



Workload Indicators of PHM Staffing Needs (WISN)

District PHM Cadre Requirements Sri Lanka 2021

Contributors:

Projected by: Neil Thalagala ; Assisted by Kumbukage M ., Maddumahewa V., Ranasinghe L, De Silva, R. R. Rambukwella

Executive Summary

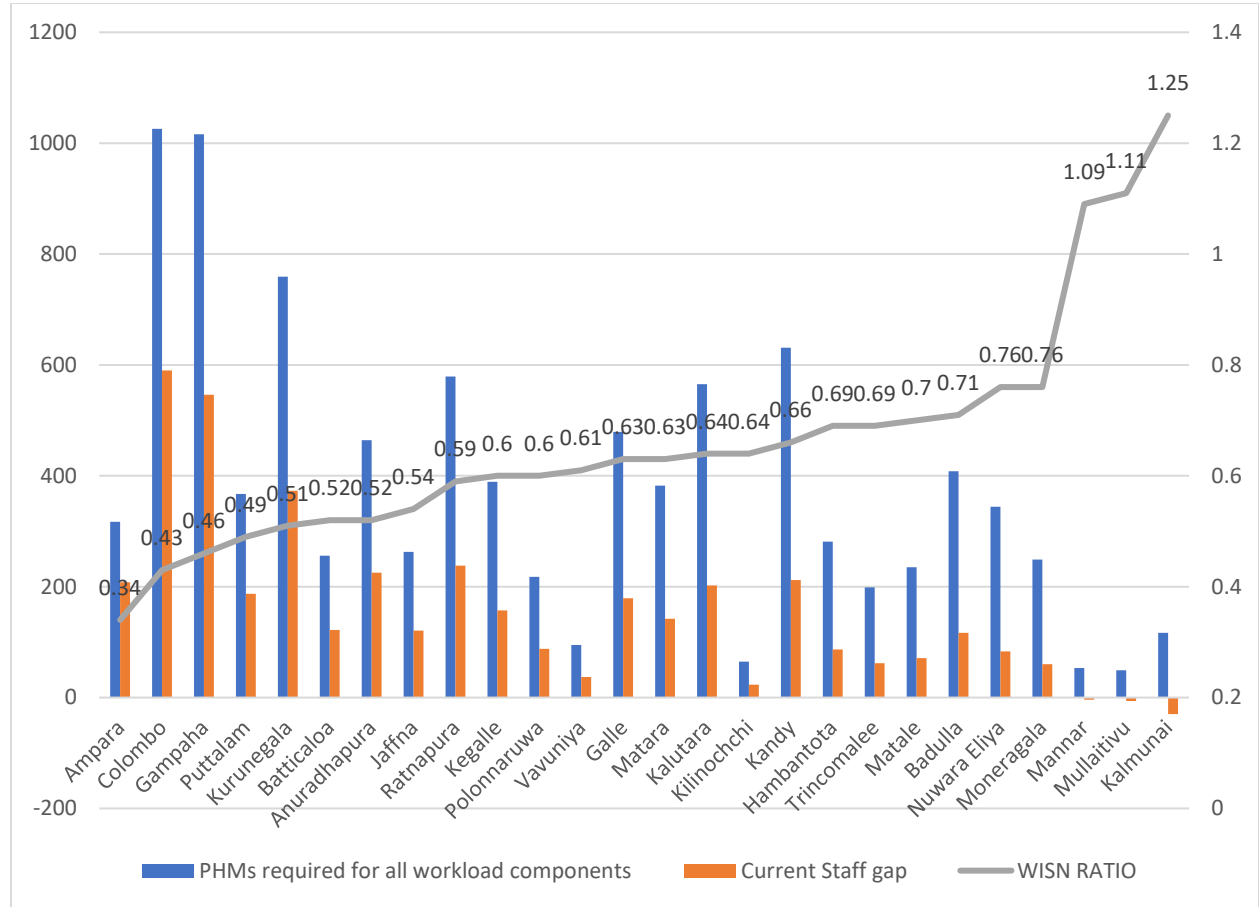
PHMs play a crucial role as the grass-root level health care workers, responsible for providing reproductive, maternal, child, adolescent health (RMNCAH) care. Though PHMs were originally enrolled for family planning, maternal and childcare, their roles and responsibilities were broadened to include, school health, well-woman care, pre-conception care, elderly care, non-communicable diseases prevention, dengue prevention etc. At their introduction, the target population assigned to PHMs, 3000 people (600 households) (1), remained at the same level without being revised based on expanding their scope of work. The broadened scope would have reduced the PHMs time available for her maternal and childcare activities considerably. Further the due to increased population, the actual target populations of many PHMs around the country exceed the normative levels. These factors are considered to constraint the PHM's worktime, giving rise to task abandonment and reduced quality of care.

This study followed the WISN methodology proposed by the World Health Organization (WHO) to find out the PHM cadre requirements for providing universal health care coverage in all RMNCAH packages among the relevant target populations around the country.

The WISN assessment showed that the preventive health care program is running with only 58% of the required cadre required for providing universal health care coverage of all RMNCAH related intervention packages assigned to PHMs. The total PHM cadre requirement for all workload components was estimated at around 9601. The system only has 5716 working PHMs at present. A few districts (Kalmunai, Mannar, and Mullaitivu) seem to exceed the required cadre slightly.

Figure 1 presents the WISN based staff requirement, staff gap, and WISN ratios across health districts. The lowest WISN ratio (i.e, Available staff/ Required staff), therefore the highest work pressure, was found in Ampara district, followed by Colombo and Gampaha districts. Three districts had WISN ratios of more than 1, indicating staff excess.

Figure 1 PHM Cadre requirements, staff gaps and WISN Ratios by district



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1 INTRODUCTION

One of the leading fillers to the success of public health in Sri Lanka, which is evident by the country's favorable health indicators, such as low maternal mortality (33.8/100000 LB), neonatal mortality (5.6 /1000 LB), and infant mortality (8 / 1000 LB). These figures are among the lowest figures in the Asian region (1), can be attributed to the effective preventive health care system. The preventive health care system is functioned by a group of primary care workers. This group, comprising of Medical Officers of Health (MOHs), Public health Nursing Sisters (PHNS), Supervising Public Health Midwives (SPHM), Public Health Midwives (PHMs), and Supervising Public Health inspectors (SPHI), and Public Health Inspectors (PHIs). They are attached to around 360 MOH offices around the country.

Among these primary care workers, PHMs play a crucial role as the grass-root level health care workers responsible for providing reproductive, maternal, child, adolescent health (RMNCAH) care. Though PHMs were originally enrolled for family planning, maternal and childcare, by now, their roles and responsibilities were broadened to include, school health, well-woman care, pre-conception care, elderly care, non-communicable diseases prevention, dengue prevention etc.... At their introduction, the target population assigned to PHMs, 3000 people (600 households) (1), remained at the same level, without being revised based on the expansion of their scope of work. The broadened scope would have reduced the PHM's time available for her maternal and childcare activities considerably. Further the due to increased population, the actual target populations of many PHMs around the country exceed the normative levels. These factors are considered to constraint the PHM's worktime giving rise to task abandonment and reduced quality of care.

Many stakeholders believe that full-time equivalents of existing PHMs cadre in the PHC system are not adequate for performing all the tasks assigned to them. To date, a systematic assessment of workload-based staffing needs of PHMS with about their scope of work has not been carried out.

Two factors govern the workload resilience of a PHM. These are the population under her care and the geographical extent of her assigned area. Hence, in estimating staff needs, both factors have to be taken into consideration. The extent of the area determines her field moving time (time spent by moving house to house). Hence, variation in the average extent of field areas in different regions creates different field moving times, leading to different available work times for the PHM to attend to her other daily routines.

This research study estimated the PHM staff needs in Sri Lankan districts following the WHO WISN approach. The following account describes the methods used and the staff needs related to PHMS by districts.

2 OBJECTIVES

The objective of this study is to estimate the number of Public Health Midwives required in the MOH divisions of each district in the country to fulfill the universal coverage of the interventions of the national RMNCAH package under the service directives of the Ministry of Health.

3 Methodology

This study used the standard methods proposed by the WHO workload indicators of staffing needs (WISN) user manual¹. Figure 1 schematically presents the WISN protocol.

The following section describes how the WISN protocol systematically follows steps 1 to 10 to derive the number of WISN based PHMS estimated at step 11.

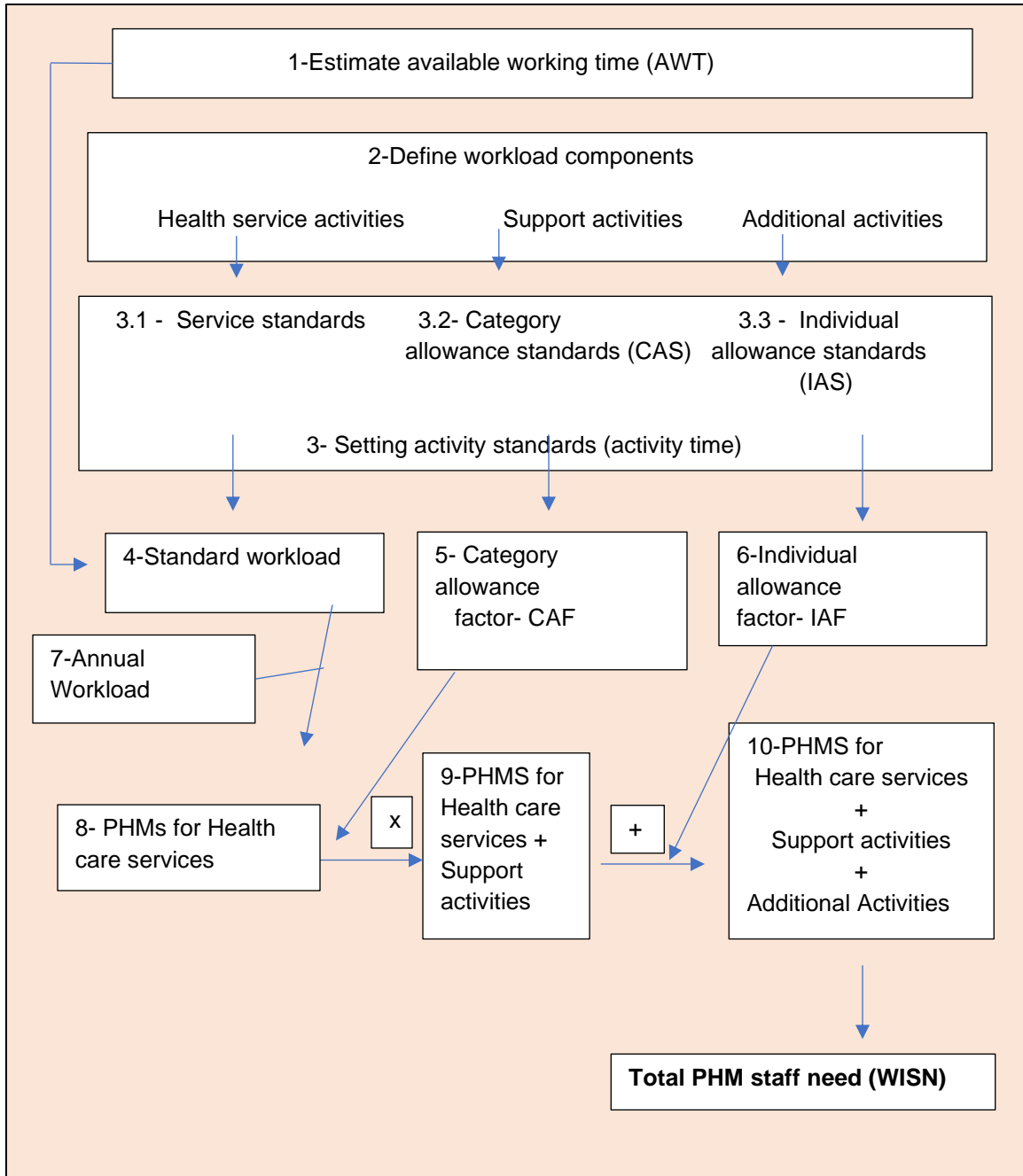


Figure 2 Schematic framework of the WISN protocol

3.1 Estimating Available Working Time

WISN methods use the following equation for the estimation of available working time (AWT) of a staff category:

$$AWT = A - (B + C + D + E).$$

Where A = the number of possible working days in a year, B = the number of days off for public holidays in a year, C= the number of days off for annual leave in a year, D= the number of days off due to sick leave in a year, E= the number of days off due to other leave or special activities such as training, etc., within a year. “A” was calculated based on the PHMs assigned working time 5 ½ days a week based on 8 - hour work per day schedule. The number of public holidays (B) was obtained from the government official calendars. It was assumed that on average a PHM takes 50% of the total allowed annual (C) and sick leaves (D) within a given year based on the routine leave data. The officially recommended in-service training days were annualized as “E”. There was no difference in the AWT of different districts.

3.2 Defining workload components

Defining workload components means identifying all types of activities carried out by PHMs while performing their official duties. Three types of workload components are identified in WISN methods.

1. Health Service Activities,
2. Support activities,
3. Additional activities.

All the research team members had previous experiences in participating and supervising PHM activities as Medical Officers of Health (MOH) during their previous worktime. The research team first enumerated and defined the workload components based on the official duty commitment of PHMs as per the Ministry of Health Directives. Mainly the PHMs duty list RMNCAH guidelines and manuals. Then these activities were discussed with a group of PHMs, PHNS and PHMs (n=40) who have more than five years of field experience for their views, and the consensus was obtained for the scope of activities and the field realities encountered during implementation.

Health service activities comprise most of PHM time, and they are the main types of activities to be carried out by all the PHMs based on their routine duties. There is no

difference in the list of health service activities of PHMS by districts. Therefore, the FTE of PHM required in each district will only differ by the number of clients. Annex 1 provides a detailed list of health service activities defined for this analysis.

Support activities include activities that are usually supportive of the smooth implementation of health service activities. The support activities are common to all the PHMs. They are the same in each district except for the time allocated to each district. The support activities are presented in Annexure 2.

Additional activities are similar to support activities but carried out by some of the PHMs and they are similar in each district (Annexure 3).

3.3 Setting activity standards

An activity standard is the time necessary for a well-trained, skilled, and motivated worker to perform an activity to professional standards in the local circumstances. Therefore, the time taken by a PHM to perform any of the activities defined above has to be determined. The activity standards are divided into two types. The activity performance times of health service activities are called **service standards**, while those of support and additional activities are called **allowance standards**.

Allowance standards of support activities are called **category allowance standards (CAS)**, while additional activities are called **individual allowance standards (IAS)** ¹.

Service standards are recorded as an average time required for completing an activity, CAS is first recorded as the time required per a support activity and later converted to the percentage working time (CAS%), based on the unit work time and total work time available for the period. For example, if the time spent on the support activity, record-keeping is 30 minutes per day and total daily work time is 8 hours, the CAS % is equal to:

$$\text{CAS\%} = [(30/60)/8] \times 100 = 6.25\%$$

Where 30/60 converts minutes to hours and 8 is the total work hours of the day.

Except for the time spent on moving from house to house (fieldwalking time), the times required for other support activities of PHMs were similar in different districts. The fieldwalking time varies by the average geographical extent of the PHM areas around the country. The 26 health districts could be categorized to 4 groups based on the relative sizes of the average PHM division. The average time (30 min) spent by a PHM

walking from the district (Gampaha) having the lowest average PHM division surface area was used to determine the walking time of other districts. The average time of the Gampaha district was used in all group-one districts. Groups, two, three and four had 2, 3, and 4 times of average PHM division surface areas respectively. Considering the long distance to travel and time availability in a day the average time spent for field walking was adjusted by adding 15 minutes of travel time to each successive group.

IAS is calculated as the product of time required for an annual number of an additional activity by the total number of staff performing that activity. For example, if only 2000 PHMs participate in the additional activity, clinic preparation requires 6 hours per month. The respective IAS is equal to

$$\text{IAS} = (6 \times 12) \times 2000 = 144,000 \text{ Hours}$$

Two additional activities identified were clinic preparation and clinic health education. The number of PHMs in each district who engage in additional activities was similar to the number of clinic sessions held in a district and therefore varied by the district.

It is important to note that CAS% is estimated as a percentage of available time while IAS is estimated as the total annual person time required for performing the activity by all concerned PHMs.

The research team has identified the average time spent by a PHM for performing all the activities in consultation with a group of PHMs who contributed to the development of the activity lists. Firstly, all PHMs were made aware of the WISN approach and activity standards. Then each of them was provided with a list of health services, support, and additional activities, defined in the previous step and requested to note down the average time they would spend on each activity. Then these times were summarized (mean, dispersion) and discussed in the PHMs and the research team groups. During this discussion, consensuses arrived at the activity standards of all activities.

3.4 Establishing standard workloads

The standard workload is a figure that reflects the total number of health service activities that a one PHM can perform if she is only performing this activity throughout the available work time of the year. Standard workloads are calculated only for health

service activities. For example, if the time required for conducting a home visit (service standard) in the field is 30 minutes, and the total AWT is 1491 hours. The standard workload is (2 cases per hour x 1491 hours) = 2982 investigations.

3.5 Calculating allowance factors

Section 3.3. described three types of activity standards. Of these three standards, CAS% and IAS have to be converted to respective allowance factors to calculate the WISN.

Category allowance factor (CAF) is calculated from CAS% as follows:

$$\text{CAF} = 1 / [1 - (\text{Total CAS} / 100)]$$

For example, if the sum of CAS%s of all support activities is equal to 16% of the total available work time of the PHMs

$$\text{CAF} = 1/[1-(16/100)] = 1.19$$

The category allowance factor (CAF) is a multiplier that is used to adjust the total number of health workers required for health service activities to cover support activities (Step 9- Figure 1).

The individual allowance factor (IAF) is calculated as the FTE of PHMS required for covering additional activities. IAF is calculated by dividing IAS by AWT.

$$\text{IAF} = \text{IAS} / \text{AWT}$$

For example, the total IAS (total time required for performing all additional activities by the concerned staff) is equal to 200,000 hours, and the total AWT of a PHM is equal to 1704, the IAF is equal to 117.4

3.6 Calculating annual workload

Annual workload means the total number of interventions implemented among all the clients within a given year. This figure depends on the nature of the intervention (e.g., frequency), type of target recipient (e.g. Health condition), the number of the target recipients and the intervention coverage. Since this study aims to assess the WISN of PHMS for achieving universal health coverage (100%), The total number of eligible recipients of each intervention was estimated using the WHO OneHealth tool ².

OneHealth tool allows estimating the target recipients based on the in-built country-specific demographic, fertility and epidemiological data, based on the user-provided data on population in needs (eligibility) and intervention coverages. Separate annual workloads were calculated for each health service activity.

3.7 Determining staff requirements based on WISN

The overall process of determining the WISN based PHM requirements is schematically presented in Figure1 Step 1 to Step 11. The methods of deriving the figures concerning each step are explained above.

The process was started by determining the available work time of the PHM (Step 1). Then the three types of workload components (health service activities, support activities and additional activities) were determined (Step 2). This was followed by the determination of average time spent on each of these activities as service standards, CAS and IAS (CAS and IAS were further transformed as a percentage of total work time and full-time PHM equivalents respectively) (Step 3).

Then the standard workloads of each activity (the number of health service activities that a PHM can carry out if she devoted her entire annual work time per the activity) was determined (Step 4). Then CAF (Step 5) and IAF (Step 6) were calculated.

Subsequently, the annual workload was calculated in step 7. The number of PHMS required to cover health care activities alone is calculated by dividing the annual workload of each health service activity by the respective standard workload of the activity (Step 8). Then this figure was multiplied by the CAF to obtain the number of PHMs required for both health service and support activities (step 9). Finally, the IAF is added to the PHM number obtained at step 9 to obtain the number of PHMs required for health service, support, and additional activities (step 10). This is the WISN based final PHM requirement.

The above process was replicated in each district to obtain the district based WISN of PHMS.

4 Findings of the study

The findings are presented as available work times, Cadre requirements, staff gaps, WISN ratios and proportional attribution of work time to different program areas.

4.1 Available Work TIME of PHMS

Based on 5.5 working days at an 8 hours per day rate and the leave parameters presented in table 1, the PHMs were found to work for 213 days per a given year.

Table 1 Available work time of PHMS

Available Working Time	
Working Days Per Week	5.5
Working Hours Per Day	8
Annual Leave	11
Public Holidays	26
Sick Leave	12
Special No Notice Leave	0
Training Days Per Year	24
Non - Working Days	73
Non - Working Weeks	13.27
Working Days	213.02
Working Weeks	38.73
No of Hours	1,704

4.2 PHM cadre requirements

Table 1 presents the WISN based PHM cadre requirements, staff gaps and WISN ratios at the national and district level.

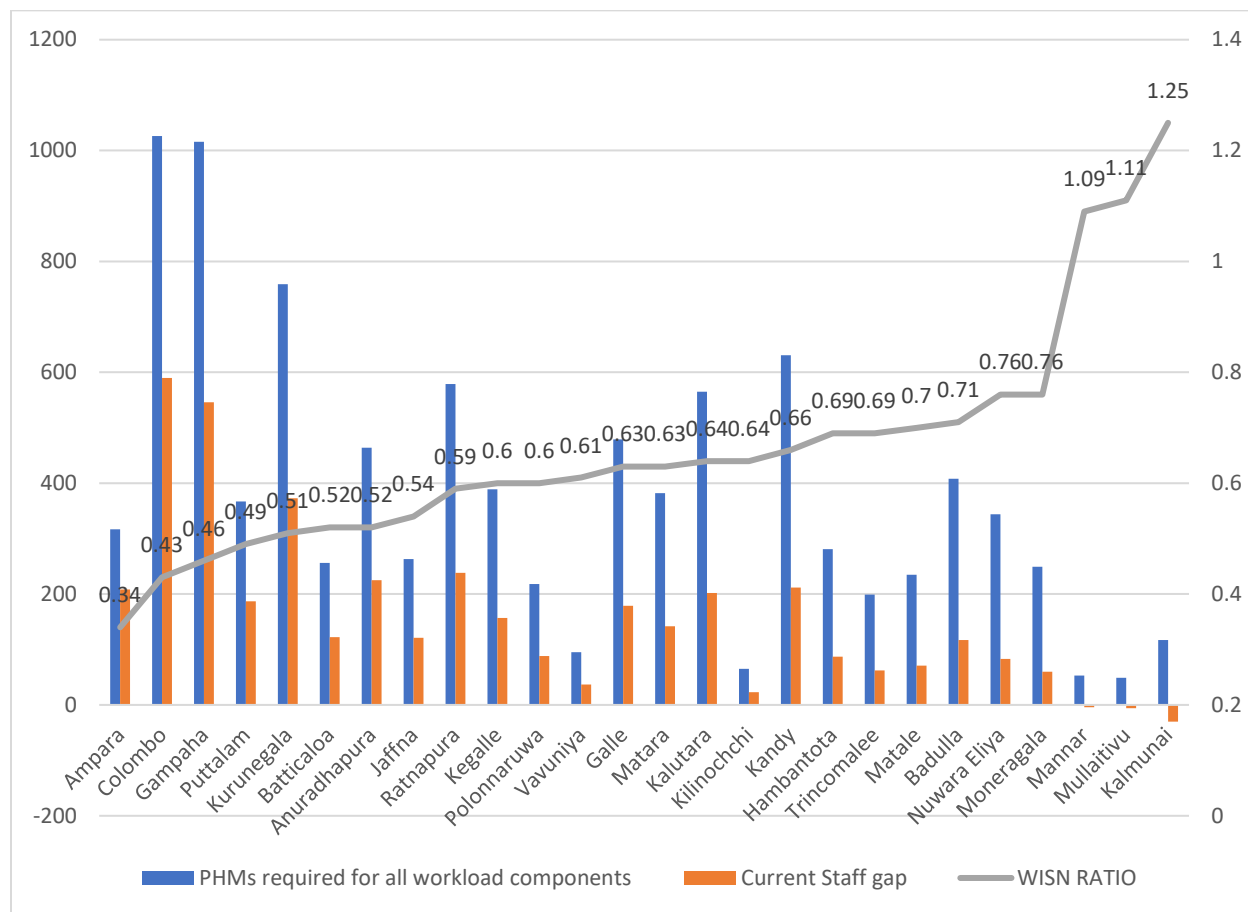
Table 2 PHM cadre details, calculation parameters and WISN ratios.

Health District	Current number of PHMs	PHMs for Health Care Activities	CAF	PHMs for Health Care and Support Activities	PHMs for Additional activities (IAF)	PHMs required for all workload components	Current Staff gap	WISN RATIO	WISN based Population : PHM Ratio
National	5716	5715	1.68	9601	245	9846	4130	0.58	2,242
Colombo	436	636	1.6	1017	9	1026	590	0.43	2,393
Galle	300	293	1.6	468	11	479	179	0.63	2,359
Gampaha	470	627	1.6	1004	12	1016	546	0.46	2,386
Jaffna	142	160	1.6	256	8	263	121	0.54	2,343
Kandy	419	384	1.6	614	17	631	212	0.66	2,350
Ampara	109	189	1.66	313	4	317	208	0.34	2,298
Batticaloa	134	149	1.66	247	8	256	122	0.52	2,250
Hambantota	194	163	1.66	271	10	281	87	0.69	2,248
Kalmunai	147	68	1.66	113	5	117	-30	1.25	2,232
Kalutara	363	333	1.66	553	11	565	202	0.64	2,280
Kegalle	232	230	1.66	381	8	389	157	0.60	2,278
Kurunegala	386	445	1.66	739	20	759	373	0.51	2,264
Matale	164	136	1.66	226	10	235	71	0.70	2,232
Matara	240	223	1.66	371	11	382	142	0.63	2,257
Nuwara Eliya	261	200	1.66	332	12	344	83	0.76	2,248
Puttalam	180	215	1.66	358	10	367	187	0.49	2,264

Health District	Current number of PHMs	PHMs for Health Care Activities	CAF	PHMs for Health Care and Support Activities	PHMs for Additional activities (IAF)	PHMs required for all workload components	Current Staff gap	WISN RATIO	WISN based Population : PHM Ratio
Badulla	291	228	1.72	392	16	408	117	0.71	2,159
Mannar	57	29	1.72	49	3	53	-4	1.09	2,113
Trincomalee	137	112	1.72	192	7	199	62	0.69	2,170
Anuradhapura	239	243	1.86	451	12	464	225	0.52	2,021
Kilinochchi	42	33	1.86	62	3	65	23	0.64	1,974
Moneragala	189	128	1.86	239	10	249	60	0.76	1,991
Mullaitivu	55	25	1.86	47	3	49	-6	1.11	1,963
Polonnaruwa	130	114	1.86	212	6	218	88	0.60	2,017
Rathnapura	341	303	1.86	564	15	579	238	0.59	2,022
Vavuniya	58	49	1.86	91	4	95	37	0.61	1,981

The WISN assessment showed that the preventive health care program is running with only 58% of the required cadre required for providing universal health care coverage of all the intervention packages assigned to PHMS. The total PHM cadre requirement for all workload components was estimated at around 9846. The population: PHM ratio suggested by WISn based PHM cadre projection approximates 2000. The preventive health care system only has 5716 PHMs at work at present. A few districts (Kalmunai, Mannar and Mullaitivu) seem to have a slight excess of required cadre. Figure 2 presents the WISN based staff requirement, staff gap and WISN ratios across health districts. The lowest WISN ratio (i.e., Available staff/ Required staff) is in the Ampara district, followed by Colombo and Gampaha districts. Three districts have WISN ratios of more than 1, indicating staff excess.

Figure 3 PHM Cadre requirements, staff gaps and WISN Ratios by district

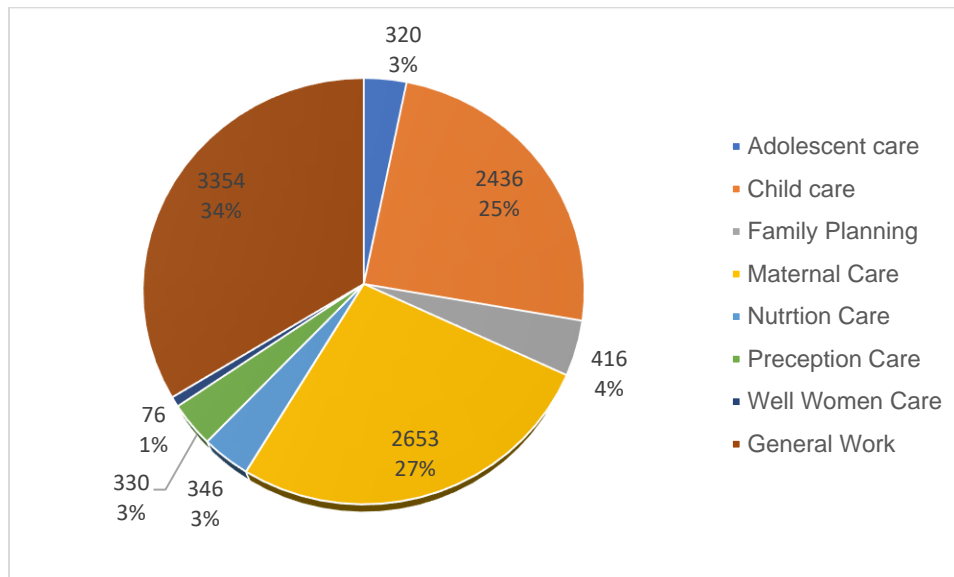


4.3 Workload by Program Areas

The above analyses showed that around 9601 PHMs are required at the national level for providing quality universal RMNCAH care. Of this, 5715 PHM FTEs are required for providing health service activities. Support and additional activities require further 3886 and 245 PHM FTEs, respectively.

Figure 4 shows how the PHM worktime (as measured by FTEs) is distributed among different program areas. Around 34% of all required PHM FTEs are used for general program activities such as office work, clinic preparation, health education etc. Around 27% of FTES are spent on maternal care followed by 25% on childcare. Other program areas consume a roughly equal and relatively smaller share of total PHM FTEs.

Figure 4 PHM work time by program areas



5 Conclusions and Recommendations

This is the first attempt of the ministry of health where the PHM cadre requirements were estimated based on the actual workload created by various RMNCAH program over past decades since 1968. It was revealed that the gradual expansion of PHM's scope of work has resulted in accumulated staff gaps. The existing norm seems no longer be valid. The WISN PHM cadre requirement suggest at the norm should at least be reduced to one PHM per 2000 population. The district variation in estimated population PHM ratios were relatively small. It was found that all but 3 three health districts are running at significant PHM staff gaps showing WISN ratios extending from 0.34 in Ampara to 0.76 in Monaragla.

It is essential to take this scientific evidence in future cadre projections. WISN method is an effective approach in finding out workload-based cadre requirement and should be used in projecting requirements of other health staff categories as well.

6 Reference

1. World Health Organization. *Workload Indicators of Staffing Need: User's Manual.*; 2010.

https://www.who.int/hrh/resources/WISN_Eng_UsersManual.pdf?ua=1%0Ahttp://www.who.int/hrh/resources/WISN_Eng_UsersManual.pdf?ua=1.

2. Avinir Health. OneHealth Tool. <http://www.avenirhealth.org/software-onehealthcountries.php>. Published 2016.

7 Annexures

7.1 Annexure 1: Health Service Activities of the PHMs

Activity name	No Per Year	Service Standard	Unit	Standard Workload	Calculated PHM FTE Requirement
Adolescent anthropometrics	316,965	10	min/patient	10,224.96	31.00
Adolescent care testing	316,965	5	min/patient	20,449.92	15.50
ANC clinic - tests	4,343,751	1	min/patient	102,249.60	42.48
ANC clinic- anthropometrics	4,343,751	8	min/patient	12,781.20	339.85
ANC clinic assisting medical examination	4,343,751	12	min/patient	8,520.80	509.78
ANC clinic instructions and issuing	4,343,751	8	min/patient	12,781.20	339.85
ANC documentation	4,516,553	5	min/patient	20,449.92	220.86
ANC home visits	1,447,917	30	min/patient	3,408.32	424.82
ANC TT injections	965,278	3	min/patient	34,083.20	28.32
Child Development clinic	31,696	40	min/patient	2,556.24	12.40
Child home visits- Preschoolers	3,803,576	20	min/patient	5,112.48	743.98
Child home visits - Infants	3,486,611	20	min/patient	5,112.48	681.98
Child home visits - Young Children	1,901,788	20	min/patient	5,112.48	371.99
CWC Anthropometrics	4,120,541	2	min/patient	51,124.80	80.60

Activity name	No Per Year	Service Standard	Unit	Standard Workload	Calculated PHM FTE Requirement
CWC assist medical examination	4,120,541	2	min/patient	51,124.80	80.60
CWC development screening	4,120,541	2	min/patient	51,124.80	80.60
CWC documentation	4,120,541	2	min/patient	51,124.80	80.60
CWC Immunization	4,120,541	5	min/patient	20,449.92	201.49
CWC instructions and issuing supplements	4,120,541	2	min/patient	51,124.80	80.60
Eligible families and adolescent health documentation	316,965	2	min/patient	51,124.80	6.20
Field weighing young children	1,901,788	5	min/patient	20,449.92	93.00
Field weighing preschoolers	1,267,859	5	min/patient	20,449.92	62.00
Field weighing Infants	3,803,576	5	min/patient	20,449.92	185.99
FP counselling	3,030,142	10	min/patient	10,224.96	296.35
FP Depo-Provera	448,852	8	min/patient	12,781.20	35.12
FP documentation	963,806	2	min/patient	51,124.80	18.85
FP home visits for IUCD/IMPLANT	46,424	2	min/patient	51,124.80	0.91
FP home visits for other eligible couples	867,377	5	min/patient	20,449.92	42.41
FP Implant- Jadel	2,443	20	min/patient	5,112.48	0.48
FP IUD CuT	43,254	15	min/patient	6,816.64	6.35
FP Pill or condom	418,525	3	min/patient	34,083.20	12.28
Home deliveries	3,183	60	min/patient	1,704.16	1.87
Nut clinic documentation	14,407	2	min/patient	51,124.80	0.28
Nut clinic anthropometrics	14,407	5	min/patient	20,449.92	0.70
Nut clinic instructions and anthropometrics	14,407	10	min/patient	10,224.96	1.41

Activity name	No Per Year	Service Standard	Unit	Standard Workload	Calculated PHM FTE Requirement
Post-natal home visits	1,273,290	30	min/patient	3,408.32	373.58
Post-partum clinic arthrometric	318,325	10	min/patient	10,224.96	31.13
Post-partum clinic assisting medical examination	318,325	15	min/patient	6,816.64	46.70
Pre conception clinic care	214,518	10	min/patient	10,224.96	20.98
Pre conception care registration and screening	241,518	15	min/patient	6,816.64	35.43
WWC Breast Examination	386,133	5	min/patient	20,449.92	18.88
WWC documentation	386,133	2	min/patient	51,124.80	7.55
WWC Health education & counselling	386,133	5	min/patient	20,449.92	18.88
WWC tests	386,133	8	min/patient	12,781.20	30.21

7.2 Annexure 2 Support Activities of PHMS (National)

Activity	Workload	Unit	Service Standard
Antenatal classes	4	hours / month	0.03
ASRH session	4	hours / month	0.03
Meal time	60	mins / day	0.13
Nut, CD, Ado clinics	0	days / month	0.00
Office work	60	mins / day	0.13
PCC class	4	hours / month	0.03

Walking field	10	hours / month	0.07
	Total category allowance		0.405
	CAF		1.68

7.3 Annexure 3 Additional Activities of PHMS (National)

Activity	No of Staff	Workload	Unit	Service Standard
Clinic health education	4,344	2	hours / month	104,256
Clinic preparation	4,344	6	hours / month	312,768
	Total individual allowance			417,024
	IAF			244.71

