



Workloads and activity standards for integrated health service delivery: insights from 12 countries in the WHO African region

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ABSTRACT

Over the past decade, many African countries have made progress not only in recruiting more health workers but also in rationalising their distribution and establishing evidence-based staffing norms and standards. Still, staffing of health facilities remains inadequate, unrelated to needs and the actual workloads of health facilities. Several countries in Africa applied the workload indicators of staffing need (WISN) method to address these issues. The WISN method is a facility and cadre-oriented human resource planning and management tool that enables health managers to determine the appropriate number of health workers required to deliver quality health services based on workload. In this paper, we synthesised and presented the workload components and activity standards of the health service activities for general medical practitioners, nurses and midwives in primary healthcare settings based on WISN studies conducted in 12 African countries. The workload components and activity standards were synthesised based on the time taken for each health service activity, with the minimum and maximum unit of time and the mean and median of the number of observations established. For general medical practitioners, minimal variations in the country estimations for discharging patients, referrals and emergency management presented large variations in recorded admissions, minor operations and ward rounds. The variations in service standards for nurses were minimal for 8 of 11 activities while the time spent on counselling, patient referral activities, review consultation varied greatly. For the midwives, the mean values and the median values for 10 of 14 activities were similar for the countries with wide variations observed for admission for pregnant mothers, monitoring of labour, family planning (insertion), postnatal care, normal delivery and immediate postnatal care. We also shared experiences in workload component and activity standard setting processes and considerations for practice. The findings of this synthesis are helpful to countries in defining health service activities and service standards for general medical practitioners, nurses and midwives

SUMMARY BOX

- ⇒ There is inadequate staffing often unrelated to needs and the actual workloads of health facilities in most of the countries in Africa.
 - ⇒ Defining workload components and setting activity standard are critical steps of the workload indicators of staffing needs method.
- Based on the studies conducted in 12 selected African countries using the workload indicators of staffing need (WISN) method, there are both minimal and wide variations for some activity standards for general medical practitioners, nurses and midwives at primary healthcare settings.
- ⇒ This first attempt to harmonise workload components and activity standards in the African region provides helpful information to countries in setting health service activities and service standards for general medical practitioners, nurses and midwives in the primary level of care.
 - ⇒ Defining health service activities and setting service standards are critical steps in the WISN method as they impact directly the estimation of staffing requirements and depend largely on working conditions, health service packages, skill-mix and scopes of practice, and this varies widely in countries.

in the primary level of care, which is relevant in essential service package delivery towards improved access to quality health services.

INTRODUCTION

The African region of the World Health Organization (WHO) remains one of the regions that still face inadequately skilled health workers in both quantity and quality.¹ The shortage of health workers is compounded by inequitable distribution of those available and high out migration of the highly skilled health workers.^{2–5} Those available are usually based in urban areas,



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making access to health services difficult for rural and underserved populations. Thus, the available health workers, particularly in rural areas, are facing high workload pressure with often very difficult working conditions.^{5 6}

Over the past decade, many African countries have made progress not only in recruiting more health workers but also in rationalising their distribution and in establishing evidence-based staffing norms and standards.^{7–13} However, this progress has been neither rapid nor substantial enough to trigger a sustainable transformation of the health systems to meet the evolving needs of the populations. This is because the rapid growth of the population and persistent shortages of skilled personnel complicate governments' efforts to balance the numbers and skill mix required to achieve an equitable distribution of health workers.¹⁴ As a result, staffing of health facilities remains, in most cases, inadequate, unrelated to the population's health needs or even the actual workloads observed in the health facilities, resulting in some facilities having a surplus of skilled health workers, leaving others with insufficient numbers.

The aforementioned situation informed the application of the workload indicators of staffing need (WISN) method by several countries in Africa.^{7–13} The use of the WISN method dates back to the 1990s with an initial version of the tool for calculation being in Microsoft Excel before being converted in 2010 to a much more user-friendly software application/computerised version.^{11 15} Since 2010, the method has been used to optimise the utilisation and improve the distribution of health workers based on workloads in health facilities; informed by demand for health services. Until now, there has been no effort to synthesise the WISN country experiences, particularly on the crucial steps of the method, which are the determination of workload components and activity standards of health service activities without which it is not possible to estimate the workload, calculate the required number of health personnel needed and develop staffing norms to deliver quality health services in a health facility.^{15 16}

The countries included in this synthesis had applied the WHO WISN tool between 2015 and 2020 with the data on the defined workload components and activity standards being available for general medical practitioners, nurses and midwives at the primary level of care. Country WISN study reports were obtained from 25 out of the 47 countries in the WHO African Region from which 12 countries (Benin, Botswana, Burkina Faso, Chad, Cote d'Ivoire, Ghana, Liberia, Malawi, Namibia, Nigeria, South Africa and Zimbabwe) were considered for this review because they conducted a WISN study with some technical assistance of WHO between 2015 and 2020 and data on the workload components and activity standards are available and accessible.^{6 10 17–31}

This paper synthesises and presents the workload components and activity standards of health services for general medical practitioners, nurses and midwives at primary healthcare settings in these 12 African countries.

OVERVIEW OF THE WISN METHOD

The WISN method is a facility and cadre-oriented human resource planning and management tool that enables health managers to use a systematic method to make staffing decisions. WISN aims to determine the appropriate number of health workers required to deliver quality health services based on actual or currently observed levels of workload.¹⁵ This is calculated considering the available workload statistics, activities conducted by health workers (workload components) and the time spent on them (activity standards) and current numbers of health workers.

To conduct a WISN study, it is recommended that countries establish three committees:

- (1) A steering committee comprising of the policy-makers and leaders of the health sector and other relevant sectors that approves the work plan and the protocol of the study,
- (2) A technical working group comprising of health managers from human resources for health (HRH), health information and personnel departments that implement the approved WISN work plan and
- (3) an expert working group that identifies the workload components and sets the activity standards.

The WISN method involves eight steps as outlined in [figure 1](#). Of these steps, defining workload components (step 3) and setting activity standards (step 4) are the most critical as they directly inform the calculated staffing requirements based on the model of health service delivery or scope of the essential service packages for particular levels of care. Besides the necessary political and stakeholder dialogue to gain commitment, the technical 'appropriateness' and 'accuracy' of the WISN results is very dependent on the development of an 'agreed' and 'realistic' activity standards, which is defined as 'the time it takes a trained and well-motivated member of a particular staff category to perform his/her 'agreed task' to acceptable professional standards in the circumstances of the country/facility'.^{6 15} In the context of developing a national-level workload components and activity standards, it appropriate for it be set by an expert working group comprising of experienced members of the staff category of focus, representatives of professional regulatory bodies and tutors for the staff category from health training institutions.^{6 15}

DEFINING WORKLOAD COMPONENTS AND SETTING ACTIVITY STANDARDS

The workload components and activity standards of the health services were set by various facility levels and cadres—specific expert groups. The values of the activity standards vary from one country to another, depending on working conditions, health service packages and practices.

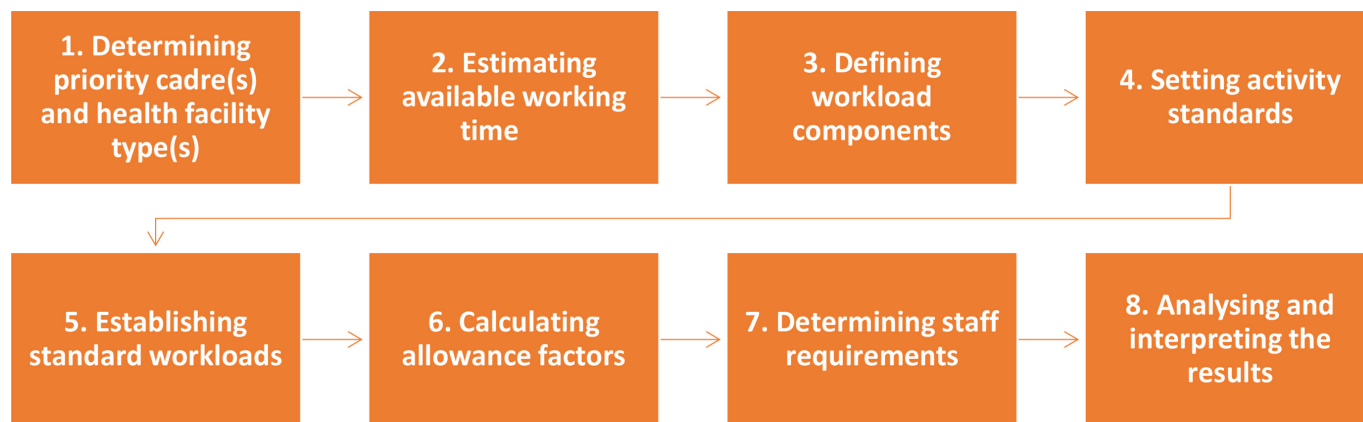


Figure 1 Steps of the WISN method. WISN, workload indicators of staffing need.

From the eight steps outlined in figure 1, defining the workload components is the third step and it is followed by setting activity standards, defined as the time needed for a well-trained, motivated and competent worker to carry out an activity according to professional standards in local circumstances.¹⁵ This focuses on the workload components and service standards (ie, the activity standards for the health service activities).¹⁵ For each health service and based on the standard operating procedures, the national expert groups set an average time that varies from one cadre to another. Experts' groups were asked to estimate the time needed from the start of one activity to the start of the next similar activity on the assumption that the health worker is well trained, competent and motivated and takes into account local working conditions.^{13 15} The consideration of local working conditions is important to understand the context of each individual country. While African health systems are resource constrained, country contexts differ widely in terms of availability of medicines, equipment, infrastructure and amenities. These variations are reflected in the time taken for each activity standard at a country level. Additionally, task shifting is addressed by expert groups as they set those activities, which are performed by their respective cadres within the guidance on workload components and activity standards.

The activity standards for the target cadres are expressed in minutes per patient. The time estimate included the time needed to complete a task as a whole, which is related to the service activity as performed by the worker. For example, a professional midwife may spend an average of 30 min performing postnatal clinical care per patient. Thus, the service standard is 30 min per patient.

In Benin, Botswana, Burkina Faso, Chad, Cote d'Ivoire, Namibia, Nigeria, South Africa and Zimbabwe,^{6 10 17 18} service standards were set during a workshop and by using a consultative approach for each of the identified cadres. The process included definition and validation of the main workload components with service standards for each cadre, taking into account the actual services offered

by the health facility, based on essential service packages and standard operating procedures.

This approach differed in other countries like Ghana,^{7 21} as interviews, questionnaires and observations were used to inform the setting of the service standards. Various facility expert panels set service standards and the averages of times taken for each activity were combined to arrive at the final service standard. These were then validated through a national representation of experts. Another approach was adopted in Malawi,²⁵ without an expert working group. In this case, time-motion studies were used as a reference to set service standards.

CADRE-SPECIFIC WORKLOAD COMPONENTS AND ACTIVITY STANDARDS FOR PRIMARY LEVEL OF CARE

The workload components and activity standards were synthesised based on the time taken for each workload component of the health services in each country using the mean, median, minimum and maximum values in order to assess the variation and similarities across countries (tables 1–3).

For general medical practitioners, the experiences from Burkina Faso, Botswana, Chad, Ghana, Liberia, Namibia, Malawi, South Africa and Zimbabwe show a minimal variation on the defined activity standards for the health service activities (table 1 and figure 2). For nurses, the consolidated workload components and service standards for the health service activities for Benin, Botswana, Burkina Faso, Chad, Cote d'Ivoire, Ghana, Liberia, Malawi, Namibia, Nigeria, South Africa and Zimbabwe remain in general quite similar except for the time spent on counselling, patient referral activities, review consultation, which vary greatly between countries (table 2 and figure 3). The workload components and service standards offered by midwives in Benin, Botswana, Burkina Faso, Chad, Cote d'Ivoire, Ghana, Liberia, Malawi, Namibia, Nigeria, South Africa and Zimbabwe cover a wide range of activities for women, newborns, infants and children. Most of the service standards (10 out of 16 workload components) remain in general quite similar. However, large variations in time were observed across countries in time for admission for pregnant mothers, monitoring of

Table 1 Health service activities and service standards for general medical practitioner service in primary healthcare settings

Health service activities	Service standards (minutes per patient)			
	Mean	Median	Minimum	Maximum
1. Admissions	21	15	15	45
2. Discharge a patient	13	13	10	15
3. Minor operation	33	30	20	50
4. Outpatient department procedures	23	20	15	39
5. Take a pap smear	13	13	10	15
6. Consultation (initial)	25	22	15	40
7. Consultation (review)	21	21	10	30
8. Death certification	16	15	10	25
9. Referral	26	30	10	35
10. Ward rounds	24	18	10	53
11. Emergency management	18	18	15	20

labour, family planning (insertion), postnatal care, normal delivery and immediate postnatal care (table 3 and figure 4).

ISSUES AND CHALLENGES IN DEFINING WORKLOAD COMPONENTS AND SETTING ACTIVITY STANDARDS

There is no doubt that the WISN method developed by WHO has provided a scientific method of calculating staff workloads for health workers and has been widely applied in several countries and various levels of care.^{6–13 15 17 18 32–34} Applying the method ensures that the information gathered is realistic and can provide evidence for justifying the current estimates of staffing needs based on workloads. Just like other tools, there were, however, certain issues and challenges in the whole process that needs to be consciously considered in the implementation process. Our synthesis indicated the following issues and challenges:

1. Setting service standards require accuracy. If they are overestimated or underestimated, wrong staff requirements will be deduced from the WISN tool.

2. Differentiating certain workload components that are often shared between members of the same team in the provision of health services is not straightforward, it posed a challenge in most countries.
3. Certain workload components and service standards can be well defined based on essential service packages and scopes of practice, but they can be absent in the actual workload statistics of healthcare workers.
4. Some service standards can be difficult to reach consensus and require the conduct of time-motion studies in health facilities to inform the expert group decisions.

Due consideration must also be given to the fact that countries have context-specific essential service packages and scopes of practices that influences the types of health services delivered and, ultimately, the activities of health workers that are providing those services. The reported variations in service standards may be explained by different country contexts and practices.

Table 2 Health service activities and service standards of nurses' service in primary healthcare settings

Health service activities	Service standards (minutes per patient)			
	Mean	Median	Minimum	Maximum
1. Screening and treatment	26	27	15	35
2. Outpatient department consultation (initial)	33	33	15	47
3. Outpatient department consultation (reviews)	16	10	8	30
4. Dressing of wounds	23	20	15	30
5. Dispensing	10	10	8	10
6. Injection	7	5	2	12
7. Specimen collection	14	15	10	20
8. Immunisation	11	10	5	25
9. Child welfare clinic	23	25	10	40
10. Counselling	26	20	15	45
11. Referral of patients	62	35	30	120

Table 3 Health service activities and service standards of midwives' service in primary healthcare settings

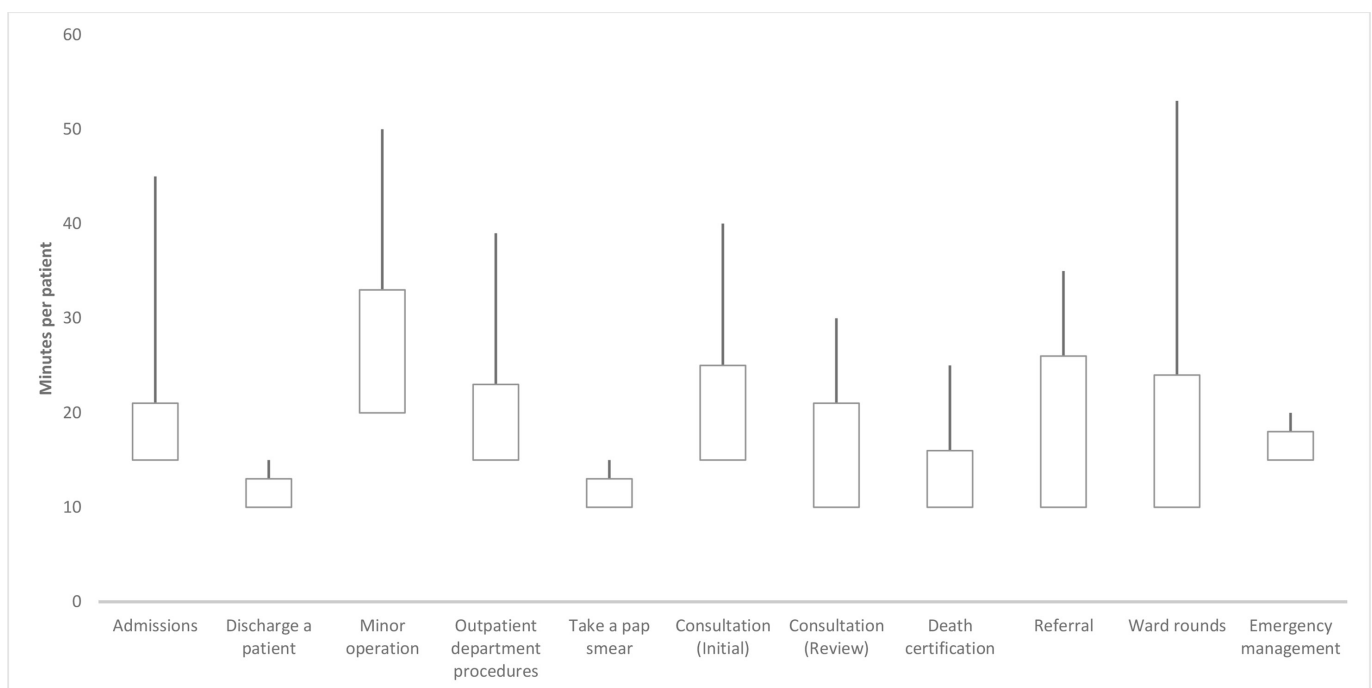
Health service activities	Service standards (minutes per patient)			
	Mean	Median	Minimum	Maximum
1. Ante-natal care (first visit)	39	38	25	65
2. Antenatal care (subsequent visits)	30	27	15	65
3. Admission for pregnant mothers	40	30	20	72
4. Family planning (initial visit)	32	30	20	60
5. Family planning (subsequent visit)	22	20	10	45
6. Family planning (insertion)	44	38	30	70
7. Post natal care	31	25	10	120
8. Normal delivery	196	152	60	380
9. Death care	40	40	20	60
10. PMTCT* counselling and testing	40	39	25	60
11. Child welfare clinic	31	30	12	60
12. Immunisation of children under 1 year old	13	10	5	25
13. Immunisation of women of reproductive age	13	14	5	25

PMTCT, preventing mother to child transmission.

IMPLICATIONS FOR PRACTICE

Defining health service activities and setting service standards are critical steps in the WISN method as they impact directly the estimation of staffing requirements and depend largely on working conditions, health service packages, skill-mix and scopes of practice, and this varies widely in countries.^{6 13 15} On the one hand, if a service standard is overestimated, this can lead to an overestimation of the number of required staff, leading to prohibitive costs for policymakers. On the other hand, if a health service activity

is omitted or a service standard is underestimated, it can lead to an underestimation of the number of required staff for a staff category, this may create a high workload pressure for the existing staff. Therefore, in the implementation of the WISN method in practice, workload components and activity standards should be defined and validated by relevant experts who have the expertise and long professional experience within particular levels of care to reflect the staffing need-based workload and set reasonable standards. A key approach based on the synthesised reports is to have cadre


Figure 2 Variations in service standards for health service activities conducted by general medical practitioners in primary health care settings.

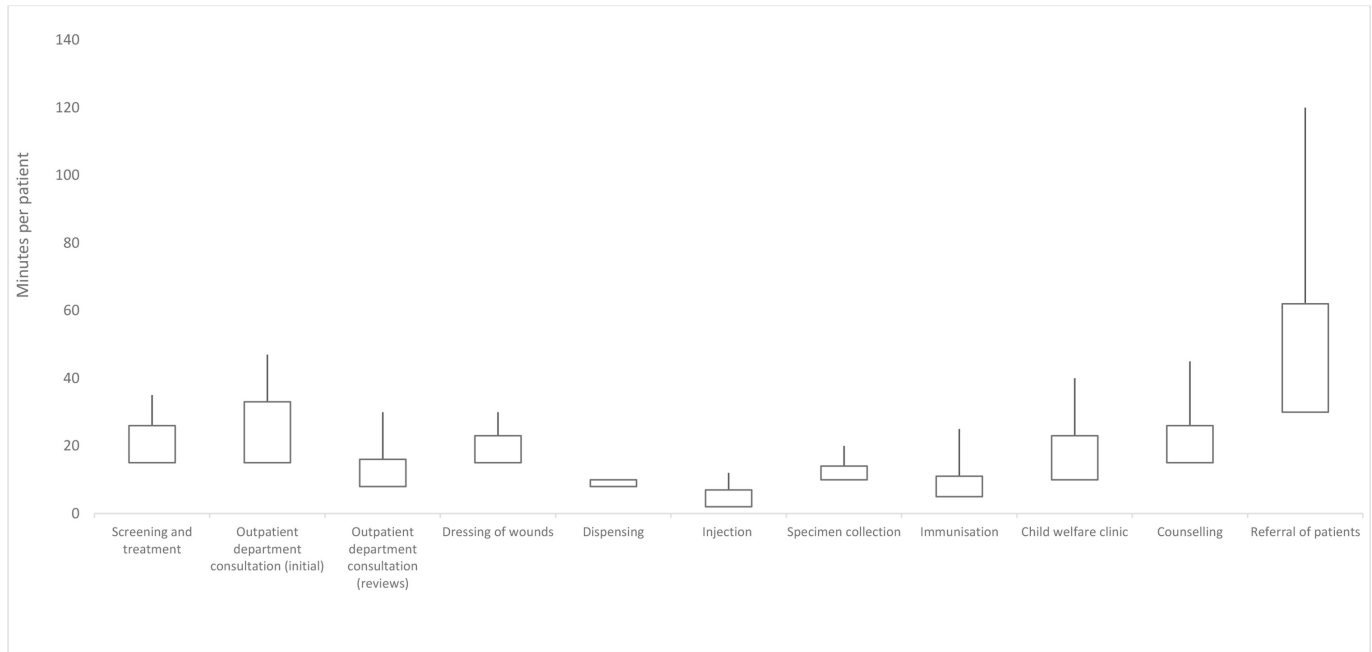


Figure 3 Variations in service standards for health service activities conducted by nurses in primary health care settings.

and facility-specific expert group with a mix of policymakers and experienced health workers currently practising, tutors training the cadre of focus and representatives from regulatory bodies responsible for managing scopes of practice. Another approach is to conduct time-motion studies as was done in Malawi.^{69 13} However, this often requires substantial investments.

A detailed process is also important for building consensus on the different workload components and activity standards before using them to estimate the required staff to

determine the staffing requirements (need to be covered and excess supply to be redeployed or repurposed). In addition, the workload components and activity standards are based on essential service packages and scopes of practice for relevant cadres. The application in practice provides an opportunity to improve teamwork, and task sharing or task shifting based on competencies. In addition, this process can also help in revising the curricula for preservice and inservice training of health workers based on the needs for integrated health service delivery.

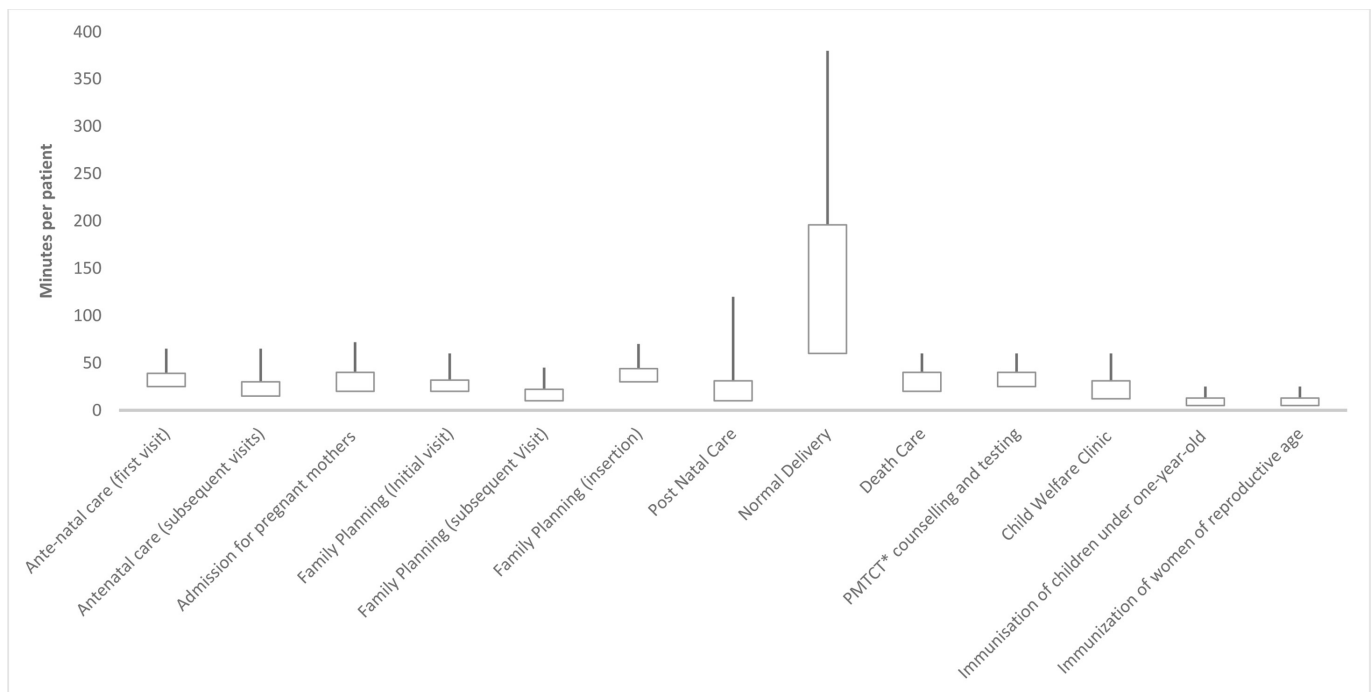


Figure 4 Variations in service standards for health service activities conducted by midwives in primary health care settings. PMTCT, preventing mother to child transmission.

CONCLUSION

This paper, to the best of our knowledge, is the first attempt to harmonise workload components and activity standards in the African region. It provides information on the findings from 12 countries in the African region and will be helpful to countries in defining health service activities and service standards for general medical practitioners, nurses and midwives in the primary level of care. It may also improve the credibility and acceptance of the results of WISN studies for the three cadres presented.

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Patient consent for publication Not applicable.

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REFERENCES

- WHO. The African regional framework for the implementation of the global strategy on human resources for health: workforce 2030 2020
- WHO. The state of the health workforce in the WHO African region. *Brazzaville* 2021.
- Labonté R, Sanders D, Mathole T, et al. Health worker migration from South Africa: causes, consequences and policy responses. *Hum Resour Health* 2015;13:1–16.
- Jirovsky E, Hoffmann K, Maier M, et al. "Why should I have come here?" - a qualitative investigation of migration reasons and experiences of health workers from sub-Saharan Africa in Austria. *BMC Health Serv Res* 2015;15:1–12.
- Harris B, Goudge J, Ataguba JE, et al. Inequities in access to health care in South Africa. *J Public Health Policy* 2011;32 Suppl 1:S102–23.
- Okoroafor SC, Ongom M, Mohammed B, et al. Estimating frontline health workforce for primary healthcare service delivery in Bauchi state, Nigeria. *J Public Health* 2021;43:i4–11. [dataset].
- WHO. *Workload indicators of staffing need (WISN): selected country implementation experiences*. Geneva: World Health Organization, 2016.
- Burmen B, Owuor N, Mitei P. An assessment of staffing needs at a HIV clinic in a Western Kenya using the who workload indicators of staffing need WISN, 2011. *Hum Resour Health* 2017;15:1–8.
- Okoroafor S, Ngobua S, Titus M, et al. Applying the workload indicators of staffing needs method in determining frontline health workforce staffing for primary level facilities in rivers state Nigeria. *Glob Health Res Policy* 2019;4:35.
- [dataset]10. McQuide PA, Kolehmainen-Aitken R-L, Forster N. *Applying the workload indicators of staffing need (WISN) method in Namibia: challenges and implications for human resources for health policy*. *Human resources for health* 2013;11:1–11.
- WHO. *Applying the WISN method in practice: case studies from Indonesia, Mozambique and Uganda*. Geneva: World Health Organization, 2010.
- Govule P, Mugisha JF, Katongole SP. Application of workload indicators of staffing needs (WISN) in determining health workers' requirements for Mityana general hospital, Uganda. *International Journal of Public Health Research* 2015;3:254–63.
- Okoroafor SC, Oaiya AI. Using the workload indicators of staffing need method to determine the staffing requirements for primary healthcare service delivery in Nigeria. *Journal of Global Health Reports* 2021;5:e2021091.
- WHO. *Global strategy on human resources for health: workforce 2030*. Geneva: World Health Organization, 2016.
- WHO. *Workload indicators of staffing need. User's Manual*. Geneva: World Health Organization. Geneva 2010.
- WHO. *Regional guide for determining health workforce staffing norms and standards for health facilities 2021*.
- Titus M, McQuide P, Hendricks R, et al. Namibia WISN national report 2015.
- Ravhengani NM, Mtshali NG. The views of health workforce managers on the implementation of workload indicators of staffing need (WISN) method in primary healthcare settings in South Africa. *Int J Stud Nurs* 2017;3:132.
- Ministry of health. *Determination of staffing requirements based on workload assessment: WISN method*. Porto-Novo 2019.
- Benin Rdu. *Rapport de l'étude de la charge de travail avec l'outil WISN*. Benin: Ministère de la santé, 2017.
- Ghana Ministry of Health. *Staffing norms for the health sector of Ghana (volume 1)*. Ghana: Ministry of Health 2015.
- Tchad Rdu. *Rapport de l'étude WISN au Tchad*: Ministère de la Santé 2017.
- Faso RdeB. *Implémentation de l'outil WISN au Burkina Faso -Rapport de l'évaluation de la charge de travail du personnel de santé dans les formations sanitaires du niveau district*. Burkina Faso: Ministry of Health, 2019.
- Republic of Botswana. *Workload components and activity Standards, report validated by cadre and stakeholders*. Botswana: Ministry of Health 2015.
- Mziray E, Gorgens M, McCauley P. *Analysis of human resources for health in Malawi* 2017.
- Republic of Namibia. *Namibia national WISN report 2015: a study of workforce estimates for public health facilities in Namibia*. Namibia: Ministry of Health 2015.
- Republic of South Africa. *Workload activity standards Ratified by the Cadre experts and groups*. South Africa: Ministry of Health 2015.
- Republic of South Africa. *Implementation guideline of health workforce normative guides and standards for fixed PHC facilities*. South Africa: National Department of Health 2015.
- Ministry of Zimbabwe. *Workload indicators for staffing need (WISN) main study report*. Zimbabwe: Health Service Board and Ministry Of Health 2017.
- d'Ivoire RdeC. *Rapport d'évaluation de la charge de travail des personnels de santé*. Cote d'Ivoire: Ministère de la santé 2015.
- Liberia Rof. *Liberia workload components and activity standards*. Liberia: Ministry of Health, 2018.
- Mugisha JF, Namaganda G. Using the workload indicator of staffing needs (WISN) methodology to assess work pressure among the nursing staff of Lacor Hospital 2008.
- Sajjad Kayani N, Naeem Khalid S, Kanwal S, Kayani NS, Khalid SN. A Study to Assess the Workload of Lady Health Workers in Khanpur UC, Pakistan by Applying WHO's WISN Method. *AJH* 2016;3:65–80.
- Hagopian A, Mohanty MK, Das A, et al. Applying WHO's 'workforce indicators of staffing need' (WISN) method to calculate the health worker requirements for India's maternal and child health service guarantees in Orissa State. *Health Policy Plan* 2012;27:11–18.