They have to witness 40 deliveries, self-conduct 20 normal deliveries and observe abnormal deliveries during their field training. All of these are components of the curriculum of midwives.
5. Health Assistant: HAs, during years 1–3, have to study medicine and surgery in practice at district hospitals near the University of Community Health, Magway township, as once they complete their training, they will become the leaders of health teams in rural and remote areas. During the final phase of their training, they are sent to rural areas at the Taw Saint Department of Field Training near Magway and then each HA is attached to one RHC for three months to learn from the team of BHS working there. This is "hands-on" training to gain knowledge and practice of what they will be exposed to once they enter the workforce. The HA in charge of the RHC will have to train the students in preventive, promotive, curative and rehabilitative care and in all the principles and guidelines of primary health care.
6. Public Health Supervisor 1 and 2: the PHS-1 training includes one-month field training in the 9-month course and PHS-2 has four months' training in the state/region where they can learn about rural services.

All of the undergraduates who will be serving at the primary health care level have exposure to rural and community experiences and clinical rotations. These will have a positive influence on attracting and recruiting health workers to rural areas. These are the stated objectives of the respective curricula of BHS so that they would be able to assess and identify community health problems, participate in identifying community health needs and provide care to people in the community. There is no monitoring system for tracking retention in rural and remote areas as yet. In-service training, support from the communities, and continuous supervision and monitoring could be other means of retention, in addition to pre-service training.

In addition to these measures in pre-service training, deployment policies also have a part to play in retaining staff in rural and remote areas, such as opening off-campus BNSc training for nurses for the first time, with affiliation between the universities of nursing in Yangon and Mandalay and nursing and midwifery schools in 15 townships nearby. This is a kind of in-service institutionalization of continuing education that would certainly help to retain nurses in rural areas.

3.2 Increased recruitment and support for rural students

This policy intervention, coupled with targeted admission policies, has increased representation from students with rural backgrounds. The government has taken great care in providing exemptions such as special quotas while enrolling ethnic populations from hard-to-reach areas. Table 8 shows the recruitment of students from special self-administrative zones (some ethnic groups) and hard-to-reach areas as well as from all states/regions. Table 8 shows that very few

medical students are admitted from special self-administrative zones and from hard-to-reach areas. It also shows that most of the new medical students come from Yangon and Mandalay, with the rest of the regions seriously underrepresented. In contrast, there are nurses and midwifery training schools in all states/regions and local recruitment is usually done so that they could be posted in their local areas (Table 9).

Table 8: *Enrolment of students from rural backgrounds in medical universities*

Policies on rural retention	2014	2015	2016	2017	2018
A1 students from rural backgrounds	Percentage of total intake				
Number of medical students recruited from special self-administrative zones per year (purely ethnic quota, including Naga, Danu, Pa-O, Palaung, Kokant, Wa)*	8 (0.6%)	15 (1.0%)	11 (0.7%)	20 (1.5%)	10 (0.8%)
Total number of medical students recruited from physically and socially hard-to-reach areas in a year*	42 (3.2%)	38 (2.5%)	48 (3%)	61 (4.6%)	62 (5.2%)
Total number of medical students recruited from all states/regions apart from *Yangon and Mandalay**	242 (18.3%)	402 (26.3%)	399 (24.7%)	308 (23.2%)	252 (21.1%)
Total number of medical students recruited from Yangon Region	761 (57.5%)	689 (45.1%)	710 (44%)	575 (43.2%)	479 (40%)
Total number of medical students recruited from Mandalay Region	320 (24.2%)	436 (28.6%)	504 (31.2%)	446 (33.6%)	466 (38.9%)
Total number of medical students enrolled per year	*1323*	*1527*	*1613*	*1329*	*1197*

Source: DHRH

*Row 1&2 included in row 3

Table 9: *Enrolment of students from rural backgrounds in nursing and midwifery schools*

Bachelor of Nursing Science (generic) & 3-year Nursing Diploma		2014 Dec	2015 Dec	2016 Dec	2017 Jun	2017 Dec	2018 Dec
1	University of Nursing Yangon and Mandalay	420 (21.4%)	336 (15.5%)	325 (15.9%)	-	378 (17.1%)	387 (9.5%)
2	Nursing and Midwifery Training Schools from all states/regions	1540 (78.6%)	1828 (84.5%)	1715 (84.1%)	891 (100%)	1840 (82.9%)	3690 (90.5%)
	Total	1960	2164	2040	891	2218	4077
2-year Midwifery Diploma							
	All midwifery schools in states/ regions	1191	1308	1296		1381	341

Source: DHRH

However, this is not enough, and more effort will have to be put into this area to sustain improvement. Stipends, scholarships and bursaries to the local poor have been provided for many years and, as explained, even though it is not directly for students from rural areas, students who apply for stipend have to be from families that cannot afford the fees from townships in states/regions. Now with the expansion of social networking, many poor students are provided with support from donors and foundations to become medical doctors, nurses or midwives, sharing the responsibilities of the government and making sure that these graduates will serve in their localities.

4. Conditions for success and plans for future interventions to improve retention of frontline health workers in rural and remote areas

4.1 Conditions for success

- Political commitment to open schools in states and regions, especially for midwives and nurses. This allows for local recruitment.
- Community support (i.e. food, shelter, transport, etc.) as well as support from local authorities (i.e. travel arrangements, collection of community members for health sessions, etc.) have enabled frontline staff to stay in the assigned community to provide services.
- Improvement in public financial management for using line-item budgets at all levels of frontline health workers has enabled staff to provide services.

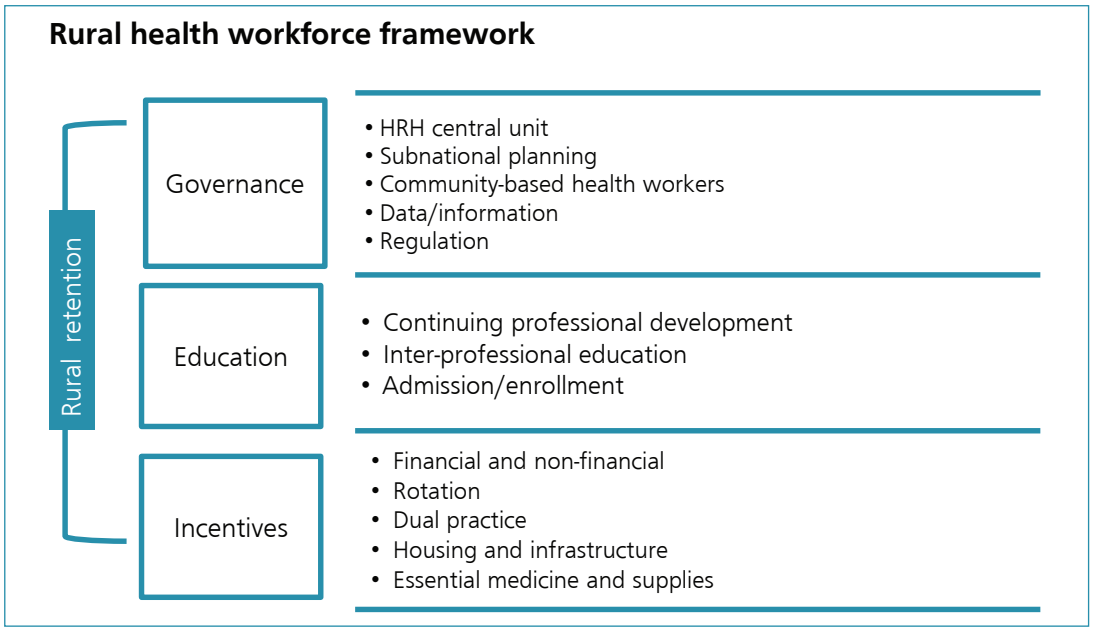
4.2 Plans for future interventions

The Myanmar HRH Strategy 2018–2021 prioritizes strengthening of the rural health workforce for universal health coverage in Myanmar. Recently, a document was produced by the Technical Working Group from the MoHS, and national and international consultants, supported by the WHO Country Office. The document reviewed available evidence, notably a policy-mapping exercise and perceptions/key informant studies that capture the challenges faced by different cadres in rural areas. Also, more than 90 documents were reviewed, including the peer-reviewed literature, WHO guidelines, case studies and programme documents. For the purpose of discussion, the findings presented in the report are structured using an adapted WHO framework on rural retention as presented in Figure 3.

Discussions and recommendations are reported here in three sections, corresponding to each of the thematic areas above.

This report was presented to stakeholders through the HRH Technical Strategy Subgroup and the Health Systems Strengthening Core Group of the Myanmar Health Sector Coordination Committee (M-HSCC) on 28 and 29 March 2019, respectively.

Figure 3: *Framework to strengthen the rural health workforce – adapted from WHO*



Source: Strengthening the rural health workforce for universal health coverage in Myanmar, April 2019) *(18)*

With support from the WHO Country Office, three workshops were held to follow the successful completion and dissemination of the Rural Retention Workforce Report. As per the request of the Ministry, the Central HRH Coordinating Unit had, as its first output, a consultation with stakeholders on the development of a rural retention strategy. The activity included three workshops, as follows:

- Knowledge-sharing on rural retention strategies and consultation on strategic area 1: Financial and non-financial incentives, rotation, recognition and rewards;
- Consultation on strategic area 2: Education
- Consultation on strategic area 3: Governance.

First workshop on Incentives: 17 July 2019

The workshop had many important inputs from the frontline health workforce as regards what and how they related the incentives needed for them to be retained in service for a long time, and these were more or less non-financial incentives. Some examples are as follows:

- Create a regional allowance by the local government.
- Add an accommodation allowance to the salary if housing cannot be provided.
- Provide legal support from the MoHS for all hospital staff and health staff in case of any type of conflict situation (this was strongly demanded).
- Provide flexible working hours and use of recreational facilities such as an exercise room, exercise as medicine, e.g. Zumba dance, subsidized meals for staff, and free use of the Internet.

Second workshop on Education: 22 August 2019

Participants were mainly from academia as well as some from the states/regions, and INGOs working in the areas of HRH.

Group work was based upon the education strategies of rural retention policies from the WHO Framework, and doable and actionable results were identified:

- Provide support for improving the capacity of students from special regions once students are enrolled in medicine, nursing and other allied health schools.
- Develop a generic curriculum for CME programmes at the township level for all townships, making it a standardized and institutionalized CME programme.
- Establish a system to link CME to registration, accreditation and career development.

Third workshop on Governance: 30 September 2019

This workshop was on Governance in relation to rural retention strategies; the audience were given presentations to recap the findings of workshops 1 and 2, and an update about the newly formed Central HRH Coordinating Unit.

Participants reviewed the outputs of workshop 1 (Incentives) and workshop 2 (Education) to strategize at what level decision-making would occur and which actions would be implemented, and assessed the feasibility of these among stakeholders and with the involvement of other stakeholders beyond the MoHS.

Further workshops are planned, so that by the end of 2019, MoHS Myanmar will be able to identify feasible, doable strategies for rural retention of the health workforce.

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SRI LANKA

Case study on health workforce rural retention

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1. Background and context

1.1 Health situation and trends

Sri Lanka's achievements in providing health care are remarkable for a country with a per capita Gross Domestic Product (GDP) of US$ 4102 *(1)*, of which only 3.9% is spent on health *(2)*.

For example, the maternal mortality ratio was 36[13] per 100 000 live births in 2017 *(3)*, infant mortality rate was 6.4[14] per 1000 live births in 2018 *(4)* and life expectancy at birth was relatively high, i.e. 72.1 years for males and 78.5[15] years for females in 2016 *(5)*. Initiatives that led to these achievements were begun several decades ago. Between 1931 and 1951, Sri Lanka expanded access to the health services by using direct government provision and building a highly dispersed health facility network in rural areas. So effective was the expansion in coverage that, by 1951, Sri Lanka was able to achieve quantitative levels of health service access comparable to many middle-income developing countries and substantially equalize the use of modern medical treatment between the rich and poor *(6)*.

1.2 Health system in Sri Lanka

The health system in Sri Lanka is enriched by a mix of allopathic and indigenous systems. Of the two, the allopathic system has become dominant, catering to the health needs of the community. The Ministry of Healthcare and Nutrition of the country has catered to the development of both allopathic and indigenous systems but predominantly the allopathic system. Under the allopathic system, the Ministry and the Provincial Health Services provide a wide range of promotive, preventive, curative and rehabilitative health care through an extensive network of health-care institutions (Figure 1).

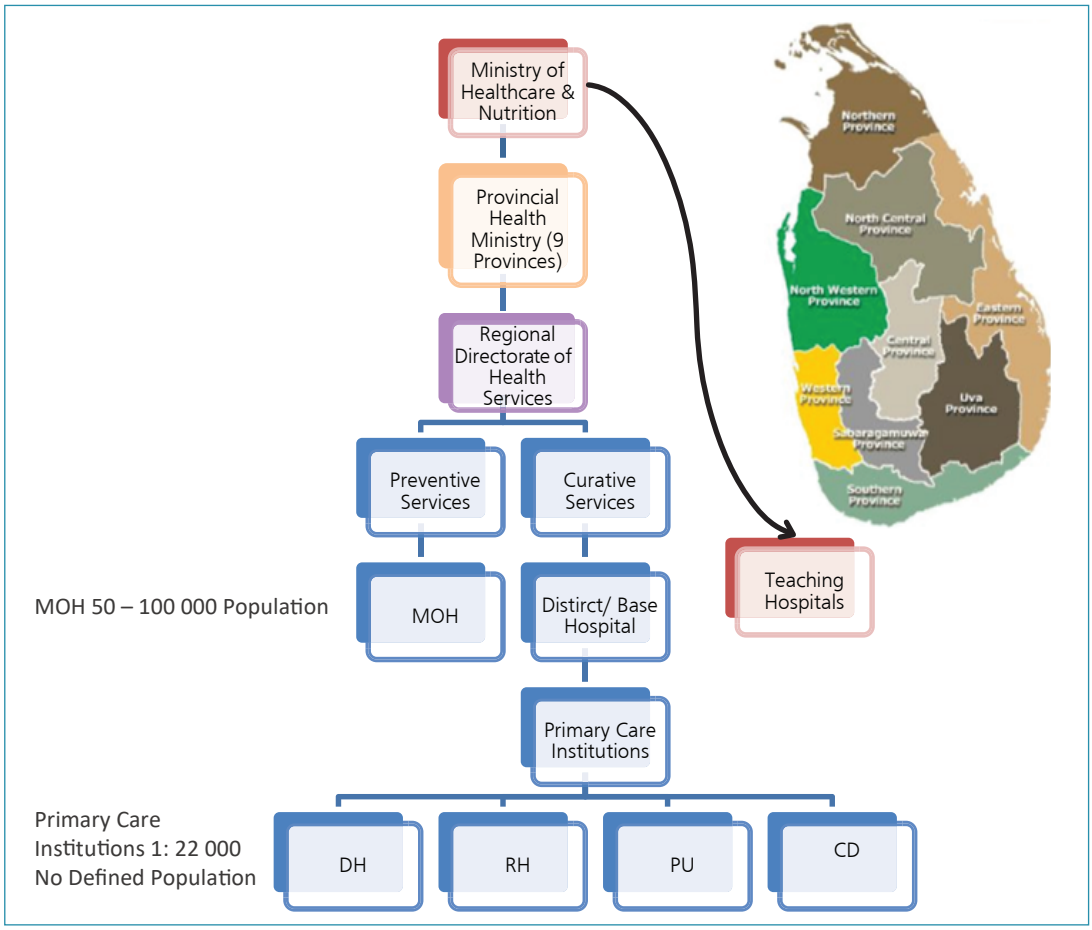
Preventive care services are delivered mainly through the Medical Officer of Health (MOH) system, which is under the administration of the provincial government. Establishment of the first such health unit system dates back to as early as 1926, which was a major advance in public health in Sri Lanka. These health units in Sri Lanka undertook the usual duties of a public health department, including health education, general sanitation, vital statistics, prevention and ontrol of communicable diseases, maternal and infant welfare, and school inspection. With time, this system has evolved to form the MOH units that form the basis of the preventive health sector of Sri Lanka. The MOH unit consists of a medical officer of health, public health inspector and public health nurses and midwives *(6,7)*. Currently, there are 346 MOH offices in Sri Lanka.

13 Country reported value: maternal mortality ratio 39.3 per 100 000 live births; *source:* Family Health Bureau (FHB), surveillance data, 2017

14 Country reported value: infant mortality rate 9.1 per 100 live births; *source:* FHB, surveillance data, 2018

15 Country reported value: life expectancy at birth 72 years for males and 78.6 years for females; *source:* Department of Census and Statistics, 2013

Figure 1: *Organization of the health system in Sri Lanka*



Source: WHO

Curative services are provided by a network of hospitals, including primary care units, under the main ministry and provincial governments. In Sri Lanka, universal franchise was granted in 1931 and two important and distinctive features in the national health policy emerged afterwards. They are emphasis on a highly dispersed rural health infrastructure, and preventive care. By the time of Independence in 1948, Sri Lanka's Health Ministry was operating more than 1000 treatment facilities for a population of 7 million people. In 1951, access to health services was further extended, by abolishing all user charges for government medical services. By the year 2007, there were 615 health institutions providing inpatient care in the country, along with 441 primary medical care units (PMCUs) and 291 MOH areas engaged in providing preventive health care *(7)*.

Over the decade 2007–2016, the total number of hospitals and PMCUs has increased, with a 19% increase in bed strength, from 68 694 to 81 850 beds. Along with the ongoing Primary health care System-Strengthening Project (PSSP), the coverage and equity of care services are expected to expand markedly. Within the year 2016, there were 6.5 million inpatient admissions (which is approximately 306 patients per 1000 population), 53.6 million outpatient visits (which is 2.5 visits per person per year) and 27.3 million clinic visits *(8)*. Of the outpatient visits, 22.6 million (approximately 42%) were seen at divisional-level hospitals, followed by PMCUs (approximately 15%). Out of 53.6 million clinic visits, 50% were attended to at teaching and divisional hospitals (Table 1).

Table 1: *Outpatient visits by type of hospital*

Type of institute	Total visits (in millions)
Teaching hospitals	5.1
Provincial hospitals	1.2
District general hospitals	4.8
Base hospitals-Type A	4.2
Base hospitals-Type B	5.9
Divisional hospitals	22.6
Primary medical care units with maternity homes	0.2
Other specialized institutions	1.7
Primary medical care units	7.9
Total	53.6

Source: Annual Health Statistics, 2016s

Health financing

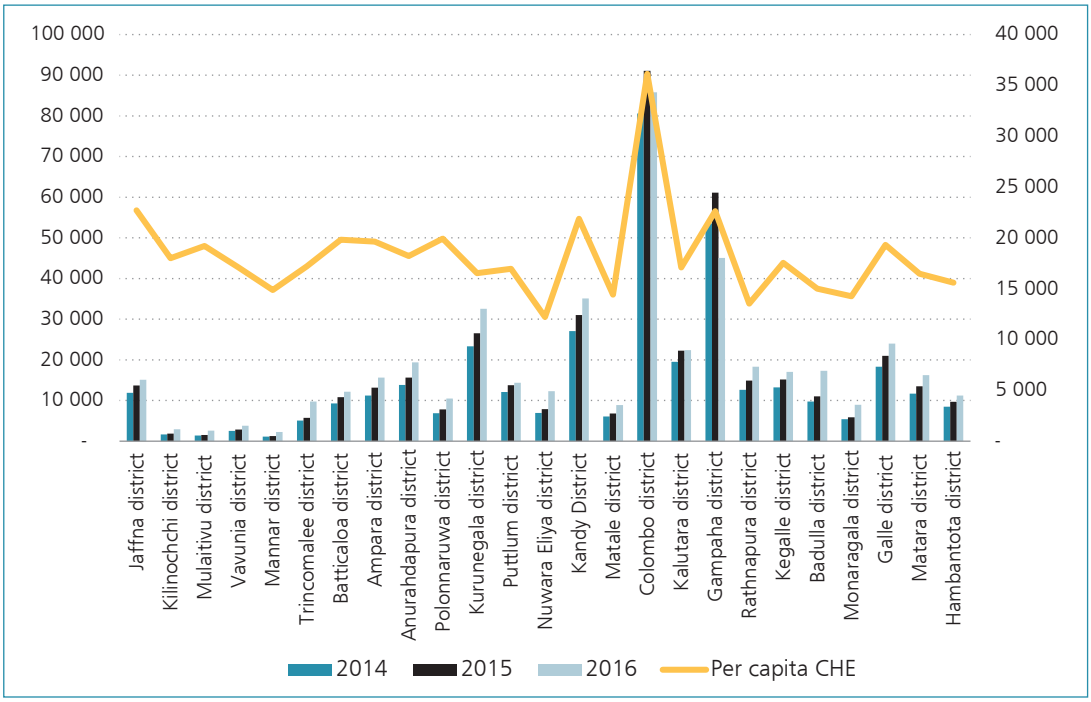
The total current health expenditure in Sri Lanka for the years 2014, 2015 and 2016 amounted to 374, 426 and 463 billion Sri Lankan rupees, respectively. The current health expenditure (CHE) was approximately 4% of the GDP in 2014, 2015 and 2016. Per capita CHE in 2014 was Rs 18 119, Rs 20 564 in 2015 and Rs 22 268 in 2016 *(9)* (Figure 2).

Analysis of CHE by districts indicated that the highest average per capita CHE was from the Colombo district. This may partially reflect the presence of a relatively larger number of specialist hospitals in the district. National per capita CHE was around Rs 20 225 *(2)*.

Assessment of CHE by sources of funds revealed that households and government sources have been the main sources of revenue in all three years. Out-of-pocket expenditure accounted for 50% of CHE in 2014 and 2015, which increased to 53% of CHE in 2016 *(9)*.

The health workforce (HWF) is central to attaining, sustaining and accelerating progress on universal health coverage (UHC). The development and management of human resources for health (HRH) are unequivocally aspects of health system development and governance, which are the responsibility of the State. In the Sri Lankan primary health care system, the key health professionals are doctors, nurses and public health midwives (PHMs).

Figure 2: *Current health expenditure from 2014 to 2016 (Rs million in current prices) and average per capita current health expenditure for 2014–2016 by district*



Source: Sri Lanka National Health Accounts 2014, 2015, 2016. Colombo: Ministry of Health; 2018 *(9)*

1.3 Overall HRH issues in Sri Lanka

Medical workforce

The Colombo Medical School, established in 1870, was the first medical school and there are currently 10 government faculties of medicine under the State university system. The government plans to establish another medical school, and this is still in the planning stage (2019). Currently, there are no private medical schools in Sri Lanka and privatization of medical education is a politically sensitive issue.

Currently, all medical graduates from State universities are absorbed into the government system and recruitment to the service is under the Ministry of Health. Graduates from State universities are given provisional registration from the Sri Lanka Medical Council (SLMC) to proceed with their internship. Following completion of internship, which consists of two tenures of 6 months each, including surgery (General Surgery or Obstetrics and Gynaecology) and medicine (General Medicine or Paediatrics) appointments, graduates are granted full SLMC registration, which allows them to practise medicine in Sri Lanka.

There has been a substantial increase in the number of Sri Lankan students studying medicine abroad. Foreign medical graduates are required to pass a licensing examination (Examination for Registration to Practice Medicine, ERPM) conducted by the SLMC before they are granted permission to do internship. Once they complete internship, they are granted full SLMC registration and are allowed to practise medicine in Sri Lanka. Candidates completing the ERPM

have doubled, from just over 100 in 2010 and 2011, to an average of more than 200 per year in the four-year period 2014–2017. Therefore, graduates of foreign medical schools now comprise about 15% of new entrants to the medical workforce.

Doctors

There are around 19 900 doctors working full time in the Ministry of Health, including grade medical doctors and medical specialists *(8)* and about 33% of them are working part time in the private sector. In addition, 3050 medical officers are employed full time in the private sector, either in private hospitals or as general practitioners (GPs). The defence establishment has about 320 and the university system about 625 doctors in their permanent cadre. Once a doctor completes the mandatory internship of one year in a recognized government hospital, they have several career pathways; join the Ministry of Health as medical officers, the University system as academicians, the Defence Forces as military doctors, the private sector as medical officers or migrate to another country (Table 2).

Currently, on average, out of 1450 that complete internship, around 1200 are employed by the Ministry of Health, while around 220 seek employment in the private sector or migrate. The balance 30 make a career either in the University or the defence forces *(10)*.

Workforce dynamics are complicated as State sector-employed doctors are allowed to be engaged in private practice after hospital working hours. This includes doctors employed in the Ministry of Health and those in the universities and Ministry of Defence. Sample studies indicated that around 60% of State sector-employed medical officers and 90% of consultants availed themselves of this privilege of working also in the private sector.

Table 2: *Total number of registered doctors in Sri Lanka*

Number of doctors in the Ministry of Health	17 900
Number of specialists in the Ministry of Health	2 000
Number of medical doctors in the University system	625
Number of doctors in the Defence Forces	320
Total number of doctors	20 845
Density of doctors/10 000 population	9.985
Number of doctors in the private sector full-time (hospital-based doctors and specialists, GPs)	3 050
Percentage of Ministry of Health doctors engaged in private practice (dual practice of medical officers)	60%
Percentage of Ministry of Health specialists engaged in private practice (dual practice of specialists)	90%

Source: How many doctors should we train for Sri Lanka? System dynamics modelling for training needs (2017) *(10)*

Nursing and midwifery workforces

Sixteen schools of nursing offer the basic Diploma in Nursing *(11)*, and five state universities offer the BSc degree in Nursing, which started in 1992. The public health nurse was established in 1926, with the establishment of the first health unit *(6)*.

In Sri Lanka, private sector nursing schools train nurses who can work only in private sector. The major difference between the government and private sector is the length of training and clinical practice settings *(12)*. There are a number of private nursing training schools in Sri Lanka that award diplomas in nursing, which usually take one year to obtain.

The midwifery training consists of two parts, the first part of one-year midwifery training (Part I) is conducted at the National Institute of Health Sciences (NIHS). This is followed by the second part (Part II) of six months' field training on the family health programme of Sri Lanka, at the training centres around the country *(13)*.

Midwives make major contributions towards the functioning of the health sector in Sri Lanka. In rural settings, they are sometimes the first point of contact for those seeking health care and occasionally the only accessible health-care personnel. They constitute the majority of the health workforce in rural areas. Duties of midwives in Sri Lanka are mainly looking into family health (maternal care, infant and child care, nutrition, school health, adolescent health), reproductive health (family planning, gender and sexual health), health promotion, and helping the MOHs of the designated areas fulfil the health-care needs of the community.

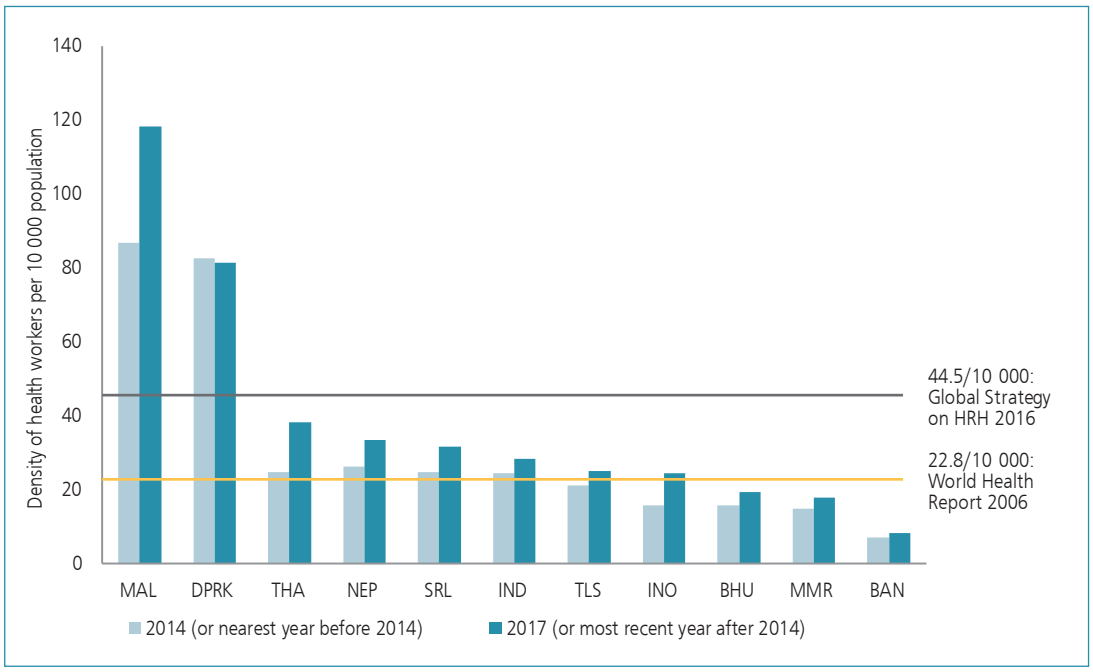
Public health midwives provide domiciliary antenatal care for about 75% of women throughout their pregnancy; 95.5% of registered pregnant mothers have at least one field clinic visit and the average number of clinic visits per mother is 6.3 visits *(14)*. The field work is supervised by the Public Health Nursing Sisters (PHNS). Nursing officers in the curative sector are responsible for patient care, ward and clinic management, and a certain degree of administrative work.

Recruitment and training of medical officers has been regular through the university system. Currently, these graduates are directly absorbed into the State health system. Thus, recruitment of medical officers has been smooth.

However, in other staff categories, nursing, professions supplementary to medicine (PSM) and paramedical categories, it needs be streamlined. The majority of trainees in nursing and other PSM and paramedical staff categories are trained in training colleges under the Ministry of Health. Recruitment of these trainees to training colleges has been irregular and this has led to irregular production of staff in these categories. In 2018–2019, an online recruitment system was introduced by the HR unit of the Ministry of Health for nursing and PSM and paramedical trainees. This was successfully implemented in 2019 and the system will be in operational in future. It is expected to assist in streamlining the recruitment of staff.

Initiation and expansion of graduate programmes in State universities for nursing and some PSM staff categories has been a significant achievement in the development of HRH. Doctors have evident career development opportunities, but more attention needs to be paid to career development for other staff categories.

Figure 3: *Doctors, nurses and midwives per 10 000 population in South-East Asia Regional countries*



BAN: Bangladesh; BHU: Bhutan; DPRK: Democratic People's Republic of Korea; IND: India; INO: Indonesia; MAL: Maldives; MMR: Myanmar; NEP: Nepal; SRL: Sri Lanka; THA: Thailand; TLS: Timor-Leste

Source: Country data reported to WHO, 2018

According to the *World health statistics 2014*, Sri Lanka has a density of skilled workforce higher than the threshold of 22.8 per 10 000 population recommended by the 2006 *World health report* but below the 2016 Global Strategy on human resources for health threshold of 44.5 per 10 000 population *(15)*.

The Human Resources for Health strategic plan for Sri Lanka (2009–2018) aimed to strengthen human resource planning, production and management capacities at all levels by establishing a coordinated approach to human resource planning, ensuring a trained, motivated and equitably distributed staff, and improving the productivity and performance of health workers for provision of a service of high quality. However, there has not yet been a comprehensive evaluation of the progress of the HRH strategic plan or development of a new plan. A high-level steering committee (chaired by the Secretary of Health) is charged with overseeing HRH activities, including improving the coordination and monitoring of HRH activities.

Skill mix, workload and career paths for professionals

Sri Lanka has not yet identified the most appropriate skill mix of staff categories for hospital settings, given the evolving health sector challenges. Once the primary health care restructuring and strengthening efforts are under way, the necessary standards will be more evident. The ratio of nurses to medical officers in 2005 was 1.95 nurses per medical officer and this increased to 2.24 in 2016. However, this is still below the Organization for Economic Co-operation and Development (OECD) average in 2015, where there were three nurses per doctor *(15)*. Population standards are already set, with one public health midwife (PHM) per 3000 in rural settings and one per 5000 in urban settings, and one public health inspector (PHI) per 10 000 population.

Filling these cadres with adequately qualified personnel has been challenging due to the lack of preference for these staff categories among the young generation.

Assessment of the workload and developing activity standards for provincial health staff categories are under way. Further health performance monitoring indicators are set to measure central- and provincial-level progress with a special emphasis on quality, access and equity of health services offered in the health system *(16)*. However, these indicators are meant to assess institutional progress, not individual progress.

Human resource development is another challenge in Sri Lanka. Across staff categories, the scope for career development is not uniform and even suboptimal in some categories. For medical officers, postgraduate training is provided by the Post Graduate Institute of Medicine (PGIM), and this specialist training is funded by the Ministry of Health for doctors employed in the public sector, which consists of local training as well as overseas training. Medical specialists constitute 11% of the total medical officers.

Currently, 36 specialty-training courses are conducted. When specialist training is accepted, the candidates have to submit to a bond agreeing to return after their training and work in Sri Lanka for four years. If they fail to complete the bond period, they have to reimburse the stipend and the salary that they received during their foreign training period. Grade medical officers have promotional steps from preliminary grade to grade II. Grade-limited promotional steps after grade I achievement has negative implications on the retention of doctors.

Nurses can upgrade their career to nursing sister and matron in hospital settings and, in the preventive care sector, they can upgrade to PHNS and regional/provincial supervising public health nursing office. Postgraduate schemes (MSc) for nurses are available and study leave with salary is given to those who wish to do these courses. The career development scope for PHMs is limited and mostly confined to grade promotions and upgradation to a supervisory PHM post.

For in-service training, a continuous professional development (CPD) certificate has been introduced by the Sri Lanka Medical Association (SLMA) for doctors and specialists. However, this certificate is not mandatory for renewal of registration. The CPD certificate is awarded by the National Center for CPD in Medicine (NCCPDIM), which comprises representatives from all recognized medical professional bodies in Sri Lanka. The certificate is valid for three years once issued *(17)*. The CPD system for nursing and other health worker categories is yet to be developed.

In view of the relatively low remuneration in the government system and shortages of staff members, extra-duty payment is provided for all health workers and concessionary vehicle permit is provided for professional categories.

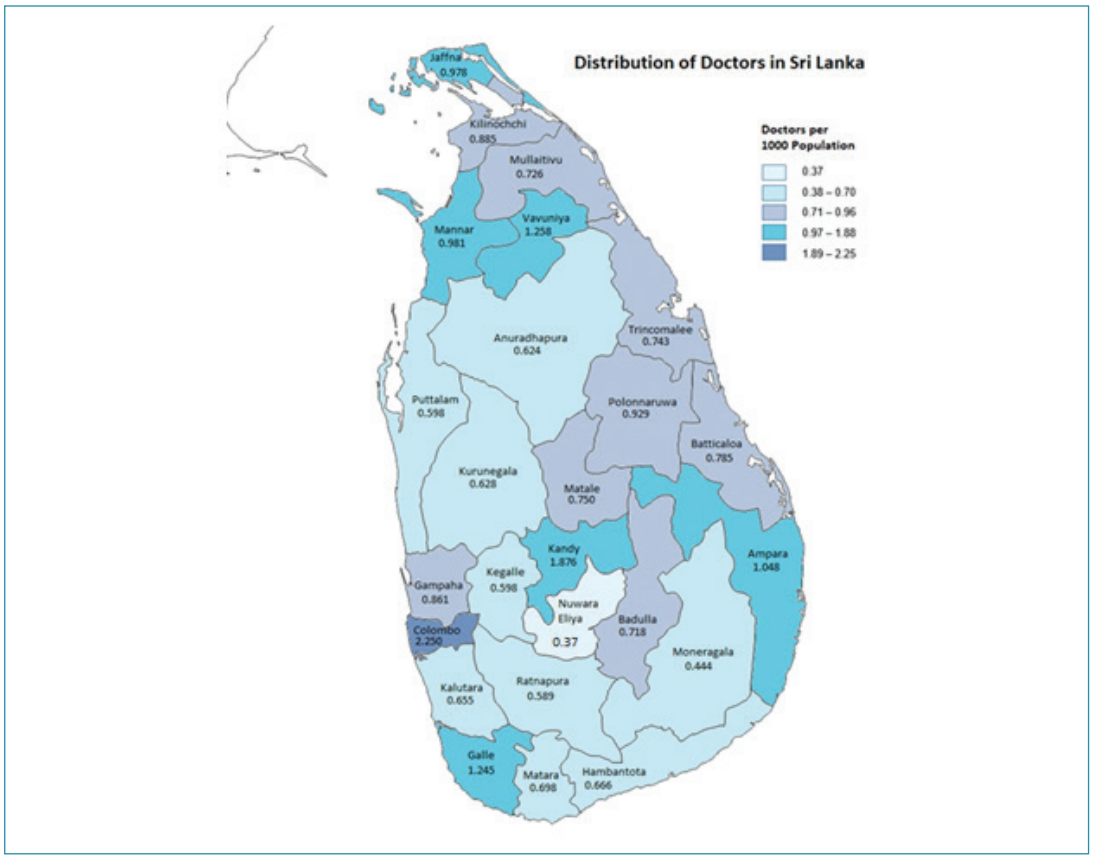
Dual practice in Sri Lanka

Dual practice is legal and several health staff categories in the public sector are allowed to engage in private practice after working hours. Dual practice among health professionals is used as a supplementary source of income where base salaries are considered inadequate and is a mechanism for improving recruitment and retention in rural areas. According to data published by the Ministry of Health, by 2016, there were 18 893 doctors attached to the public sector and around 3000 full-time doctors in the private sector, defence and university system. Public sector doctors are legally permitted to work in the private sector after working hours. Sample studies

indicate that 40–60% doctors, 70% of dental surgeons and 90% of specialists employed in the public sector are engaged in private practice after hospital working hours) *(10)*. This includes doctors in the academia and Ministry of Defence.

1.4 HRH issues in remote/rural areas

Figure 4: *Distribution of doctors at the provincial level*



Source: Ministry of Health, 2015 *(16)*

There is maldistribution of doctors in the country. When the density of doctors is compared across districts, it can be seen that the density is higher in comparatively urbanized areas where major hospitals are located. Many private hospitals are also based in urban areas; thus, it provides easy access to dual practice for medical officers who work in these areas (Figure 4).

There are several factors responsible for the maldistribution of doctors across the country. These include the lack of professional and personal support and lack of provision of adequate CPD opportunities *(18)*.

Additionally, the shortage of nurses in the government sector was approximately 15 000 in 2019. Inadequate recruitment to government nursing schools by the Ministry of Health, limited facilities at the institutions, poor working conditions, low wages and inadequate career development were found to be the reasons that are currently responsible for the shortage of nurses in Sri Lanka (Table 3). To overcome these deficiencies, additional students were recruited to nursing schools, and 4-year BSc Nursing programmes were implemented in the universities *(12)*.

Table 3: *Total number of nurses and public health midwives in Sri Lanka*

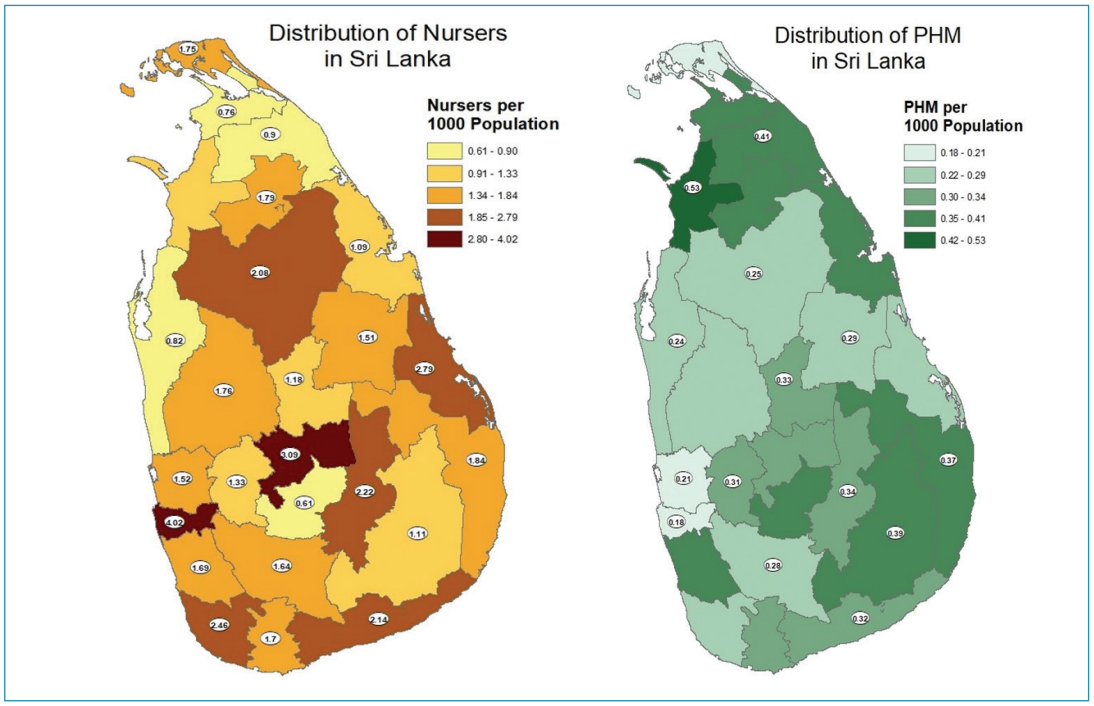
Number of nursing officers	32 330
Total number of matrons, nursing officers and student nurses	42 556
Nurses per 10 000 population	20.07
Number of field PHMs	6 247
Total number of PHMs and hospital PHMs	8 612
PHMs per 10 000 population	2.95

Source: Annual Health Statistics, Ministry of Health, Nutrition, and Indigenous Medicine (2016) *(8)*

Annually around 2500–3000 students are recruited to government nurses training schools and 205 are recruited for the BSC programme in nursing education. Currently, all the outputs of these programmes are absorbed by the government. Recruitment of midwives has been irregular, and measures are being taken to streamline recruitment by introducing an online recruitment system *(19)*.

When the density of nurses across districts is compared, a pattern similar to that of medical officers can be observed. In relatively urban areas with major hospitals, there is a higher density of nurses. The numbers are particularly high in Colombo and Kandy districts, where teaching hospitals are located. However, the density of PHMs is higher in rural areas and notably low in Colombo district, which is highly urbanized (Figure 5).

Figure 5: *Distribution of nurses and public health midwives in Sri Lanka*



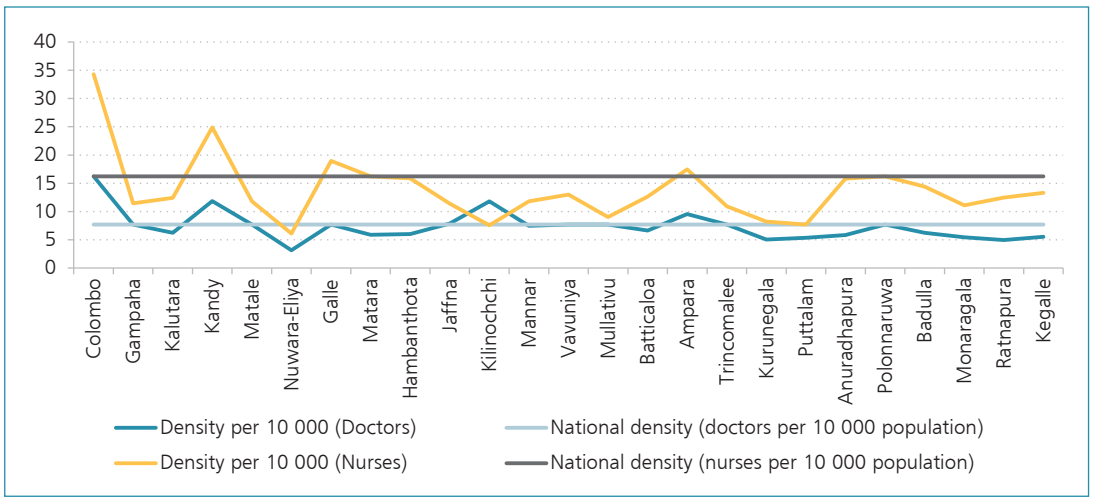
Source: Ministry of Health, 2015 *(16)*

Most places with a large number of nurses and PHMs are in areas where there are national, specialized or teaching facilities. This accounts for the increased numbers of doctors and nurses.

Maldistribution of doctors remains a serious policy concern in Sri Lanka. Although the absolute number of medical officers in Sri Lanka has increased, maldistribution between the levels of care (i.e. an increase in medical officers in secondary- and tertiary-care institutions) hinders access to primary care institutions closer to homes. This leads to people accessing higher levels of care for primary care needs, which results in unnecessary costs for the patient and overburdening of the secondary and tertiary levels of care (Figure 6).

It is evident that the problem has not been corrected with the rapid increase in the number of doctors joining the health sector during recent years (nearly a threefold increase of doctors in the past 25 years). Conservative estimates suggest that the doctor-to-population ratio in the Colombo district is over 18.2/10 000. Nuwara Eliya district recorded the lowest value of 3.7 doctors per 10 000 population in 2015 *(20)*.

Figure 6: *Comparison of interdistrict distribution of doctors and nurses.*
**Doctors – exclude specialists and those in administrative posts*

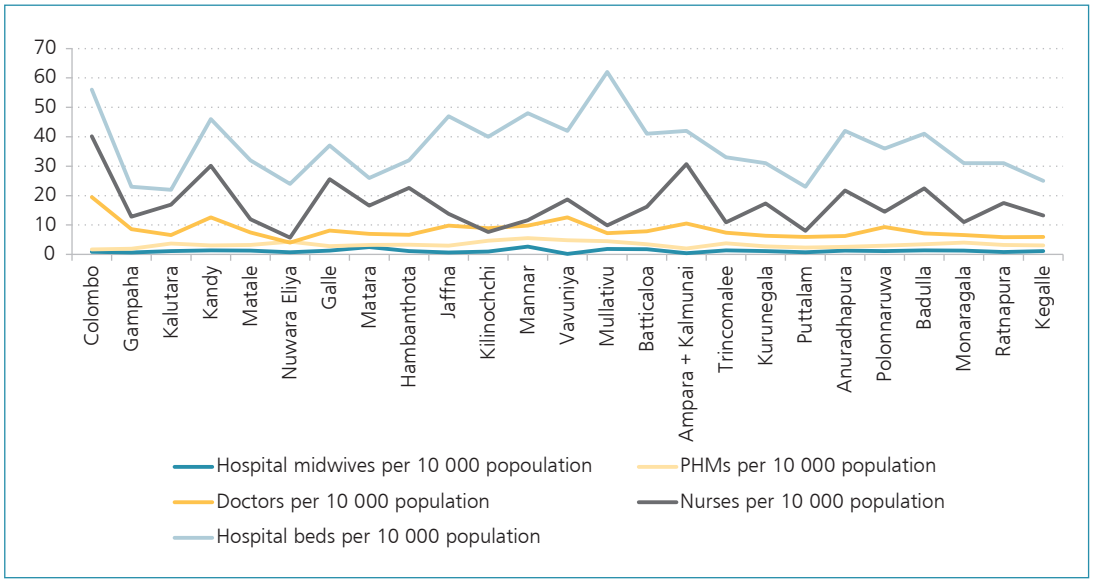


Source: Ministry of Health, 2016 *(20)*

Many factors such as low payment/limited opportunity for private practice, lack of motivation, inadequate training opportunities and erosion of skills due to unavailability of opportunities to practise, poor recognition and appraisal of work, poor recognition of the training courses available in local settings for grade promotions, and only PGIM courses being recognized for grade promotions, high cost of accommodation and transport due to being away from families, lack of financial incentives for those working in rural areas, poor mentoring and supervision, and high staff turnover make rural retention of doctors a challenge. Further, along with transfer schemes, medical officers who gain skills will be transferred. (Each time trained staff is transferred, new staff has to be trained)

When the distribution of doctors and nurses is compared with bed availability, it is evident that in certain districts where there are teaching hospitals, there are larger numbers of doctors and nurses. However, this variation is not seen in the distribution of midwives (Figure 7).

Figure 7: *Interdistrict disparity in medical officers, nurses and public health midwives*



2. Policy interventions to improve retention of health workers in rural/remote areas

In Sri Lanka, all four WHO-recommended approaches are in practice, but each has a different impact on the three health-care sectors and the emphasis on each approach is variable.

A. Educational interventions

The main interventions are revising the undergraduate medical curriculum and targeted admission policies. The undergraduate medical curriculum is regularly updated, with an emphasis on community-based education. The rural location of the Faculty of Medicine at Saliyapura, Rajarata, facilitates community-based teaching since 2005. Today, it is one of the ten government medical faculties in Sri Lanka.

A policy decision taken by the Ministry of Higher Education to recruit students through a district quota is a supplementary policy towards recruiting students from rural areas. The recruitment policy for health worker categories such as PHMs favours recruitment of trainees from highly rural settings.

B. Regulatory interventions

A regulatory approach has been given emphasis and demonstrated an impact. The regulatory approach is more streamlined for medical doctors. For example, all medical doctors are required to undergo a one-year post-internship appointment before going for postgraduate studies. Since most of the vacancies in the post-internship appointment list are in peripheral areas, this approach ensures continued service at these stations.

C. Financial incentives

Certain special financial incentives are offered, such as risk allowance for those working in the north and east during the conflict period, and warm clothes allowance for districts such as Nuwara Eliya. Various types of allowances are presently provided to retain PHMs in rural communities. However, application of area-specific allowance rates, which is seen in the United Kingdom's National Health Service, is not observed in the Sri Lankan context.

D. Personal and professional support systems

The personal and professional support provided is inadequate and unsatisfactory. Even though quarters are provided for doctors and nurses, they are not adequate in number and are of questionable quality. A circular has been issued on the physical norms of the PMCUs and staff accommodation is one main section that has been considered in this circular *(21)*.

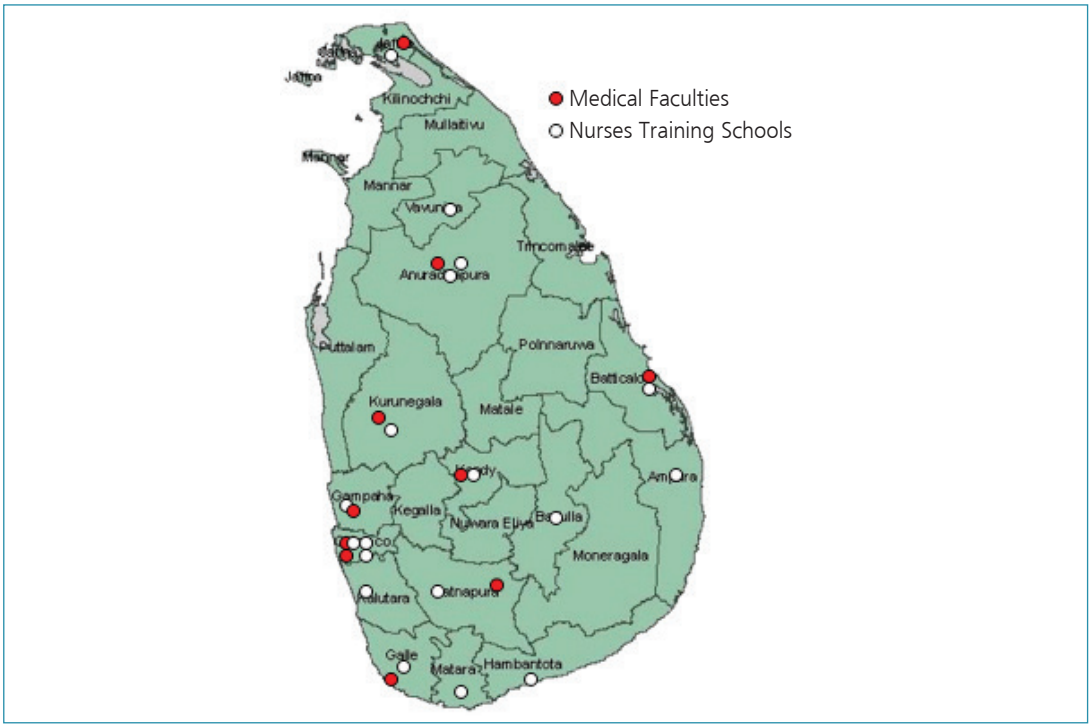
3. Successful interventions to improve rural/remote retention of health workers

3.1 Targeted admission policies

The Ministry of Higher Education has instituted a policy of recruiting students based on district quotas, with special attention to rural areas. The district quota system in Sri Lanka is an affirmative action for entry to university education to compensate for the variability in facilities for education among different districts. This system allocates 40% of selection based on an all-island rank order according to the performance at the GCE advanced level examination. Fifty-five per cent of the seats are allocated to top students in each district based on a quota determined by the mid-year population of the district. The remaining 5% of seats are distributed across 16 identified "educationally disadvantaged" districts.

While this is aimed at increasing the health workforce in underserved areas, there are no rules to enforce compulsory rural service for students who come from these areas.

Figure 8: *Distribution of medical faculties and nurses training schools in Sri Lanka*



Source: Ministry of Health, 2018

State medical faculties are being established to cover almost all provinces (Figure 8). Although the selection process is entirely based on the merit, students from local areas have a better opportunity to enter a medical faculty close to their home. Nursing training schools are also scattered across the country and almost all provinces have at least one nurses training school. This facilitates selection of training colleges close to the home town.

The recruitment policy for health worker categories such as PHMs favours recruitment of trainees from highly rural settings. It is mandatory to recruit trainees from all provinces proportionate to the population living in each province. This provides the opportunity for those in provinces with a larger rural setting to get selected for training. Thus, those living in that province can be trained within the province, resulting in fewer defaulters in rural settings. Those who are selected from a particular province will later be enrolled to serve within that province.

The recruitment criteria for PHM training are based on educational qualifications. However, on several occasions (in 1996, 2000, 2002 and 2009), the educational qualifications for recruitment were lowered to enable trainees from highly rural settings to undertake the PHM training course. These recruitments were done mainly for the plantation sector in the rural and underprivileged districts of Central, Sabaragamuwa and Uva provinces, and war-torn areas of the Northern and Eastern provinces.

The recruitment procedure (internship appointments and beyond) for government sector doctors and nurses is based on the order on the merit list in the final examination and the preference list of the candidates.

3.2 Compulsory appointments

Once doctors complete their internship, they become eligible for full registration with the SLMC and take up appointments as medical officers under the Ministry of Health. The list of vacancies available for these post-internship doctors is advertised annually and most of the vacancies are for institutions in suburban or rural areas. Appointing post-internship doctors to rural areas has improved the maldistribution of human resources and sustainability of rural health services to a significant level, although this requirement has not yet been satisfactorily fulfilled.

As shown in Table 4, maldistribution is still an issue and further action is required. It has been noted that the post-internship appointments are allocated according to a ranked list, i.e. merit list prepared according to the performance during the qualifying and ranking examination. Generally, high performers would opt for institutions with better facilities and those who are lower down on the list are compelled to select rural stations. This may lead to frustration and dissatisfaction. Provision of a satisfactory work environment in rural areas will enhance the retention of newly appointed doctors. Some of these doctors enjoy working in such areas and consider the novel experience a break from the hectic year of internship.

Table 4: *Doctor-to-population ratio in selected districts, Ministry of Health and Indigenous Medical Services (2018)*

District	Doctor: population ratio (per 10 000 population)
Colombo	18.2
Kandy	13.1
Monaragala	6.1
Nuwara Eliya	3.7

The number of vacant posts advertised for post-internship medical officers by province in 2017 is shown in Table 5. It is evident that the western provinces of the country, where the density of medical officers is highest, the allocation was lowest. Nearly 40% of allocations are given to the Northern and Eastern provinces, which are considered underserved areas.

Table 5: *Number of vacancies allocated in the main post-internship list, by province (2016, 2017)*

Province	Number of vacancies allocated in main post-internship list by province			
	Year 2016		Year 2017	
	No.	%	No.	%
Western	33	2.7	36	3.0
Central	144	11.7	128	10.8
Southern	135	10.9	118	10.0
Northern	188	15.2	210	17.8
Eastern	278	22.5	277	23.5
N western	104	8.4	92	7.8
N central	130	10.5	122	10.3
Uva	130	10.5	101	8.6
Sabaragamuwa	91	7.4	97	8.2
	1233	100	1181	100.0

Source: Ministry of Health official website post-internship appointment vacancy list

Currently, attempts are being made to define certain medical institutions as difficult medical institutions based on some selected criteria. Criteria that have been considered for defining a medical institution as a difficult station are as follows:

1. Type of institution – line ministry institutions are considered not difficult.
2. Distance to the main town of the closest "pradeshya sabha" (local government) above 15 km is considered difficult.
3. Access to the main town of the closest "pradeshya sabha" – if there is no public transport at least four times/day, it is considered a difficult station.

4. Means of transport – non-motorable or requiring sea transport is considered difficult.
5. Road condition – non-paved (>500 m) road is considered difficult.
6. Availability of adequate quarters with minimum facilities such as a single room, piped water and electricity for 24 hours – if these facilities are not available it is considered difficult.
7. Other conditions – wild animal threats, terrorist threats – if these situations occur frequently, it is considered difficult.

Difficult stations are identified according to a scoring system using the above criteria. These criteria have been in operation since 2015.

It has been agreed that the list of difficult institutes will have to be annually updated. Several difficult medical institutions have been identified in the year 2019. Of the tentative list of 199 stations listed as difficult medical institutions, the largest number are from the Northern and Eastern provinces (71; 35.7%). In the Western province, which has the highest density of medical officers, only one institution has been identified as difficult. In Colombo district, none of the institutions are identified as difficult.

Specialists who return to Sri Lanka following completion of overseas training and specialist trainees who are awaiting overseas training are usually allocated to rural areas. These appointments are implemented on a compulsory basis to ensure service provision to underserved areas. They have the motivation and opportunity to learn to serve in remote areas in need of health-care services.

Following completion of training, nursing officers are appointed based on merit. However, in their placement, needy underserved areas are given priority. Further, they have to serve a period of four years, thus ensuring service to these rural areas.

In the appointment of PHMs, more than 90% of trainees attending the PHM training course are posted to rural settings after completion of their training course, and a larger proportion of PHMs are allocated to areas with poor health indicators *(22)*. PHM trainees are required to serve a bond period of 5 years once they have qualified and have to be prepared to work anywhere in the country. If they are unable to continue for 5 years, they have to pay a fine to the government.

3.3 Restructuring the incentive structure

The government provides several incentives to health professionals in Sri Lanka. These include priority in school admissions, duty concessions for importing a vehicle for personal use and other financial remuneration, such as loans at low interest.

The extra duty allowance provided for medical officers is capped at 4 hours per day and a maximum of 120 hours. Although medical officers working at higher levels of care (secondary and tertiary levels) are able to collect the full allotment of 120 hours, many of the medical officers working at PHC level do not have this opportunity. This creates a situation where they are reluctant to apply for primary care and remain rotating around secondary- or tertiary-care institutions.

Certain special financial incentives such as risk allowances for working in the north and east during the conflict period, and warm clothes allowance for districts such as Nuwara Eliya are a few other examples. However, these allowances have to be recalculated and increased as per the current living costs.

Doctors who join the Ministry of Higher Education as lecturers in rural medical schools are given additional allowances compared to the lecturers who work in medical schools situated in urban areas.

Various types of allowances are presently provided to retain PHMs within rural communities *(23)*. These include the following:

1. Office allowance – monthly allowance is given to maintain an office in the respective PHM's area.
2. Transport allowance – a scooter is provided with a transport allowance.
3. Clinic allowance – an allowance is given for conducting community clinics per clinic session.

4. Conditions for success and future plans for interventions to improve retention of health workers in rural/remote areas

4.1 Conditions for success

Strong policies, practices and traditions in public health

Sri Lanka has strong policies in place, a well-established system and good practices in public health. Having a policy framework that provides the basic principles along with the flexibility to adapt according to the needs of rural areas has had a positive impact, in addition to grass-roots action and ownership. This has ensured, for instance, that the interventions continue. Leadership among the MOH team is widely distributed across departments, which has led to more people taking ownership and improving the situation further.

Ongoing curriculum revisions in medicine

In Sri Lanka, medical curricula are regularly updated and revised based on current trends in medical education. Faculties of Medicine in Colombo and Sri Jayewardenepura have taken pioneering initiatives in rural medical education. The one-month residential rural attachment in Colombo, which was introduced in 2014, is one such innovative feature. The training takes place at selected public health and curative facilities in the area, which is located 200 km away from Colombo. Students get a better understanding about health care in rural settings through these programmes.

Pioneering role of SLMA in implementing continuous professional development

The practices and policies for CPD are still evolving in Sri Lanka. The SLMA has played a pioneering role in introducing CPD in the College of Medical Educationists of Sri Lanka. The SLMA has been providing continuing medical education (CME) opportunities to doctors since its inception. The SLMA and the Ministry of Health are considering the option of online CPD to ensure CPD opportunities for all doctors working in Sri Lanka. This will minimize the professional isolation of doctors working in rural areas. The SLMA has already initiated an online CPD portal. Even though some CPD providers issue CPD certificates/points according to the marking scheme published by the SLMA, the national framework for CPD is yet to be established *(24)*.

The roles and responsibilities of the SLMA, SLMC, Ministry of Health and professional colleges need to be defined and assigned. CME/CPD activities are provided by many organizations, including the SLMA, and professional colleges are not under a recognized national framework or an authority. The standards or criteria for quality assurance of CPD activities are not yet in place and CPD accreditation bodies are yet to be established in Sri Lanka. The in-service training programme conducted by the Ministry of Health too does not fall under a national CPD framework. These include:

- regional-level clinical societies and their annual conferences – Gal Oya/Ruhuna, Anuradhapura clinical societies to name a few;
- regional meetings of the College of Community Physicians of Sri Lanka (CCPSL);
- establishment of courses affiliated to local universities and recognition of these for grade promotions. Only PGIM courses are recognized for grade promotions at the moment and they are not online.

Dedicated unit in the Ministry of Health for education, training and research

The Education, Training and Research (ET & R) unit of the Ministry of Health is designated as the unit for implementation of CPD and in-service training programmes.

- Funds are released to the provincial and district levels for district-identified priorities, based on request, and approximately 200 million Sri Lankan rupees are allocated for the activity per year.
- In collaboration with professional associations, modules for training are developed at the district level and funds are released to the local-level institution/partner implementing the training module. This is financed by the ET & R unit.
- A brief training needs analysis has been conducted of all staff categories in consultation with district-level officers.
- Development of an e-learning base is in process; this will facilitate distance learning for in-service training.
- Under the Health Sector Enhancement project, a distance learning centre will be established at the NIHS and this will be linked to training colleges at the local level. Through local training colleges, 50 computers will have access to distance learning material. It is planned to develop a primary health care training module targeted at GPs.

Further, PHMs are given access to in-service training, which can be considered as an opportunity for CPD, even if based in particularly remote areas of the country. Updates on maternal and child health (MCH) programmes are regularly communicated to them.

Under the PSSP, physical norms for primary health care facilities have been defined. This provides a guide for infrastructure development in primary health facilities, including preventive and curative services, such as space for health promotion, dental care, emergency care and office space for PHMs and PHIs.

Dual practice of doctors leading to increased availability and accessibility

According to Sri Lankan legislation, medical specialists, doctors, nurses and other para medical staff are also allowed to work in private sector after duty hours. There are no limitations on working hours or the number of patients that can be seen in the private sector and a majority of medical specialists in Sri Lanka practise in the private sector after duty hours. Working in the private sector while continuing to work in the government sector can provide a specialist with a substantial income when compared with the government salary, although this may come with several negative implications for personal and family life *(25)*.

Ongoing primary care strengthening activities

The MOH through its Policy on Healthcare Delivery for Universal Health Coverage, has got support from two projects related to Primary Care strengthening in Sri Lanka. These ongoing projects are expected to align the skill mix, workload indicators of staffing needs and create new cadres of staff to improve service delivery. It is expected that this project would help to streamline the deployment of preventive and curative health-care cadres, establish a service delivery coordination mechanism and build capacity in family medicine of all health workers at primary health centres through in-service training, postgraduate and improved CPD opportunities. This would have a favourable effect on the retention of staff in rural areas.

Barriers to implementation

Lack of infrastructure facilities

Infrastructure facilities in rural stations are commonly overlooked, and provision of facilities depends on the available allocations, which are limited. Inadequate supplies of medicines, consumables and reagents are common problems in rural hospitals. Alternatively, in certain situations, unnecessary sophisticated equipment is at times provided to such hospitals in an effort at "development". Supplies have to be provided adequately following an objective review of the workload and facilities. For example, in most rural areas, patient transportation is a significant problem. Provision of an adequate number of ambulances would be an effective strategy for providing optimal care to patients rather than the provision of sophisticated equipment.

Poor facilities for accommodation

Even though quarters are provided for doctors and nurses, they are not adequate in number and are of questionable quality. In most places, accommodation consists of only a single room, and cannot accommodate a family. Thus, health-care workers have to rent a house in the vicinity of the workplace, even though they do not receive a housing allowance. In rural areas, finding a house to rent with satisfactory facilities can be a challenge.

Lack of safety

Most of the PMCUs are staffed by a single doctor with a minimum number of supportive staff. These doctors have to face many problems due to inadequate facilities, which have at times even led to life-threatening situations. Ensuring a safe working environment is an essential priority before appointing doctors to these stations.

Lack of communication facilities

In some rural settings, facilities are not available for professional communication. This invariably creates professional isolation, which can have a negative impact on professional career and personality. Provision of facilities to improve communication through e-systems and provision of resources to acquire and update knowledge would be encouraging.

Trade unions acting against systematic implementation

The powerful trade unions in the Sri Lankan health sector can influence systematic implementation of appointments and transfers.

4.2 Plans for future interventions

To improve retention of health workers in rural and remote areas, the following conditions are required:

- Rural or remote placements need to be financially more attractive to retain health-care workers in these areas. This can be done through changing the criteria of existing financial incentive schemes or through new schemes such as performance-based incentives or tax concessions for setting up dual practices in these areas, etc. If the rural primary care settings offer lower financial packages, many will not be attracted to work or remain in these settings.
- Improvement of infrastructure with an attractive and safe working environment, including adequate, timely supply of appropriate equipment, medicines and consumables can create a stress-free working environment in rural hospitals. Supportive supervision and mentoring can make these posts professionally attractive.
- To facilitate cooperation between health-care workers in better served and underserved areas, feasible and appropriate outreach activities should be implemented, such as the use of telemedicine to provide additional support to health-care workers in remote settings.
- Career development opportunities should be improved in rural areas. There is a need to increase the availability of career development programmes and senior posts in rural hospitals to facilitate progression along the career pathway as a result of experience, education and training. This will be an attractive factor in retaining doctors in such areas.
- Professional networks could be improved in rural areas to prevent professional isolation. Development of professional networks such as rural health professional associations would improve the morale and status of health-care providers in rural areas.
- Provision of financial resources and infrastructure facilities to set up clinical societies to conduct regional clinical and technical meetings would help to improve the career development of professionals. The SLMA, which bears the responsibility of promoting professional and academic development of the medical profession, has a key role to play in this aspect. Expansion of CPD programmes in rural areas would immensely help health-care professionals improve and update their knowledge.

- Public recognition measures, such as awards and titles at local, national and international levels to uplift the profile of rural health-care posts, would help to improve intrinsic motivation and thereby contribute to the retention of rural health-care workers.

In conclusion, education and retention strategies should aim to retain health-care workers in their country of origin and to attain adequate geographical distribution. This should be done with respect for the right to mobility of individuals, and in alignment with the principles of the WHO global code of practice on the international recruitment of health personnel *(15)*.

The ultimate goal should be to improve the quality of and equitable access to health-care services. Patients expect better accessibility to health care, acceptable and affordable costs, caring and skilled doctors, and reduced waiting times. The right persons should be in the right place in the right numbers with the right skills and attitudes. To achieve this, there is a need to improve the quality of training, ensure proper coordination between training and recruitment, enhance career development, reward management, consider need-based deployment, and provide better facilities and infrastructure.

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THAILAND

Case study on health workforce rural retention

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1. Background and context

Thailand is located in the South-East Asia Region and has a population of 69 million. The country covers an area of 513 115 km^2. Thailand was one of the fastest-growing economies in South-East Asia between 1985 and 1996. However, due to political instability for a decade, growth in the Thai economy has slowed down, with a gross domesstic product (GDP) per capita of US$ 5846 in 2015.

1.1 Health situation and trends

Over the past four decades, health improvement in the Thai population has been promising. Between 1964 and 2014, life expectancy at birth increased from 55.9 to 71 years in males and from 62.0 to 78 years in females. The infant mortality rate (IMR) declined from 84.3 to 6.2 per 1000 live births, and the maternal mortality ratio (MMR) also declined from 317.3 to 23.3 per 100 000 live births in the same period *(1)*.[16]

Epidemiological transition started in the early 1970s, with a decrease in poverty-related and vaccine-preventable diseases and an increase in noncommunicable diseases NCDs). In the 1999 Burden of Disease Study, HIV/AIDS was at the top, followed by traffic accidents, stroke and cancer. The top five risk factors were unsafe sex, alcohol consumption, smoking, high blood pressure and non-use of helmets. From the Survey of Population Change, demographic changes are also remarkable, with the proportion of the elderly increasing from 4.8% in 1937 to 15.6% in 2015 *(2)*.

1.2 Health system in Thailand

The Thai health service system is pluralistic but dominated primarily by the public sector. It has evolved from a system of self-reliance based on local wisdom to a system of modern, professional services. Thai people have become increasingly dependent on health facility-based services. The proportion of the population using facility-based health services increased from 38.5% in 1970 to 56.8% in 2015, while those using self-medication decreased from 51.4% to 34.9% over the same period *(2)*.

Structurally, the Ministry of Public Health (MoPH) is the main national health agency. It owns the majority of health resources, particularly in rural areas. There are volunteers working in 51 280 primary health centres (PHCs) in rural areas, and nurses and other primary care staff working in approximately 10 000 health centres; in addition, there are medical specialists and general practitioners working in 781 MoPH-run community hospitals (Table 1). Private health facilities are operated under the supervision of the Medical Registration Division, Department of Health Service Support, MoPH. The private sector has grown rapidly from around 10% of total beds in 1985 to 23% in 2015 *(2)*.

16 Life expectancy, infant mortality rate, maternal mortality ratio are country reported values.

Table 1: *Health-care infrastructure in 2018*

	Health-care providers	Bangkok Urban	Provinces urban	Districts urban/ rural	Subdistrict urban/ rural	Villages rural
N		1	76	878	7 255	74 965
Medical schools	⊙ Medical specialists with sub-board training					
⊙ Public		6	12	-	-	-
⊙ Private		2	-	-	-	-
Specialized hospitals	⊙ Medical specialists with sub-board training	14	51	-	-	-
Regional hospitals (MoPH)	⊙ Medical specialists ⊙ Medical specialists with sub-board training	-	23	-	-	-
General hospitals ⊙ Public	⊙ Medical specialists					
	⊙ Medical specialists with sub-board training					
– MoPH		4	55	-	-	-
– Other		22	93			
⊙ Private		105	242	-	-	-
Community hospitals (MoPH)	⊙ Big hospitals – medical specialist (internal medicine, paediatrics, surgery and obstetrics–gynaecology) ⊙ Small hospitals – general practitioners	-	-	781	-	-
Private clinics	⊙ Medical specialists ⊙ General practitioners	3 687	13 113	-	-	-
Health centres	⊙ Nurse practitioners					
– MoPH	⊙ Primary care workers (public health personnel) ⊙ Dental nurses ⊙ General practitioners in some urban areas	-	-	-	9 763	-
– Local government		68	-	300	214	-
PHC centres	⊙ Village health volunteers	-	-	-	-	51 280

Source: Thailand health profile, 2016–2017 *(1)*

Before October 2001, 75% of the Thai people were insured under important health insurance schemes, including the Civil Servant Medical Benefit Scheme (CSMBS), the Social Security Scheme, and the Scheme for the poor, the children, the elderly and the disabled. In October 2001, the government started to implement universal coverage of health care (the 30 Baht scheme), which covers the population that was previously uninsured. The health insurance coverage was raised up to 99.9% in 2015. In that year, 73.7% of Thai people engaged with the universal health

coverage scheme, 17.2% with the social security scheme, 7.3% with CSMBS and 0.9% with other health insurance schemes *(2)*.

1.3 Overall HRH issues in Thailand

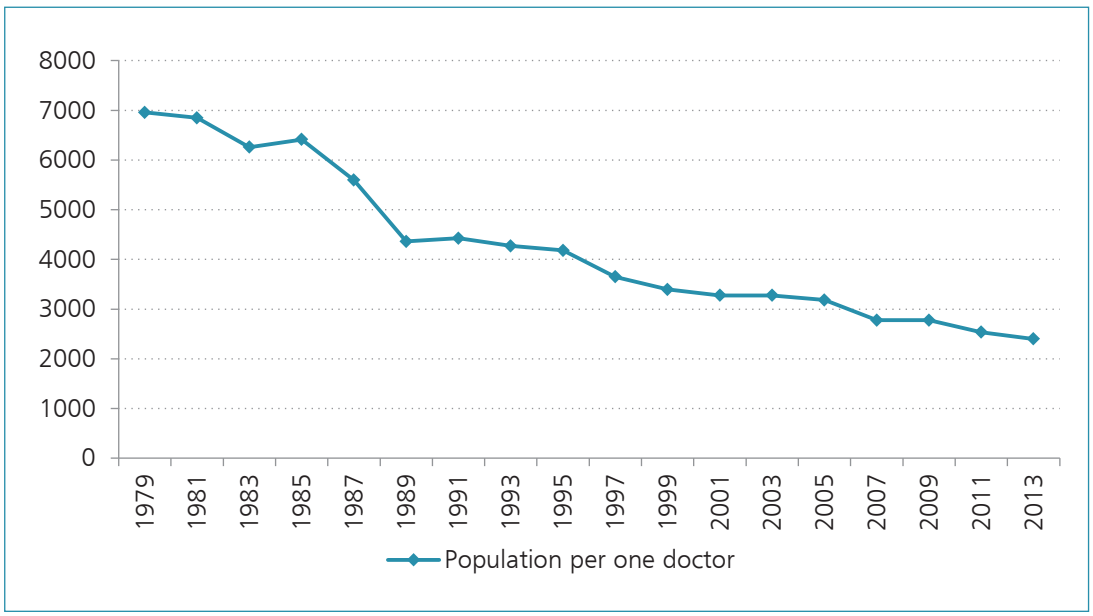
The MoPH has been implementing the planning and development of human resources for health (HRH) for over two decades. However, since the HRH situation is dynamic and involves many stakeholders, HRH problems still exist and continue to require more solutions. The main HRH problems are summarized below.

Shortage of human resources for health

The production of HRH has increased to better match the staff adequately to health system needs, especially in rural areas. As such, the shortage problem in these areas has gradually improved. Figure 1 and 2 show that the density of doctors and nurses has improved over time.

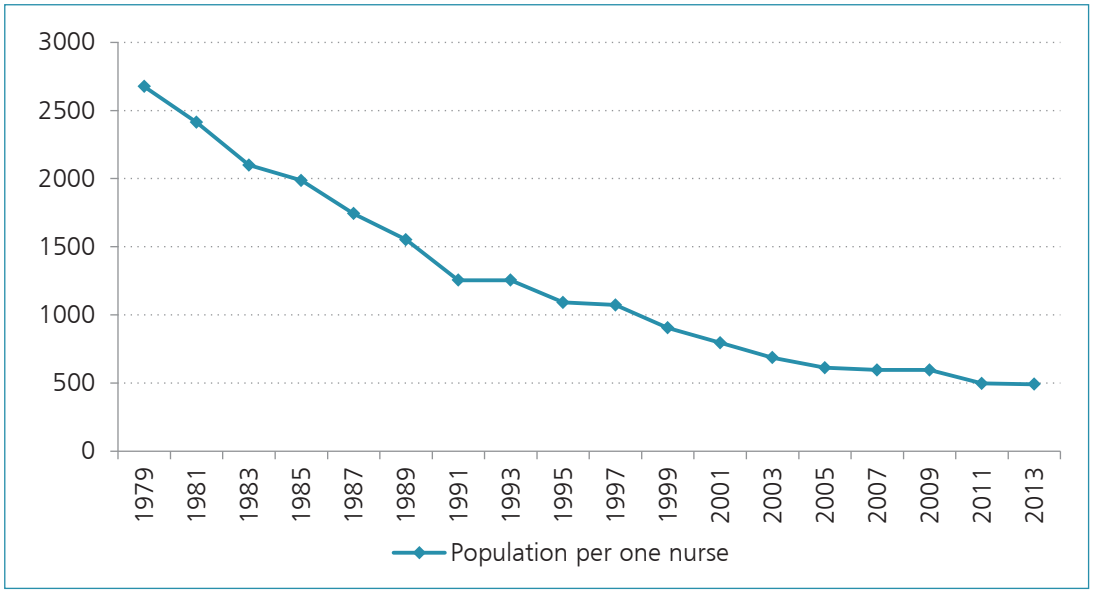
In 2015, the density of doctors and nurses per 10 000 population was 7.69 and 24.09, respectively (Table 2). The problem of shortage of HRH has been due mainly to the increase in demand for care accompanied by the high turnover of HRH. From 2013 to 2015, 700–780 doctors resigned from hospitals under the control of the MoPH. The introduction of the universal coverage scheme and policy of access to antiretroviral therapy together with the emergence of avian flu and severe acute respiratory syndrome (SARS), and the increase in immigration of foreign labourers indicate that there is a need for more HRH in order to achieve quantity and quality of care. Moreover, the government policy to promote Thailand as the medical hub of the Asia Pacific region has resulted in the expansion of private health facilities, which has been another factor in increasing HRH requirements. These changes have had some impact on the mobility of HRH from the rural and public sector to the mainly urban private sector, especially in the case of doctors and nurses. These have made the shortage of HRH in the public sector more pronounced *(8)*.

Figure 1: *Density of doctors from 1979 to 2013*



Source: Thailand Health Profile 2011–2015 (2)

Figure 2: *Density of nurses from 1979 to 2013*



Source: Thailand Health Profile 2011–2015 (2)

Table 2: *Health workforce density in 2015*

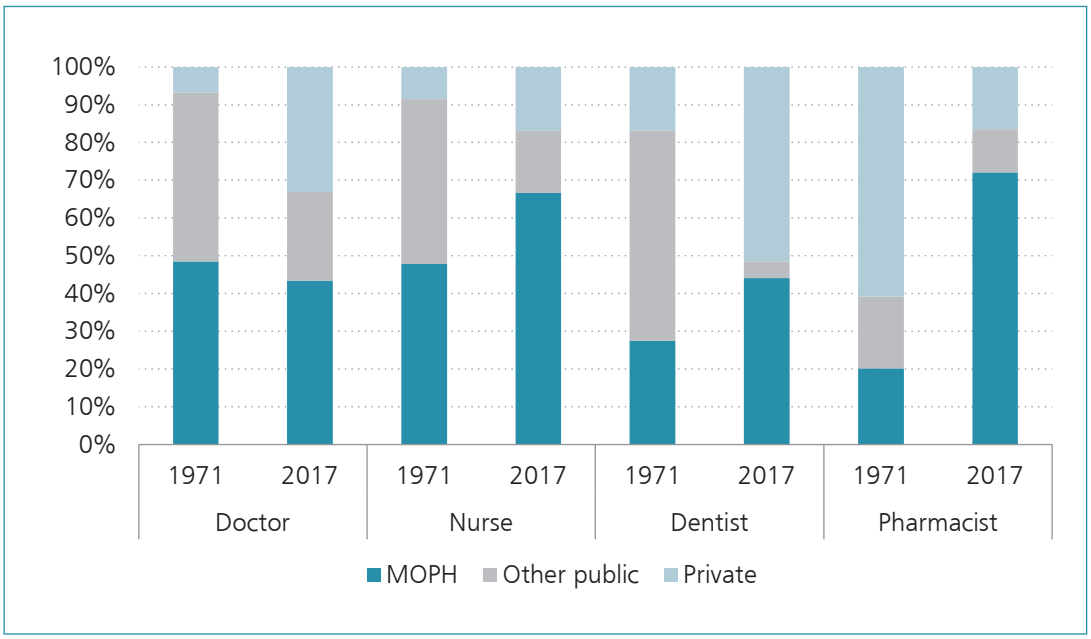
	Number	HWF per 10 000 pop	Data source
Health profession			
Doctor	50 573	7.69	Thai Medical Council
Nurse	158 317	24.09	The Nursing and Midwifery Council
Dentist	11 575	1.76	The Dentistry Council
Pharmacist	26 187	1.04	The Pharmacy Council

Source: Health workforce planning in Thailand for the next 10 years (3))

Inequitable distribution

Apart from geographical distribution, which is described in the next section, there is also a sectoral dimension – the proportion of the health workforce working in the private sector has been increasing, particularly doctors and dentists (Figure 3).

Figure 3: *Health workforce by sector in 1971 and 2017*



Source: Human resources for health reform plan of MoPH *(4)*

Lack of effective mechanisms to develop and implement an HRH policy

To date, the development process of HRH in Thailand has not been fully and continuously implemented due to a lack of mechanisms to facilitate the process. HRH development covers a range of stakeholders. This includes not only the MoPH, but other non-health ministries, private health facilities, the education sector, professional bodies, local administrative organizations, as well as the population itself. To cooperate with and coordinate all these concerned bodies effectively, it has been recognized that Thailand requires an independent agency to help reach a shared and agreed vision. This independent agency would also facilitate full participation from all stakeholders to develop the plan and monitor and evaluate it to develop the HRH system continuously and in line with the country's health needs.

Mismatch between HRH planning and HRH production

It is important for HRH production to be in line with HRH planning. The shortage in some professions, such as doctors and pharmacists, has been resolved in Thailand. However, in some other cadres, such as nurses, there continues to be a shortage. This is due partly to the HRH supply side being lower than the demand side. On the other hand, there is a trend of surplus workforce of some types of health workers, due to the supply side being higher than the demand side (Table 3). Therefore, there is a need to closely balance supply and demand to produce HRH that are in line with local and national needs related to the quantity and quality of HRH.

Table 3: *HRH production capacity*

Professions	Production capacity (person/year)	Supply projection in 2026	Demand projection in 2026 (in various scenarios)	Matching demand and supply in 2026
Physician	3 121	63 065	38 236–53 446	Surplus
Nurse	11 000	193 048	194 205–237 870	Shortage
Dentist	616 (increased to 826)	18 675	16 457–20 955	Shortage
Pharmacist	2 000	39 913	47 786–64 700	Shortage
Public health personnel	10 988	128 729	60 607	Surplus

Source: Health workforce planning in Thailand for the next 10 years *(3)*

New challenges for the health workforce

Ageing population

The demographic and epidemiological transition has inevitably affected the HRH situation. The successful implementation of family planning in the past has resulted in a decline in the population growth rate from 3% in 1970 to 0.5% in 2010 *(5)*. In 2015, 11 million people, accounting for 16% of the population, were 60 years or older. The National Economic and Social Development Board (NESDB) estimated that Thailand will be a complete ageing society in 2021 and will be a super-ageing society in 2031 *(6)*. The anticipated health-care needs of an aged society, such as intermediate care and long-term elderly care, have not yet been properly developed in Thailand.

Technology disruption

Technological developments will cause change and will create opportunities for business and the quality of life of the population. However, there are some negative effects if the population cannot adapt to it, or lack updated knowledge and skills needed for these generational changes. These modern technologies also create risks to security and quality of life. In addition, there is inequitable accessibility to information and communication technology due to different geographical locations and levels of income. Thailand cannot create her own high technology, so the country depends on technological imports from other countries. This is also one of the most important barriers to health system development. It is time now for Thailand to change from being a technology user to a technology creator, especially public health and medical technology, which is crucial for national development in the future.

1.3 HRH issues in remote/rural areas

Over the past years, the production of HRH has increased to match the staff adequately to health system needs, especially in rural areas. However, the problem of geographical maldistribution of health workers has not yet been solved. In 2018, the density of health workers in the capital Bangkok compared to the north-eastern region was four times higher for doctors and 2.7 times higher for nurses. At rural health centres, first-line health facilities, primary care workers and

nurses are the main care providers. However, higher-level professionals, such as doctors and other professionals, are needed to provide services to the rural population and enable more equitable access to such health professionals (Table 1).

There are also challenges in providing an appropriate work environment and support systems for staff in rural areas. Several measures have been implemented to retain HRH in the rural areas. These strategies include: (i) development of infrastructure and equipment in health facilities; (ii) use of non-financial incentives, i.e. opportunity for continuing education, training, development and social recognition; as well as (iii) financial incentives for doctors, dentists, pharmacists and nurses. However, there was continuing mobility of some professionals out of rural areas. The study of Witthayapipopsakul et al. in 2019 showed that important push factors driving the migration of doctors out of rural areas were the need for continuing education, dissatisfaction with the management system in the organization, high workload and dissatisfaction with income *(7).*

2. Policy interventions to improve retention of health workers in rural/ remote areas

A. Educational interventions

Targeted admission

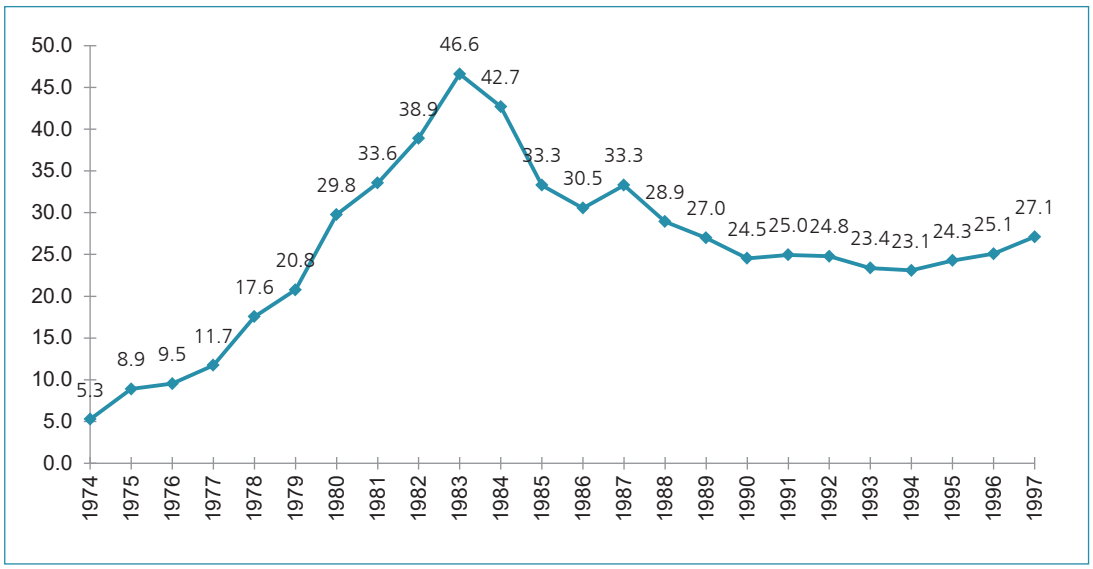
Thailand has a long-established targeted admission policy for medical education. In 1974, these strategies started to be applied in some medical schools. Medical students were recruited from rural areas by a provincial committee and sent back to their provinces after graduation. Evidence suggested that they had higher continuity working in rural areas after the compulsory 3 years of public work *(8)*. This policy was then expanded to other professions, such as nurses and dental nurses.

In 1995, in response to the severe shortage of medical doctors in rural areas, a "Collaborative Project to Increase Production of Rural Doctors (CPIRD)" was started based on this strategy. The proportion of rural medical students decreased since 1983 so this CPIRD increased the proportion of rural medical students again (Figure 4). It produced 300 graduates in 1999 and has since increased to 1100 graduates per year. The application of this concept has proved effective in distributing health workers to rural areas *(9)*.

Since 2004, the government has also moved further to establish a "one rural district one doctor (ODOD)" project, aimed at recruiting from the rural districts, and not only from the provincial level. The ODOD programme ended in 2014 as it was difficult to recruit qualified students of medical school standard at the rural district level. Currently, the targeted recruitment policy exists only in the CPIRD programme.

In the case of nurses, Thailand produces 11 000 nurses per year. Of these, 3600 or around 33%, are produced by the MoPH and are directly recruited from provinces that have a shortage. Nursing students in this programme study in an MoPH nursing college near their home town. Currently, the MoPH has 30 nursing colleges around the country. Provincial and district hospitals, and health centres support nursing students in this programme with their tuition fees; the amount is around US$ 1250 per person per year. After graduation, these nurses have to come back to work in their contracted hospitals/health centres for at least 2 years.

Figure 4: *Proportion of rural medical students*



Source: Integrated strategies to tackle the inequitable distribution of doctors in Thailand (8)

Promote local health professional schools

Thailand has a strong policy of locating new schools outside Bangkok. Currently, seven out of 21 medical schools, and 20 out of 85 nursing schools are in the capital (Table 4).

The resolution of the Fifth National Medical Education Conference in 1986 stated that there should be no new medical schools in Bangkok and its vicinity. However, this policy is enforced only for public schools under the Ministry of Education.

Table 4: *Number of medical, nursing and other health professional faculties/schools by region/state/province in 2015*

Region/state/province	2015			
	Medical faculties/schools[1]	Nursing and midwifery faculties/schools[2]	Dental faculties/schools[3]	Pharmacy faculties/schools[4]
Bangkok	7	20	3	3
Central	3	24	3	7
North	4	12	4	4
South	3	10	1	2
North-East	4	19	2	3
Total	21	85	13	19

Sources:
1. Thailand health profile, 2016–2017 *(1)*
2. Thailand Nursing and Midwifery Council
3. Thailand Dental Council
4. Pharmacy Education Consortium of Thailand

Increase rural exposure

Thailand has used this strategy to increase rural retention in most types of health professional education for a long time. The resolution of the Fourth Medical Education Conference in 1979 stated that all medical schools would reform their curriculum to produce medical graduates who are suitable for working in district hospitals in rural areas. The four main characteristics of these basic doctors are good clinical competence, support for primary health care, ability to train paramedical personnel and health volunteers, and good management skills.

All medical schools in Thailand have a subject on community medicine in their curriculum. They usually learn this subject in years 4, 5 and 6. In the sixth year, the course duration ranges from 1 to 6 months in different medical schools. This subject allows medical students to work in community hospitals and health centres so that they can get practice and work in these after graduation.

Nursing schools also have a subject on community nursing, mostly in the last year of the curriculum, and nursing students are also sent to work in community hospitals and health centres.

Continuous professional development

In Thailand, continuing education for health professionals is well established. The Thai Medical Council started a specialty training programme for doctors in 1971 and currently they have 17 major specialty training programmes and 74 subspecialty training programmes. Most medical specialty programmes aim to enhance a doctor's capacity to practise on patients with complicated illnesses; such as internal medicine, obstetrics–gynaecology, surgery and paediatrics. These types of training programmes support doctors to practise in tertiary hospitals at the provincial level outside Bangkok. However, to increase access to effective services provided by high-calibre professionals, particularly in rural areas, large-size district hospitals have internal medicine, obstetrics–gynaecology, surgery and paediatric training programmes. In addition to full-course specialty training programmes, short-course training programmes in specific issues, such as common NCDs, psychiatry, epidemiology, are also available for health professionals in rural areas.

To promote the scope of practice for doctors to work in rural areas, a family medicine training programme was first launched in 1998. Currently, Thailand has two training courses, a 3-year full-time training and an on-the-job training programme. For the on-the-job training programme, trainees should work in hospitals closely supervised by senior family doctors. Doctors doing the two courses have to pass a licensing examination to become family medicine practitioners. Family medicine doctors who work in the MoPH get a special allowance to top up their basic salary.

For nurse professionals, in-service training of at least 10 days/year/person is the minimum requirement for continued professional development (CPD) set by the Thai Nursing and Midwifery Council (TNMC). This is in addition to other training organized by each health-care unit. There are two categories of in-service training for nurses: (i) in-house training, organized by all health-care units to strengthen nursing competency as required by individual organizational needs, and (ii) postgraduate training, which is the training provided for specific purposes.

There are two types of postgraduate training for nurses; the specialized short-course training, and masters' and doctoral degree courses. The specialized short-course training is standardized by the TNMC, which allows nurses to be trained for the specific specializations needed, such as

in haemodialysis, emergency care, paediatrics, gerontology, etc. For the masters' and doctoral degree courses, hospitals provide funding corresponding to their own needs, which would account for less than 1% of total in-service nurses in their hospitals. However, nurses who do not get this funding can still attend these higher education courses by self-funding.

To date, there are a total of 6000 nurses awarded a Master of Nursing Science degree in Thailand, and 500 awarded a Doctoral degree in Nursing Science. In addition, to improve the quality of health-care services, Thailand has implemented a 3-year training course in Advance Practice Nurse (APN), adapted from the doctoral degree of nursing, which is similar to residency training among physicians. To date, there are approximately 1000 APNs. In addition, there is a short-course training for specialized nurses, which is normally based on the demand of an individual hospital. The MoPH has emphasized the importance of nursing capacity to manage chronic illnesses, long-term care, palliative care and primary prevention of chronic NCDs.

B. Regulatory interventions

Appropriate skill mix

The production of lower-level professionals and strengthening of their capacity were very important strategies to improve services in rural areas, particularly at the health centre level. Patients with simple problems should be cared for by the health centres. The intensive investment in the development of rural paramedical personnel since the early 1980s has resulted in a large reduction in the proportion of outpatient visits in hospitals and has reduced the demand for doctors' services *(8).*

In the past, to tackle the shortage of health professionals, e.g. doctors and nurses, Thailand produced a larger number of a mid-level health workforce, which undergoes a 2-year training, such as technical nurse, junior sanitarian, dental nurse and pharmacist assistant. These types of health workers worked in rural areas under the supervision of doctors and nurses.

However, after an increase in production of the main health professionals – doctor, nurse, dentist and pharmacist, the overall severe shortage problem has been relieved, and most of these cadres are not being trained. Nowadays, the only 2-year training is for paramedics in emergency medical services.

Furthermore, to increase access to services in remote areas, expanding the scope of practice in some professions, such as for nurses, has been widely used in Thailand for a long time. Nurses are the backbone of primary care services in the health centre. They are sent for a four-month nurse practitioner training programme. They then have greater ability to provide care to patients with more complex needs. This training system has been well established for more than three decades. As of 2019, there are more than 170 training programmes approved by the TNMC *(10).* The training capacity is around 8000 trainees per year. Those who successfully become nurse practitioners are allowed to undertake some doctor's duties, such as prescribing drugs, injecting antibiotics intramuscularly, etc.

Compulsory public services

Compulsory public service in Thailand started in 1972 to cope with the external brain drain of doctors to the United States. This strategy applies to all medical students in public medical schools and is based on a contract signed with the government by first-year medical students. After graduation, graduates have to work in public hospitals, mostly in rural district hospitals, for 3 years. If they breach the contract, they have to pay a fine of US$ 13 000. Initially applicable only to medical students, this strategy was later expanded to nurses, dentists and pharmacists.

However, nowadays, there are limited additional government posts for nurses and pharmacists in the MoPH, so there is no compulsory public service for nursing students and pharmacy students any more but this policy still exists for doctors and dentists. In 2018, around 80% of new dentist graduates and almost 100% of new doctor graduates were required to follow this policy.

However, resignation of doctors who are working in the compulsory public service period in the MoPH is tending to increase every year. In 2018, data from the Division of Human Resources of the MoPH demonstrated that around 25% of new doctors resign before completing the 3-year compulsory public service *(11)*. Hence, there is a need for comprehensive evaluation of the effectiveness of this policy.

Educational subsidy

Currently, the Thai government subsidizes around US$ 60 000 for each medical student in public medical schools and around US$ 4000 for each nursing student in public nursing schools. This budget is sent directly to public universities. This strategy is combined with compulsory public services after graduation to increase rural retention.

C. Financial incentives

Increase financial incentives

To provide incentives for health professionals who deliver services, the government has implemented a range of special allowances to attract them to work in rural areas.

Hardship allowance

In 1975, the first hardship allowance was launched for doctors who work in district hospitals – the amount was around US$ 60 per month at that time.

In 1997, the hardship allowance was graded according to the three levels of rural areas – at US$ 60, $330 and $660 per month.

In 2016, the hardship allowance was updated to reflect two criteria – remoteness of the hospital and duration of work in the rural area. This allowance was paid to other professionals as well.

Non-private practice allowance

In 1995, a non-private practice allowance of US$ 330 per month was given to any doctor (in the MoPH) who agreed to not engage in private practice. This allowance still exists at the same rate of payment. However, a study by Chiengchaisakulthai et al. found that this allowance did not affect the productivity and quality of work *(12)*.

Overtime payment

This payment was started in 1995 and is paid out in relation to the workload. Hospitals pay US$ 36 to doctors and dentists, US$ 24 to pharmacists and US$ 20 to nurses and public health workers for each extra 8-hour shift after office hours. Moreover, doctors and nurses also get extra pay per case for operations performed out of service hours.

The MoPH uses many financial incentives to attract health workers, particularly doctors, to work in rural areas. It should be noted that most incentives were paid to compensate for hardships encountered during rural practice and were not related to ensure increased productivity. Moreover, most of the allowances created many inequities among various health professionals and also between hospitals. For hardship allowance in the most remote areas, new doctors get extra pay of US$ 1000 per month while new nurses get US$ 120 per month – an approximately 10-fold difference. Meanwhile, new doctors working in urban areas get extra pay of US$ 330 per month as non-practising allowance compared to those in remote areas – a 3-fold difference. Thus, several incentives have created a financial burden on hospitals and the overall government budget in the long run.

While financial incentives could be effective in retaining some health professionals, they were also viewed as unfair treatment by some others, particularly primary care workers working at rural health centres. In the past decade, the MoPH has formulated many policies to strengthen primary care and improve infrastructure in health centres. However, financial incentives and the career path of health workers in health centres need further improvement. This suggests that it is important to explore appropriate managerial support and proper incentives.

Overall, it should be noted that no comprehensive study has been conducted to assess the implications of financial incentives, particularly in terms of financial burden and fairness.

D. Personal and professional support interventions

Improve living conditions

In 1979, the Thai government initiated rural health development as part of an integrated national rural development plan. At that time, new rural hospitals were expanded to every district throughout the country. The objective was that all district hospitals should have well-equipped infrastructure with adequate medical supplies. Good logistics support and housing are provided to help create a good working environment.

Economic growth in Thailand has improved the transportation network in the country. There has been an expansion of low-cost airlines, and there are many new airports in small provinces. This has made it easier for health workers in other regions to travel back to their homes.

Ensure good supervision from higher-level health facilities

The MoPH initiated a new resource management system for health facilities under its control outside Bangkok, called Area-Health (AH). AH comprises a group of provinces with around 5–6 million population – usually five to six provinces. In each AH, there is a network of health facilities from large super-tertiary hospitals, tertiary hospitals, secondary hospitals and health centres. All facilities are linked together with service plans, e.g. internal medicine, surgery,

paediatrics and primary care. Care guidelines, referral systems and supervision from upper-level facilities ensure quality of services.

Moreover, most tertiary hospitals have a rotation of specialists to provide services in district hospitals and teach rural staff. Consultation via telephone and online app to discuss with senior specialists in provincial hospitals is very popular among rural doctors. In this system, health workers at lower-level facilities are technically supported by specialists in tertiary hospitals.

Promote career development

Rural doctors are free to relocate to their preferred job and location after the three-year compulsory public service. Hence, their promotion to a higher level according to their working period in a rural area should be also encouraged. Rural doctors in Thailand start their career at personal class (PC) level 4 (of a total of 11 levels). Within 7–8 years of public service, most of them will be at level 7. Within 10–12 years of public work, they will be at level 8 – equivalent to the director of a division in the central MoPH office (Table 5). Since 1996, they can be promoted to PC level 9 – equivalent to the provincial chief medical officer. The opportunity for advanced career development, with high financial incentives, means that the doctor does not want to move to the provincial health office and central MoPH office.

Table 5: *Administrative structure and career path in the Ministry of Public Health, Thailand*

	Position	PC level
Central administration		
Office of Permanent Secretary	Permanent Secretary	11
	Deputy Permanent Secretary	10
Department	Director-General	10
	Deputy Director-General	9
Division	Director	9
Provincial administration		
Provincial Health Office	Provincial Health Officer	9
Provincial hospital	Director	9
District Health Office	District Health Officer	8
District hospital	Director	9
Staff		
Doctor and dentist		4–9
Nurses, pharmacists and others		3–7

Supportive professional network

The Rural Health Doctor Society started in 1978. This comprises a group of doctors who work remotely and face many administrative and logistic problems. The society has established several management training programmes, developed management handbooks and provided many innovative activities to support rural work. These activities boost their crusading spirit and their pride in being rural doctors. There are also many societies of the other health professions, such as rural nurse society, rural dentist society. These professional groups are nongovernmental organizations. Membership is voluntary, and some part of the funding is from the members.

Increase social recognition

To increase social recognition, some professional associations, councils and faculties set up awards for health professionals who work in rural areas for a long time and contribute to the community. These include "Best rural health professional" awards (doctor, dentist, pharmacist and nurse). Some awards by faculties invite awardees to give a speech and be a role model for students in the health professions.

3. Successful interventions to improve retention of health workers in rural/remote areas

3.1 Collaborative Project to Increase Rural Doctors (CPIRD) Program

Concept of CPIRD model

In 1994, the MoPH collaborated with the Ministry of Education to start the project to increase the production of rural doctors. The CPIRD Program was started because of the lack of rural physicians, poor distribution and increasing "brain drain" from the MoPH to the private sector in the 1990s.

The CPIRD is not a medical school per se. It is an administrative office in the MoPH. It is an agency that supports collaboration between the faculties of medicine in the Ministry of Education with service hospitals in the MoPH. This Program combines three key concepts: rural recruitment, local training and hometown placement. It has been doing this function for 20 years. Besides financial regulations, the CPIRD also strengthens the MoPH's faculty development system. Medical students of the CPIRD are selected from their rural domiciles. Preclinical programmes are taught in 14 collaborating universities, and clinical subjects are taught in 37 medical education centres (MECs) nationwide. The MECs are regional or provincial hospitals of the MoPH. In 2005, the "One District One Doctor"(ODOD) programme was started by selecting students from targeted rural areas. CPIRD graduates are obliged to work in rural hospitals for three years and ODOD graduates for 12 years. This network of 14 universities and 37 MECs covers all 12 health-care regions of Thailand.

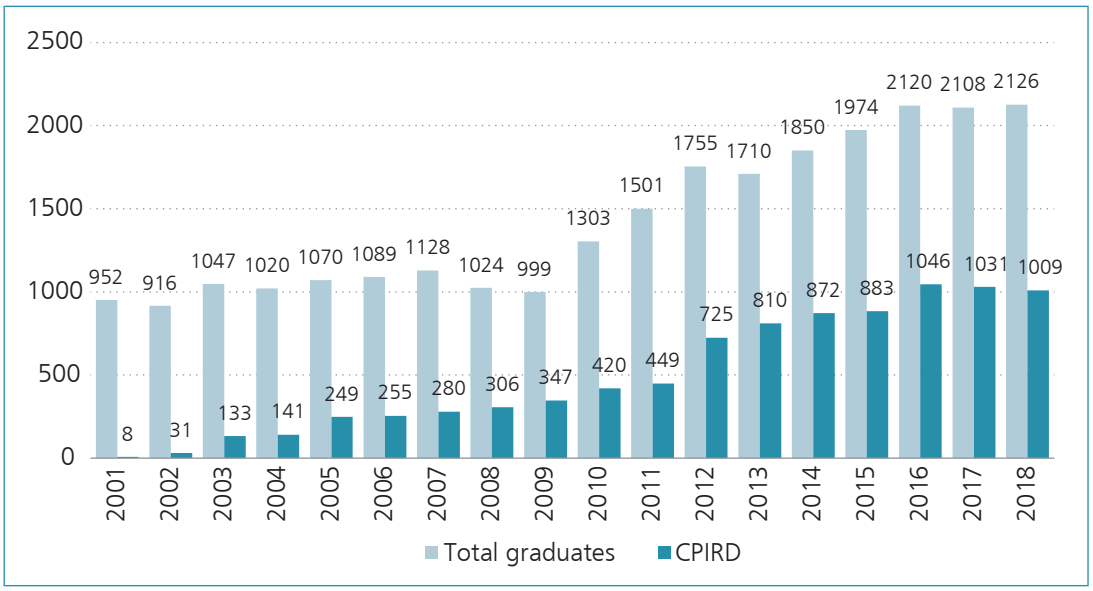
The number of CPIRD quotas in each medical school depends on how much shortage is estimated in each region. The regional quotas are then distributed to the provincial level. The student selection process occurs at the provincial level, called rural recruitment. Qualified students from secondary schools study in medical schools for their first three years during the preclinical period. For the second three-year period – the clinical period, students are sent to a regional hospital near their hometown; this is called local training. After graduation, young doctors from this Program are sent back to work in their home provinces.

Nowadays, Thailand has 21 faculties of medicine. Seven of these entirely depend on MoPH hospitals for their clinical teaching. Currently, all faculties of medicine have a combined production capacity of 1870 medical students per year in the regular track, recruited through a national examination and direct admission. Another 1116 students per year are recruited through the CPIRD. In total, Thailand can therefore produce 2986 medical doctors per year from all medical schools, both in universities and the MoPH.

Nowadays, about half of the new graduate doctors entering district hospitals are from the CPIRD Program (Figure 5).

In 2018, with this capability and collaboration, Thailand planned to increase the overall production of medical students to 3121 per year and, within this, 1131 (36%) will be produced within the CPIRD.

Figure 5: *Medical graduates entering rural hospitals, 2001–2018*



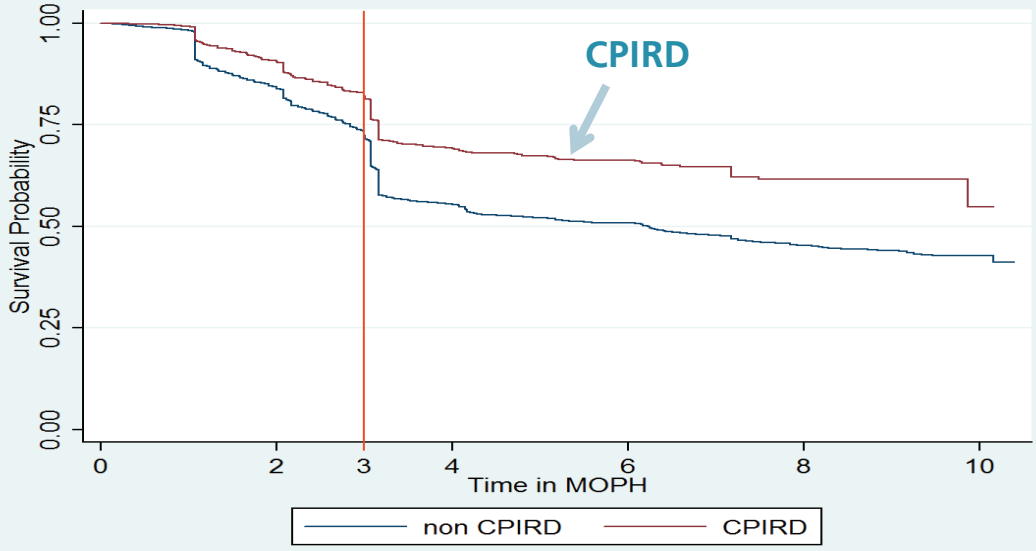
Source: MoPH

The CPIRD has been running many collaborative projects in the past 20 years. It has achieved 85.0% of its goals in students' admission since establishment. Till 2015, the CPIRD helped to produce 6955 doctors for the country. Only eight students graduated in the first batch in the year 2000, but this increased to 1100 graduates in 2018. The graduation results from 2000 to 2015 were impressive, and the graduation rate of CPRID students was 95.6%, which is comparable to the regular track of medical students.

The passing rate of national license testing was 99.6%, which demonstrated that CPIRD students did not differ in performance from regular track students; 8.5% of all CPIRD graduates had honours degrees. These CPIRD graduates have contributed to an increase in the number of doctors in rural areas. Currently, CPIRD graduates comprise 39.0% of all doctors entering community hospitals each year. When looking at the percentage of CPIRD-graduated physicians and regular physicians, the range is about 13–62% among the 12 health-care regions of Thailand.

Pagaiya et al. in 2012 reported that regular graduates resigned from the MoPH before the three obligatory years 1.5 times more often than CPIRD graduates (hazard ratio [HR] 0.66, $P<0.001$). This study also showed that CPIRD graduates continued working in rural areas after three years 1.14 times more often than regular graduates (HR 0.14, $P<0.001$) *(13).* Recent data obtained from 5909 graduates of the CPIRD show that 78.2% are still working in the MoPH *(9).* Nevertheless, more studies are needed to follow the career path of these graduates (Figure 6).

Figure 6: *Survival curve of MoPH service retention by CPIRD Program and normal track graduates*



- 10 years observation of graduates between 2001 and 2007 (5578 normal track versus 1088 CPIRD graduates)
- Higher rural retention among CPIRD than normal track

Source: Rural retention of doctors from CPIRD program *(13)*

Many studies have shown that CPIRD graduates return to rural hospitals in their hometown *(9,13,14)*.

These impressive results came partly from previous CPIRD administrators who put in a lot of effort in faculty development. Fully aware of the weaknesses of service-based hospitals, the CPIRD started many short courses in faculty development beginning in 2005. The programmes covered many themes, from teaching and learning to assessment and quality assurance. In 2013, the CPIRD launched its flagship faculty development course called the Essential Course for Medical Educators (ECME). This is a certificate-awarded course and one of the few proper health professional education courses in Thailand. This course used collaboration among medical educators from universities and the CPIRD office. The CPIRD's success is partly also due to the support of international educators, particularly from Kyoto University and Jichi Medical University in Japan.

The CPIRD has helped to solve the problem of doctors' shortage in Thailand. Following its quantitative success, the CPIRD is also pursuing the quality aspect of rural doctor production since the CPIRD graduate is performing similar to the regular track graduate. This raises issues when considering the underlying philosophy and goal of the CPIRD. In the next phase, the CPIRD is aiming to act as a change agent in Thai medical education. It will try to create real rural clinical education in Thailand. It is clear about the main attributes of its future outputs, but the development processes must involve the curricula of 14 universities. The processes include goal-setting, selection criteria, curriculum planning and implementation, competency-based assessment and finally, career path and postgraduate training of a CPIRD doctor.

In conclusion, the CPIRD has been established as a partnership model to increase the number of doctors in Thailand. The country has already achieved this with less investment by using available resources. This should confirm that a collaborative model of doctor production can be established and expanded. Nevertheless, challenges still exist in overcoming maldistribution and selecting the right person to be a rural physician. From now on, this strong partnership between the CPIRD and collaborating universities will have to overcome the challenge of producing the right specifications for doctors to deliver care to the rural population.

4. Conditions for success and future plans for interventions to improve retention of health workers in rural/remote areas

4.1 Conditions for success

There are many push and pull factors to retaining health professionals in rural areas. Thailand has implemented several strategies to try and solve inequitable distribution. Despite these strategies having had some impact, inequitable distribution persists.

Several lessons can be drawn from the Thai experience.

- Many of the strategies that have been developed and used to improve maldistribution have been reactive, in response to each crisis. They are fragmented, uncoordinated, sometimes inconsistent, and have rarely been subjected to systematic evaluation.
- Financial strategies have been used as a universal solution to attract health professionals to rural areas. However, it is apparent that these have had a side-effect in terms of creating inequity among professionals and increasing the financial burden on hospitals.
- The combination of rational strategies in the package aimed to improve retention is very important. The CPIRD is a good example. This Project combines three key concepts: rural recruitment, local training and hometown placement. In the 20 years since its implementation, more than 80% of those who graduated via the CPIRD scheme are still working in their home province.
- Comprehensive strategies coordinated by a unified health workforce policy mechanism is an important contributor.
- Finally, more equitable socioeconomic development is the key factor for overall sustainable success in social equity. This needs strong political leadership and social support.

4.2 Plans for future interventions

The strategic plan for the Decade of National Human Resources for Health Development in Thailand (2007–2016) has been implemented. The National Human Resources for Health Commission, MoPH and other related organizations have developed the second National Human Resources for Health Development Strategic Plan for Thailand (2018–2027).

- This Plan aims to be the master plan guiding the direction and scope of implementation of HRH development in Thailand within its 10-year duration.
- At the national level, this Plan links to the 20-year National Strategic Plan and National Reform Plans on Health. Moreover, internationally, this Plan also links with the Global Strategy on human resources for health: Health Workforce 2030, launched by WHO in 2016.
- In developing this process, the Plan engaged multiple stakeholders from among users, both public and private, producers, professional councils and civil society to ensure extensive participation.
- Four key areas are emphasized in this Plan:
  (a) to develop an HRH policy mechanism at national and area-based levels;
  (b) to strengthen the health professional education system and align it with transformative education concepts;
  (c) to effectively manage the health workforce to ensure availability, accessibility, acceptability and quality; and
  (d) to strengthen the HRH information system to support the Thai National Health Workforce Accounts (NHWA).
- This Plan was approved by the National Health Commission in February 2019 and is awaiting Cabinet approval.

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ANNEX

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1. BHUTAN

Recommendations	Has this policy been implemented in last 5 years? Yes/No?	Coverage- was the policy implemented across the whole system, or only for selected occupations or geographical areas [state which]?	What was the impact of the policy? Select one level of impact: Significant Or Moderate Or Limited Or None Or Not known (indicate the source if possible)
A. Education recommendations			
A.1. Use targeted admission policies to enrol students with a rural background in education programmes for various health disciplines in order to increase the likelihood of graduates choosing to practise in rural areas.	No	Enrolment at the KGUMSB and government scholarships are based on merit only.	Unknown
A.2. Locate professional health schools, campuses and family medicine residency programmes outside of capitals and other major cities as graduates of these schools and programmes are more likely to work in rural areas.	No	Although to promote equity development, educational institution and promoted to be set up in districts and government has also allocated economic zone.	Unknown
A.3. Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.	Yes	In all Health Institutions. The students are also taken for field practicals.	Unknown

A.4. Revise undergraduate and postgraduate curriculums to include rural health topics to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and raise retention levels.	Yes	For all health professionals based on changing needs of health-care services.	Significant impact
A.5. Design continuing education and professional development programmes that meet the needs of rural health workers and that are accessible from where they live and work, to support retention.	Yes	All health professionals. Health workers are mandated to have 30 credits in five years, which is equivalent to a total of 90 CME hours in 5 years, in order to practice as per Bhutan Medical and Health Council.	Significant impact
B. Regulatory recommendations			
B.1. Introduce and regulate enhanced scope of practice in rural and remote areas to increase the potential for job satisfaction, thereby assisting recruitment and retention.	No	Public servants get some merit points for promotion.	Unknown
B.2. Introduce different types of health workers with appropriate training and regulation for rural practice to increase the number of health workers practising in rural and remote areas.	Yes	In BHU II only Health Assistants.	Significant impact
B.3. Ensure that compulsory service requirements in rural and remote areas are accompanied with appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.	Yes	Across all	Moderate

B.4. Provide scholarships, bursaries or other education subsidies with enforceable agreements of return of service in rural or remote areas to increase recruitment of health workers in these areas.	Yes	Across all: Need to sign undertaking with the agencies as per the BCSR for all courses longer than 6 months.	Significant impact
C. Financial incentives recommendation			
C.1. Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. that sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention.	Yes (rural allowance)	All	Moderate
D. Personal and professional support recommendations			
D.1. Improve living conditions for health workers and their families and invest in infrastructure and services (sanitation, electricity, telecommunications, schools, etc.), as these factors have a significant influence on a health worker's decision to locate to and remain stationed in rural areas.	No	–	Unknown
D.2. Provide a good and safe working environment, including appropriate equipment and supplies, supportive supervision and mentoring, to make these posts professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.	Yes	All	Moderate impact

D.3. Identify and implement appropriate outreach activities to facilitate cooperation between health workers from better served areas and those in underserved areas and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.	Yes	All (Ministry is now initiating Electronic Patient Information System (EPIS) and health camps are being organized).	Limited impact
D.4. Develop and support career development programmes and provide senior posts in rural areas so that health workers can move up the career path gaining from the experience, education and training, without necessarily leaving rural areas.	Yes	For nurses and HAs for qualification up-gradation to Bachelor's in nursing and public health.	Moderate
D.5. Support the development of professional networks, rural health professional associations, rural health journals, etc. to improve the morale and status of rural providers and reduce feelings of professional isolation.	No	–	–
D.6. Adopt public recognition measures such as rural health days, awards and titles, at local, national and international levels to lift the profile of workers in rural areas, as this helps improve intrinsic motivation and contributes to retention.	No	–	–
E. Other (Please add additional rows to report on any policy interventions not listed above).	No	–	–

2. INDIA (CHHATTISGARH STATE)

Recommendations	Has this policy been implemented in last 5 years? Yes/No?	Coverage: Was the policy implemented across the whole system, or only for selected occupations or geographical areas [state which]?	What was the impact of the policy? Select one level of impact: Significant Or Moderate Or Limited Or None Or Not known (indicate the source if possible)
A. Education recommendations			
A.1. Use targeted admission policies to enrol students with a rural background in education programmes for various health disciplines in order to increase the likelihood of graduates choosing to practise in rural areas.	Yes	National and state-level norms reserving seats for vulnerable social groups such as Scheduled Tribes, Schedules Castes, Other Backward Classes for MBBS, PG and nursing courses. Sponsorship of girls for education by Tribal department in the State Government. Coaching institutes are set up by district administration in some districts to prepare students for medical examinations. Eg. Sankalp in Jashpur and Prayas in Dantewada.	Significant
A.2. Locate professional health schools, campuses and family medicine residency programmes outside of capitals and other major cities as graduates of these schools and programmes are more likely to work in rural areas.	Yes	Opening up of medical colleges in Sarguja and Bastar regions.	Limited (admission is done centrally, therefore, local candidates may not get selected).

A.3. Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.	Yes	Preventive and social medicine department in medical colleges of the state have adopted outreach areas where students visit periodically. Medical students have to undergo two months of rural practicum. State government has medical interns in institutes within and outside the state running community health programmes.	Limited
A.4. Revise undergraduate and postgraduate curriculums to include rural health topics to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and raise retention levels.	Yes	National medical curriculum includes skills and competencies for communication.	Limited
A.5. Design continuing education and professional development programmes that meet the needs of rural health workers and that are accessible from where they live and work, to support retention.	Yes	1) AMO course at CMC Vellore. 2) Mitanin to ANM/GNM in whole of the state.	1) Significant (Improvement in primary health services due to AMOs being posted in PHCs) 2) Limited (A large number of Mitanins who got trained have not yet been recruited).
B. Regulatory recommendations			
B.1. Introduce and regulate enhanced scope of practice in rural and remote areas to increase the potential for job satisfaction, thereby assisting recruitment and retention.	Yes	1) Multiskills training for EMoC and LSAS provided in the state. 2) Integrated laboratories, integrating human resources from various vertical programmes, developed in the state.	1) Moderate. 2) Moderate.

B.2. Introduce different types of health workers with appropriate training and regulation for rural practice to increase the number of health workers practising in rural and remote areas.	Yes	1) Recruitment of AMOs/ RMAs who have done 3-year medical course for the whole state. 2) Introduction of cadre of BSc nurses as mid-level health-care providers. This is part of the national health and wellness centres initiative for primary care.	1) Significant: Led to increase in availability of health personnel for providing primary health care in rural areas. Many PHCs became functional after these graduates were recruited and posted. (evaluations and studies of the scheme). 2) Not known as it has been newly introduced.
B.3. Ensure that compulsory service requirements in rural and remote areas are accompanied with appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.	Yes	Bond for bachelor of medicine and bachelor of surgery (MBBS) and postgraduate (PG) introduced in the whole of the state.	Significant The penalty for breaking the bond for compulsory rural service has recently been increased to Rs 2 500 000, though the time period has been reduced from two years to one year. This has led to increased availability of MBBS doctors in rural areas of the state. This is also being closely monitored and regulated by the government through coordination between Directorate of Medical Education (DME) & Directorate of Health Services (DHS). (government data, feedback from districts during field visits, etc.).
B.4. Provide scholarships, bursaries or other education subsidies with enforceable agreements of return of service in rural or remote areas to increase recruitment of health workers in these areas.	Yes	1) Marks for PG degree admission in lieu of service in rural and remote areas in whole of the state. 2) For PG Diploma, 50% of state seats reserved for in-service candidates, along with bonus marks.	Significant (evaluations, studies, feedback from districts during field visits).

C. Financial incentives recommendation			
C.1. Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. that sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention.	Yes	In the whole of the state CRMC implemented as per grading category of difficulty. Additional efforts made in Bijapur, Dantewada and Sukma districts.	Significant (evaluation studies, reports, government data).
D. Personal and professional support recommendations			
D.1. Improve living conditions for health workers and their families and invest in infrastructure and services (sanitation, electricity, telecommunications, schools, etc.), as these factors have a significant influence on a health worker's decision to locate to and remain stationed in rural areas.	Yes	Implemented in districts with predominantly tribal population and those affected by conflict. More efforts in Bijapur, Dantewada and Sukma districts.	Significant (government data and reports, feedback from districts during field visits). 39 transit hostels being built (10 rooms each). Intercom- transit hospital to facility. Some places wifi, sim cards.
D.2. Provide a good and safe working environment, including appropriate equipment and supplies, supportive supervision and mentoring, to make these posts professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.	Yes	Bijapur, Dantewada and Sukma districts.	Significant (government data and reports, feedback from districts during field visits).

D.3. Identify and implement appropriate outreach activities to facilitate cooperation between health workers from better served areas and those in underserved areas and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.	Yes	1) Improving quality of services in SNCUs through mentoring from professionals from AIIMS Raipur in two districts of Dantewada and Mahasamund. 2) Whatsapp groups are being created for more interaction between health personnel, including for technical advice.	1) Significant 2) Not known
D.4. Develop and support career development programmes and provide senior posts in rural areas so that health workers can move up the career path gaining from the experience, education and training, without necessarily leaving rural areas.	Yes	1) Marks for PG admission. 2) Mitanin to ANM/GNM in whole of the state.	1) Significant (please see A.5 and B.4). 2) Limited (please see A.5).
D.5. Support the development of professional networks, rural health professional associations, rural health journals, etc. to improve the morale and status of rural providers and reduce feelings of professional isolation.	Yes	Funding of trainings and CME events by National Health Mission in the state.	Moderate (e.g. Hands-on training on operating on club foot led to the operations starting in eight district hospitals).
D.6. Adopt public recognition measures such as rural health days, awards and titles, at local, national and international levels to lift the profile of workers in rural areas, as this helps improve intrinsic motivation and contributes to retention.	No	–	–
E. Other (Please add additional rows to report on any policy interventions not listed above).			

3. INDONESIA

Recommendations	Has this policy been implemented in the last 5 years? Yes/No?	Coverage: Was the policy implemented across the whole system, or only for selected occupations or geographical areas [state which]?	What was the impact of the policy? Select one level of impact: Significant Or Moderate Or Limited Or None Or Not known (indicate the source if possible)
A. Education recommendations			
A.1. Use targeted admission policies to enrol students with a rural background in education programmes for various health disciplines in order to increase the likelihood of graduates choosing to practise in rural areas.	Yes ADIk Papua Scholarship Ministry of Higher Education. The Higher Education Affirmation Programme (ADik) is a government-funded programme for students from remote, borders and island areas and for OAP (Orang Asli Papua or Native Papuans), to support them in seeking higher education in the university. The government provides the tuition fees, living expenses, and special tutoring, so students participating in the scholarship programme can complete their higher education at the best university.	Selected geographical areas and selected universities.	Not known
A.2. Locate professional health schools, campuses and family medicine residency programmes outside of capitals and other major cities as graduates of these schools and programmes are more likely to work in rural areas.	Yes 42 of 83 medical faculties located outside Java Island. There are also 38 health polytechnic diploma schools under MoH all over Indonesia.	Whole system	Not known

A.3. Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.	Yes • Students (medical, nursing and midwifery) are working and learning in a rural community health-care setting for a certain period of time as a part of the academic curriculum over a duration ranging from 1–6 months. • Medical specialist education rotates for 3–6 months outside Java, such as Papua.	Whole system, selected geographical	Not known
A.4. Revise undergraduate and postgraduate curriculums to include rural health topics to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and raise retention levels.	No	–	–
A.5. Design continuing education and professional development programmes that meet the needs of rural health workers and that are accessible from where they live and work, to support retention.	No	–	–
B. Regulatory recommendations			

B.1. Introduce and regulate enhanced scope of practice in rural and remote areas to increase the potential for job satisfaction, thereby assisting recruitment and retention.	Yes Task shifting MoH Regulation Number 148 & 149 year 2010 When there is no doctor available, nurses and midwifes are allowed to take over the function. But there has been no clear regulation upon which cases could be shifted from doctors to nurses. Mostly emergency cases such as cardiopulmonary resuscitation, suturing of wounds, and removing of foreign bodies from the ears and eyes.	Across for whole geographical area.	Moderate
B.2. Introduce different types of health workers with appropriate training and regulation for rural practice to increase the number of health workers practising in rural and remote areas.	No	–	–

B.3. Ensure that compulsory service requirements in rural and remote areas are accompanied with appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.	Yes 1. MoH. Decree Number 299 of 2010. Mandatory service for newly graduated physicians to undertake a medical internship in designated areas for 1-year before obtaining registration and get a medical license). You choose the placement area together with all new graduates by a one-time online system. 2. Presidential decree Number 4 of 2017. Mandatory service of medical specialists to work in a remote and underserved area for one year to obtain medical licence, but it was changed due to a human rights issue and become an Optional service (Presidential Regulation no 31/2019).	Selected geographical and occupation. Designated areas in 34 provinces. Hospital in the location with remote, borders and islands criteria, and regional-province reference hospital.	Significant

B.4. Provide scholarships, bursaries or other education subsidies with enforceable agreements of return of service in rural or remote areas to increase recruitment of health workers in these areas.	Yes • MoH decree No 44 of 2015 about bonding rural service for medical graduates supported by scholarships. 73% of medical specialist graduates have returned to their previous place of work. • MoH Regulation No 541/2008 about Scholarship programme for all HRH with Civil Servant status. Upgrading level of education. Diploma to BSc, BSc to MSc with an agreement of returning to where they belong.	Whole system for all geographical areas particularly remote area. And all type of HRH.	Significant
C. Financial incentives recommendation			
C.1. Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. that sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention.	Yes MoH decree number 512 year 2015 about financial incentives for contracted doctors, dentist and midwives. For HRH working as a civil servant, they get a salary from the central government, and get an additional financial incentive from local government.	Whole system. Selected geographical.	Significant

D. Personal and professional support recommendations			
D.1. Improve living conditions for health workers and their families and invest in infrastructure and services (sanitation, electricity, telecommunications, schools, etc.), as these factors have a significant influence on a health worker's decision to locate to and remain stationed in rural areas.	No	–	–
D.2. Provide a good and safe working environment, including appropriate equipment and supplies, supportive supervision and mentoring, to make these posts professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.	No	–	–
D.3. Identify and implement appropriate outreach activities to facilitate cooperation between health workers from better served areas and those in underserved areas and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.	Yes Floating hospital and flying doctors Managed by a non-profit organization to bring a sustainable health-care access for people in the remote area Sister hospital Assistance by resident doctors, management teams and specialist doctors from one of the largest hospitals for the other 11 smaller hospitals in East Nusa Tenggara which have limited human resources for health. In the future, this programme will be implemented in other provinces as well.	Selected geographical	Not known

D.4. Develop and support career development programmes and provide senior posts in rural areas so that health workers can move up the career path gaining from the experience, education and training, without necessarily leaving rural areas.	No	–	–
D.5. Support the development of professional networks, rural health professional associations, rural health journals, etc. to improve the morale and status of rural providers and reduce feelings of professional isolation.	No	–	–
D.6. Adopt public recognition measures such as rural health days, awards and titles, at local, national and international levels to lift the profile of workers in rural areas, as this helps improve intrinsic motivation and contributes to retention.	Yes Annual reward by the Ministry of Health on National Health Day. The reward is given for the Best Health Workforce and Health-care Provider (hospital and public health centre) in each category (rural and urban).	Whole system	Not known
E. Other (Please add additional rows to report on any policy interventions not listed above).			

4. MYANMAR

Recommendations	Has this policy been implemented in last 5 years? Yes/No?	Coverage: Was the policy implemented across the whole system, or only for selected occupations or geographical areas [state which]?	What was the impact of the policy? Select one level of impact: Significant Or Moderate Or Limited Or None Or Not known (indicate the source if possible)
A. Education recommendations			
A.1. Use targeted admission policies to enrol students with a rural background in education programmes for various health disciplines in order to increase the likelihood of graduates choosing to practise in rural areas.	Yes	Not for the whole system but for the medical doctors, nurses and midwives to enrol for the training schools near their local places. (Table 7).	Most of the graduates from the rural background used to enter into workforce (For health assistants, midwives and PHS1 & 2, they are provided with a stipend at the start of training, have to sign bonds to serve in rural areas after completion of training. As they are locals they stay in their posts for at least 3–5 years. Significant impact if posts are available. Even a pilot for medical doctors have initiated from hard-to-reach areas to sign bond, with waivers and first batch is now in their internship to serve in their own townships in the states after completion.

A.2. Locate professional health schools, campuses and family medicine residency programmes outside of capitals and other major cities as graduates of these schools and programmes are more likely to work in rural areas.	Yes	Total nursing schools 25 Total midwifery schools-22 - both Nursing and Midwifery Schools are in all states/regions including Nay Pyi Taw. University of Medicine Magwe is a new university opened for students from rural areas (started in 2000 through NHC Resolution). University of Medicine, Taunggyi, established in 2014, takes care of students from Shan, Kayah and Kachin states. University of Community Health (UOCH) opened in Magwe for HA, PHS 1 and PHS2.	Significant impact.
A.3. Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.	Yes	All medical students have to study in rural areas during their final Part 1 (Residential Field Training for 3 weeks) and during their house surgeon training period (residential training on community medicine for 2 weeks) (DMS directive of the 1970s). Nurses, midwifes and health assistants have to study in rural areas during their study period. For nurses this is a 6–8 week programme in each year of their diploma (3 years). Midwives must complete two 6–8 rotations in rural areas. Health assistants complete three months' training in rural areas (N,MW,HA curriculum 1952–54 DMS Nursing).	Moderate

A.4. Revise undergraduate and postgraduate curriculums to include rural health topics to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and raise retention levels.	Yes	Curriculums for the nurses, midwives, health assistants, LHV and public health supervisor mostly reflect rural health issues (1953 onwards DMS Directive). Lady health visitor curriculum was reviewed and revised to change from "task-oriented" to "competency-based" curriculum (2011, 9th Medical Education Seminar). Recently, the postgraduate course in Family Medicine was opened for professionals (GPs) working in rural areas.	Moderate
A.5. Design continuing education and professional development programmes that meet the needs of rural health workers and that are accessible from where they live and work, to support retention.	Yes	Continuing education is usually conducted by different programmes and projects involving rural health workers as in-service training. New technologies, refresher training and monthly CME on pay day at township hospitals has been a routine to fine-tune their knowledge and skill and also to support retention. Professional development programme is opened for HAs and nurses to enrol for the MPH degree course after a competitive entrance examination. For diploma nurses, off-campus training has been initiated as a three-year BNSc (Nursing) training course so that they could continue their education from the workplace, and this will be expand.	Significant if it could expand for HAs, and other paramedics to get specialty training while in the workplace.

B. Regulatory recommendations			
B.1. Introduce and regulate enhanced scope of practice in rural and remote areas to increase the potential for job satisfaction, thereby assisting recruitment and retention.	Yes	During the 1970s, midwives were given multipurpose tasks to perform apart from maternal and child health care, and were named Multipurpose Health Workers. This applied to enhancing scope of practice in rural areas. Health assistants are the leaders of rural health centres and supervise sub-rural health centres. Their job scope includes administration and management of these health facilities, in addition to public health, disease control and curative care.	Significant Midwives given the name of "Red Angels" because of their services in the provision of MDT for leprosy elimination that was a success in 2003.
B.2. Introduce different types of health workers with appropriate training and regulation for rural practice to increase the number of health workers practising in rural and remote areas.	Yes	Myanmar already have many different types of health workers for rural practice: Station Medical Officer, nurse, technicians, Public Health Supervisor 1, Health Assistant, Lady Health Visitor, Midwife, Public Health Supervisor 2. Township Health Assistant, Township Health Nurse and Health Assistant 1 are usually placed in the township.	Significant

B.3. Ensure that compulsory service requirements in rural and remote areas are accompanied with appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.	Yes	Policy changes according to the need of doctors over the country: In 1994 due to shortage of medical doctors, all graduates had to enter into service, permanent or three year bonds wherein the first one and a half years required them to serve at State Hospitals and the second half of three years was to serve at rural and remote station hospitals. During 2000 all graduate doctors were called upon to enter into the workforce as permanent staff again (NHC 29/28-6-2000) and sent to the big cities for training for one and a half years and then posted to all townships. With an increase in the number of graduates deployment responsibility was shifted back to the Union Civil Service Board. Newly-trained doctors must take an examination again set by the UCSB (both written and interview). Agreement (Bonds) to be served for at least 3 years in the public sector (anywhere, any place) after attending the training (for all the nurses and basic health staff – HAs, LHVs, MWs, PHS) and almost all the posts for the BHS are in the rural areas (DOH/DMS produced training bonds).	Moderate

B.4. Provide scholarships, bursaries or other education subsidies with enforceable agreements of return of service in rural or remote areas to increase recruitment of health workers in these areas.	Yes	Scholarships for outstanding students and stipend for the poor have been provided for many decades by the Ministry of Education for medical doctors. Usually there are around 100 scholarship holders and approximately around 50 stipend holders yearly. Nurses, midwives and HAs are all provided a stipend. At present donors, foundations connect directly with universities to provide scholarships to outstanding students who plan to continue their education (DHRH).	Moderate. Most of the stipend holders are bound to serve in rural and remote areas.
C. Financial incentives recommendation			
C.1. Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. that sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention.	Partially	All government servants who are serving in the remote and socially difficult areas (now identified as 109 townships/sub-townships) got double pay (twice the regular salary) in 2012–2013 through a notification from the Ministry of Finance & Revenue). Whether this regulation is still in force is not sure as this is not only for health but for all civil servants working in hard-to-reach areas. Some allowances, though not a doubling of the salary, are still paid. Health workers are also receiving per diem and transportation costs from different programmes and projects for training or service provision.	Moderate. As it is not enough for the person who is not a local but fair for locals. Even this regulation stated and implemented by the Ministry of Home Affairs does not seem to apply after 2015.

D. Personal and professional support recommendations			
D.1. Improve living conditions for health workers and their families and invest in infrastructure and services (sanitation, electricity, telecommunications, schools, etc.), as these factors have a significant influence on a health worker's decision to locate to and remain stationed in rural areas.	Yes	Since 2015, the Ministry of Health and Sports included construction of houses for midwives and PHS 2 when they build a new sub rural health centre. Donors are constructing new RHCs and sub Centres following this rule.	Moderate. Not all BHS have housing.
D.2. Provide a good and safe working environment, including appropriate equipment and supplies, supportive supervision and mentoring, to make these posts professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.	Yes	With the NHP (2017–2021), for supply side readiness, it was mainly aimed to fulfil primary health-care level requirements with appropriate equipment and supplies and other supportive measures.	Limited

D.3. Identify and implement appropriate outreach activities to facilitate cooperation between health workers from better served areas and those in underserved areas and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.	Yes	With support from GAVI HSS and other donors, motorcycles were distributed among BHS for outreach services, especially immunization, during GAVI HSS implementation from 2010–2016. This had a significant impact not only on vaccination coverage but also other maternal and child health services. MOHS distributed a total of 11 186 mobile tablets to 402 TMOs & SMOs and 10 784 basic health staff who are working at the RHC and SRHCs from seven states and regions for easy access to the standard health messages book. National standards and guidelines are disseminated by the MoHS, signs and symptoms for common diseases including CD and NCD in the form of more than 120 documents and references which can be accessed both offline and online. Four pilot programmes have been initiated using geospatial data and technology for: 1. Health services planning by improving physical accessibility: 2. Communicable disease surveillance, monitoring and elimination. 3. Emergency management (risk identification, rapid impact assessment, response and recovery). 4. Improving immunization coverage (microplanning, monitoring and evaluation). Initiation of PPP in the area of telemedicine and tele-radiography in some townships using in both public hospitals and private GPs for diagnosis.	Moderate

D.4. Develop and support career development programmes and provide senior posts in rural areas so that health workers can move up the career path gaining from the experience, education and training, without necessarily leaving rural areas.	Yes	Once health workers rise to a senior position they have to be moved out of their original post. If this posting is in a township the health worker has to leave the RHC/villages and report to the township health department. Diploma nurses who are working at township hospitals can attend off-campus BNSc. training for two years.	–
D.5. Support the development of professional networks, rural health professional associations, rural health journals, etc. to improve the morale and status of rural providers and reduce feelings of professional isolation.	No	There is the Myanmar Nurses and Midwife Association (MNMA) and Myanmar Health Assistants Association (MHAA). They have been supporting their own professionals in capacity-building and improving professional standards.	Moderate
D.6. Adopt public recognition measures such as rural health days, awards and titles, at local, national and international levels to lift the profile of workers in rural areas, as this helps improve intrinsic motivation and contributes to retention.	Yes	Selection and recognition of outstanding voluntary health workers and basic health staff (tour programmes and outstanding awards) every other year by the Ministry of Health and Sports and the Department of Human Resources for Health (1995 20th NHC R). Special consideration concerning promotion or selection for further training for nurses and midwifes who are serving in border areas (1998 DoH Directive). Recognition is accorded to best workers through international competition. Two of them won the Global Health Workforce prize and the AAAH Best Health Worker prize in 2010 and 2012 respectively.	Limited
E. Other (Please add additional rows to report on any policy interventions not listed above).			

5. SRI LANKA

Recommendations	Has this policy been implemented in last 5 years? Yes/No?	Coverage: Was the policy implemented across the whole system, or only for selected occupations or geographical areas [state which]?	What was the impact of the policy? Select one level of impact: Significant or Moderate or Limited or None or Not known (indicate the source if possible)
A. Education recommendations			
A.1. Use targeted admission policies to enrol students with a rural background in education programmes for various health disciplines in order to increase the likelihood of graduates choosing to practise in rural areas.	Yes	• Medical students are selected to medical faculties based on the district quota system. • Recruitment of nurses, professions supplementary to medicine (PSM) and paramedical categories is district-based. • For PHM special recruitment scheme (with lowered recruitment criteria) was implemented for the Estates sector, the Northeast and Puttlam districts to fill the cadre.	• Moderate. • However, there is no guarantee that they will be allocated to the same district. • Allocation is based on merit and existing vacancies. • This is not supported by the planning and recruitment process at the district and provincial levels. For example, a diploma course in nursing takes 3 years and the vacancies and recruitment to the system occurs on completion. At the time of recruitment the original demand may have changed.

A.2. Locate professional health schools, campuses and family medicine residency programmes outside of capitals and other major cities as graduates of these schools and programmes are more likely to work in rural areas.	Yes	• Training colleges for PSM and paramedical staff located in local areas, medical faculties and undergraduate programmes for PSM staff categories expanded to rural areas.	Limited. • But allocation for training is also based on merit and there is no guarantee that the same areas university/training college will be provided. • Due to varying deficiencies in local universities and training colleges, students select the universities/training colleges which are better recognized rather than universities closer to them.
A.3. Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.	Yes	• At Colombo Medical Faculty undergraduate students are taken to a rural area for 10-day local community training, problem identification and field-level training. Primary care units are also visited under this training. Peradeniya and Karapitiya medical faculties also offer similar peripheral clinical exposure. • Training nurses have a community health nursing programme of 1.5 months duration in a rural area and also exposure visits to divisional hospitals, peripheral units (PUs) and central dispensaries (CDs). • For PHMs community-level training/field training extends up to 6 months.	None. • Limited impact.
A.4. Revise undergraduate and postgraduate curriculums to include rural health topics to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and raise retention levels.	Yes	• A postgraduate scheme in community medicine has been introduced and grassroots-level knowledge is given allocation of district and provincial consultant community physician (CCP), compulsory Senior Registrar (SR) period has been introduced and during this period most of the SRs will be appointed to district and provincial level service.	Moderate

A.5. Design continuing education and professional development programmes that meet the needs of rural health workers and that are accessible from where they live and work, to support retention.	No	• ET & R unit is designated as the unit for implementation of CPD and in-service training programme. • Funds have been released to the provincial and district levels for district identified priorities, based on requests, and approximately 200 million Sri Lankan Rupees have been allocated for the activity per year. • In collaboration with professional associations, development of modules for the district-level training is conducted and for the implementation fund released to local level institutions/partners implementing the training module. This is financed by the ET & R unit. • Under the Primary health care System Strengthening Project (PSSP) project, an e-learning platform for general practitioners (module system) is being developed; this aims to improve clinical skills of doctors). Subsequently, this will be piloted among 100 medical officers who serve in rural areas. • Under the Health System Evaluation Project (HSEP), an e-learning platform is planned. NIHS being the focal point and district-level training colleges linked to the system. From each training college 20 computers will be provided for access to e-learning platform.	Not known. • Much desired intervention. • Course material is yet to be developed.
B. Regulatory recommendations			
B.1. Introduce and regulate enhanced scope of practice in rural and remote areas to increase the potential for job satisfaction, thereby assisting recruitment and retention.	Yes	• Dual practise opportunity is granted for doctors, nurses and selected paramedical categories. • Local governments have increased duty hours for PHMs in selected rural, difficult-to-serve areas/this is not universally applied.	Moderate to high.

B.2. Introduce different types of health workers with appropriate training and regulation for rural practice to increase the number of health workers practising in rural and remote areas.	No	• In estate areas estate PHMs who were recruited by the companies had been given in-service training on existing maternal child nursing (MCN) packages to fulfil the needs of estate populations. • Subsequently some were absorbed into the government system through a Cabinet decision. • This has improved service delivery in these areas and as they are from the local areas retention was possible.	Significant
B.3. Ensure that compulsory service requirements in rural and remote areas are accompanied with appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.	Yes	• Consultants and Medical Officers appointed based on the needs of the hospitals, including the ones located in rural areas. • All medical officers have to follow transfer schemes by the government. These lists aim to cover service delivery to rural and remote areas. Each medical officer must apply for transfers at four-yearly intervals. • Consultant appointments are also based on needs and cover rural and remote areas. The same transfer scheme applies, if there is no replacement then staff is usually not released until the post is filled. • Nurses also have transfer schemes applied at four-yearly intervals.	Moderate to significant. • However, it has led to loss of resource from the system, too. • New consultants who obtained overseas training recently, when appointed to rural areas, lose the opportunity to practice, new techniques. This led to loss of skills.
B.4. Provide scholarships, bursaries or other education subsidies with enforceable agreements of return of service in rural or remote areas to increase recruitment of health workers in these areas.	Yes	• Three types of financial assistance are available for undergraduate students: • Mahapola Scholarship • Bursary • Endowed scholarships.	Limited impact. • There is no specific agreement on return of service.

C. Financial incentives recommendation			
C.1. Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. that sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention.	Yes	–	Moderate
D. Personal and professional support recommendations			
D.1. Improve living conditions for health workers and their families and invest in infrastructure and services (sanitation, electricity, telecommunications, schools, etc.), as these factors have a significant influence on a health worker's decision to locate to and remain stationed in rural areas.	Yes	• In the Northern Province infrastructure facilities for clinical consultants have been developed with provincial Specific Development Grants. In four districts, except Jaffna, quarters are provided up to the Director-General of Health (DGH) services (major hospitals), luxury air-conditioned quarters with family rooms and single rooms. In Jaffna 3 Base Hospitals (BHs) have quarters similar to this (Teaching Hospital (TH) Jaffna does not have these luxury quarters). For medical officers up to DGH, there are 20-roomed quarters for doctors. • For nurses, DGH has 20-roomed nurses' quarters. Jaffna BH has 20-roomed nurses' quarters. * • For divisional hospitals quarters are not allocated for specific group of staff, there are common 8-roomed quarters and they can be shared by all health staff. * • For PHM: Gramodaya health centres in Northern Province are almost all built with a PHM residence and this can be used by them (but the majority are not utilized as they are built in isolated places).* *only in Northern Province.	Moderate

D.2. Provide a good and safe working environment, including appropriate equipment and supplies, supportive supervision and mentoring, to make these posts professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.	Yes	• Thus, intern medical officers appointed islandwide will have better training and be motivated to take up postgraduate studies too. • University-affiliated units in hospitals provided better training for postgraduate and undergraduate studies. • Introduction of PSM and nursing degree programmes in universities distributed in rural areas; but the enrolment is purely on merit.	Moderate
D.3. Identify and implement appropriate outreach activities to facilitate cooperation between health workers from better served areas and those in underserved areas and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.	Yes	• This is done as a pilot project. In Panadura, rural clinics affiliated to BH Panadura are conducted monthly by a medical officer and a health team. When the opinion of a visiting physician of the Outpatient Department (VP/ OPD) is needed they consult VP/ OPD via Email. Communicating with the consultant through video conferencing is possible at this point. This is done as a pilot project. • In few government hospitals bookings for appointments via online systems or over the phone is allowed. This facilitates people to access services from remote areas and this is a new development in health. Ex: Dompe e-hospital • Some hospitals have their own social media pages, mainly Facebook, and it provides information on services provided by the hospitals (e.g. clinic schedules) and health messages which can be accessed.	Low

D.4. Develop and support career development programmes and provide senior posts in rural areas so that health workers can move up the career path gaining from the experience, education and training, without necessarily leaving rural areas.	No	–	–
D.5. Support the development of professional networks, rural health professional associations, rural health journals, etc. to improve the morale and status of rural providers and reduce feelings of professional isolation.	Yes	• CCPSL & SLMA conducted regional-level meetings to update knowledge and improve networking among professionals.	Low
D.6. Adopt public recognition measures such as rural health days, awards and titles, at local, national and international levels to lift the profile of workers in rural areas, as this helps improve intrinsic motivation and contributes to retention.	Yes	• Provincial and district-level performance appraisal sessions conducted for identification of best practices in hospitals and primary health care units. • Also, separate staff category evaluations based on achievements are conducted at the national level too.	Moderate
E. OTHER Please add additional rows to report on any policy interventions not listed above.			

6. THAILAND

Recommendations	Has this policy been implemented in last 5 years? Yes/No?	Coverage- was the policy implemented across the whole system or only for selected occupations or geographical areas [state which]?	What was the impact of the policy? Select one level of impact: Significant Or Moderate Or Limited Or None Or Not known (indicate the source if possible)
A. Education recommendations			
A.1. Use targeted admission policies to enrol students with a rural background in education programmes for various health disciplines in order to increase the likelihood of graduates choosing to practise in rural areas.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Significant. Techakehakij et al. Rural retention of new graduates from the collaborative project to increase rural doctors (CPIRDS): a 12-year retrospective study. Health Policy and Planning, 32, 2017, 809-815. Arora R, et al. Retention of doctors in rural health services in Thailand: impact of a national collaborative approach. Rural and Remote Health, 17: 4344. (online) 2017 Pagaiya N. et al. Rural retention of doctors graduating from the rural medical education project to increase rural doctors in Thailand: a cohort study. Human Resources for Health (2015) 13:10.
A.2. Locate professional health schools, campuses and family medicine residency programmes outside of capitals and other major cities as graduates of these schools and programmes are more likely to work in rural areas.	Yes	All health professions.	Significant. Same reference as A1. A2 strategy is a part of main concept of CPIRD program – rural recruitment, local training and hometown placement.

A.3. Expose undergraduate students of various health disciplines to rural community experiences and clinical rotations as these can have a positive influence on attracting and recruiting health workers to rural areas.	Yes	All health professions.	Not known.
A.4. Revise undergraduate and postgraduate curriculums to include rural health topics to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and raise retention levels.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Not known.
A.5. Design continuing education and professional development programmes that meet the needs of rural health workers and that are accessible from where they live and work, to support retention.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Not known.
B. Regulatory recommendations			
B.1. Introduce and regulate enhanced scope of practice in rural and remote areas to increase the potential for job satisfaction, thereby assisting recruitment and retention.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Not known.
B.2. Introduce different types of health workers with appropriate training and regulation for rural practice to increase the number of health workers practising in rural and remote areas.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Not known.

B.3. Ensure that compulsory service requirements in rural and remote areas are accompanied with appropriate support and incentives so as to increase recruitment and subsequent retention of health professionals in these areas.	Yes	Only for doctors, pharmacists and dentists.	Significant.
B.4. Provide scholarships, bursaries or other education subsidies with enforceable agreements of return of service in rural or remote areas to increase recruitment of health workers in these areas.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Not known.
C. Financial incentives recommendation			
C.1. Use a combination of fiscally sustainable financial incentives, such as hardship allowances, grants for housing, free transportation, paid vacations, etc. that sufficient to outweigh the opportunity costs associated with working in rural areas, as perceived by health workers, to improve rural retention.	Yes	All health professions.	Not known.
D. Personal and professional support recommendations			
D.1. Improve living conditions for health workers and their families and invest in infrastructure and services (sanitation, electricity, telecommunications, schools, etc.), as these factors have a significant influence on a health worker's decision to locate to and remain stationed in rural areas.	Yes	All health professions.	Not known.

D.2. Provide a good and safe working environment, including appropriate equipment and supplies, supportive supervision and mentoring, to make these posts professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.	Yes	All health professions.	Not known.
D.3. Identify and implement appropriate outreach activities to facilitate cooperation between health workers from better served areas and those in underserved areas and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.	Yes	All health professions.	–
D.4. Develop and support career development programmes and provide senior posts in rural areas so that health workers can move up the career path gaining from the experience, education and training, without necessarily leaving rural areas.	Yes	All health professions.	Not known.
D.5. Support the development of professional networks, rural health professional associations, rural health journals, etc. to improve the morale and status of rural providers and reduce feelings of professional isolation.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Not known.

D.6. Adopt public recognition measures such as rural health days, awards and titles, at local, national and international levels to lift the profile of workers in rural areas, as this helps improve intrinsic motivation and contributes to retention.	Yes	Focus on four main professions: doctors, nurses, dentists and pharmacists.	Not known.
E. Other (Please add additional rows to report on any policy interventions not listed above).	–	No	–

The health workforce is the critical backbone of effective health systems and the primary health care (PHC) mechanism, both of which are preconditions for achieving universal health coverage. Two thirds of the population in the WHO South-East Asia Region live in rural areas. A key challenge for countries in the Region is to ensure that 'sufficient, well-trained, skilled and motivated' health workers are deployed in rural and remote areas to enable adequate access to PHC services.

This report analyses the progress in meeting this challenge in the Region. It includes six country case studies – Bhutan, Chhattisgarh state in India, Indonesia, Myanmar, Sri Lanka and Thailand. It reveals that with concerted and coordinated efforts across ministries and stakeholders, the implementation of evidence-based policies by countries has improved the availability and distribution of health workers in rural areas. It also highlights the scope for further improvement, and makes recommendations for a sustained approach to enhancing health workforce retention in rural and remote areas in countries of South-East Asia.

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