WISN

Workload indicators of staffing need

User’s manual, second edition
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Activity standard
Time necessary for a well-trained, skilled and motivated worker to perform an activity to professional standards in the local circumstances. There are two types of activity standard:

- **Service standard**: Activity standard for health service activities. (Annual statistics are regularly collected for these activities.)

- **Allowance standard**: Activity standard for support and additional activities. (Annual statistics are not regularly collected for these activities.) There are two kinds of allowance standard:
  - **Category allowance standard (CAS)**: An allowance standard for support activities performed by all members of a staff category.
  - **Individual allowance standard (IAS)**: An allowance standard for additional activities performed by certain (not all) members of a staff category.

Allowance factor
A factor used to take into account staff requirements of activities for which annual statistics are not regularly collected. There are two kinds of allowance factors:

- **Category allowance factor (CAF)**: A multiplier used to calculate the total number of health workers (this is required for both health service and support activities).

- **Individual allowance factor (IAF)**: A factor to estimate staff required to cover additional activities of certain cadre members. IAF is added to the staff requirements of health service and support activities.

Available working time (AWT)
The time a health worker has available in 1 year to do their work, taking into account contractually and legally authorized and unauthorized absences.
**Cadre**
In this manual, the term “cadre” is a synonym for “occupation”.

**Standard workload**
Amount of work within a health service workload component that one health worker can do in a year if their total working time were to be spent on this activity only.

**Workload component**
One of the main work activities that take up most of a health worker’s daily working time. There are three kinds of workload components:

- **Health service activity**: refers to the core health service-related tasks performed by that cadre; it defines the cadre’s job. All members of that staff category can perform all those tasks, and service statistics are regularly collected on these activities.

- **Category support activity**: refers to those important tasks that support health service activities and are performed by all members of that staff category. However, unlike health service activities, regular statistics are not collected on these activities, although records on their frequencies are sometimes documented.

- **Individual additional activity**: refers to specific responsibilities and tasks assigned to only some members of that staff category. They are performed by only certain members of the staff category, and annual statistics are not regularly collected on these activities.
Abbreviations

AWT  available working time
CAF  category allowance factor
CAS  category allowance standard
hCG  human chorionic gonadotropin
HRH  human resources for health
IAF  individual allowance factor
IAS  individual allowance standard
SDGs Sustainable Development Goals
WHO  World Health Organization
WISN  workload indicators of staffing need
The health workforce is the fulcrum on which health system performance relies. Human resources for health (HRH) is crucial to affordable, accessible and high-quality health services. The ability of a country to meet its health commitments and goals largely depends on the number, skills, competencies and availability of health workers, and on whether those workers are organized and equitably distributed to deliver integrated, people-centred health services. The health workforce is essential towards achieving universal health coverage and the Sustainable Development Goals (SDGs) (1), especially Indicator 3.c.1, which relates to “health workforce density and distribution” and improved data on HRH (2).

Health service managers around the world face increasing HRH challenges, such as:

- inadequate resources to respond to the populations’ demand for services;
- the distribution of human resources being generally poorly balanced between urban and rural areas, and between primary, secondary and tertiary levels of care;
- inefficiencies due to uncoordinated HRH practices from various stakeholders; and
- weak HRH coordination mechanisms and weak human resources for health information systems.

In contrast to disease-oriented programme interventions, the reinvigorated primary care approach calls for a higher degree of service integration, better governance structures and improved partner coordination. However, the increasingly complex world of partners generates additional challenges for health managers.

Sustained attention is required to improve the match between HRH and the health system’s needs. A well-managed health workforce with equitable distribution of workload and better productivity should have

- the right number of people:
  - with the right skills
  - in the right place
  - at the right time
  - with the right attitude
- doing the right work
  - at the right cost
  - with the right work output
  - in the right environment.
Traditional ways to determine staffing requirements include calculating population-to-staff ratios (e.g., X number of nurses per 10,000 population) and facility-based staffing standards (e.g., X number of nurses and Y number of doctors for a health centre). These methods have disadvantages; in particular, they do not take into account both the wide local variations in the demand for services and the work that health workers actually do. Health managers need an effective, systematic way to make staffing decisions if they are to manage their valuable human resources well. The workload indicators of staffing need (WISN) is such a method.

The WISN method is based on a health worker’s workload, with activity (time) standards applied for each workload component. This principle has long been used in business but was not employed in the health sector until the late 1990s, when the WISN method was field tested and used in several countries.

This manual is a revision of an earlier WISN user manual, which was prepared by Peter Shipp and published by WHO in 1998 (3). The earlier manual focused on using the WISN method in a top-down manner, in which the administrative focal point was a country’s ministry of health. Through a decade of implementation and its documentation, some limitations and several ways to apply the approach in different settings became evident. By 2008, it was felt that the approach should be reviewed and updated and the second version was developed in 2010.

The second review of this manual, in 2010, had a particular focus on health service planning and management. Since that time, many changes in health services and their governance have taken place. This revised manual takes into account both the centralized and decentralized nature of health management and offers real experiences from countries that have implemented WISN. It also captures workforce planning during the coronavirus disease (COVID-19) pandemic and the strains that put on health systems. Accordingly, this manual has been further revised in 2021 to include these scenarios. It is intended for the wide range of managers working in today’s health systems. Additionally, the manual addresses the many uses of WISN that can contribute to expanding HRH efforts within a country.
1.1 What is the WISN method?

The WISN method is a human resource management tool that:

- determines how many health workers of a particular type are required to cope with the workload of a given health facility; and
- assesses the workload pressure of the health workers in that facility.

Characteristics of the WISN method are that it is:

- simple to operate, using already collected, available data;
- simple to use, and applicable to staffing decisions at all health service levels;
- technically acceptable to health service managers;
- comprehensible to both medical and nonmedical managers; and
- realistic, providing practical targets for budgeting and resource allocation.

The WISN method takes into account differences in services provided and in complexity of care in different facilities. The calculation of staff requirements is based on the same professional standards in all similar facilities. The WISN method uses available service statistics, so requires only limited additional data collection. However, there is a need to triangulate the data (i.e., to use more than one source of data) to confirm the validity and credibility, thus ensuring confidence in the analysis and interpretation of the WISN results.

The WISN method provides two types of immediate results: differences and ratios. The difference between the actual and calculated number of health workers shows the level of staff shortage or surplus for the particular staff category (or cadre)\(^1\) and health facility type for which WISN have been developed. The ratio of the actual to the required number of staff is a measure of the workload pressure that the staff is coping with.

The staff requirements of individual health facilities can be added together across administrative areas to estimate staff requirements for districts, provinces and at a national level. The WISN method can be applied for all types of health facilities in all sectors – government, nongovernmental organization (NGO) and private – and for all personnel categories, including nonmedical ones. Managers at district, provincial or national levels, as well as staff in charge of individual health facilities, can all use WISN to make better decisions about human resources.

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\(^1\) In this manual, the term “cadre” is a synonym for “staff category”. 

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1.2 How can WISN help you?

The many uses of WISN range from estimating current staffing requirements and determining optimal staffing allocations to improved task sharing and better health workforce projections.

- WISN results can help you determine how best to improve and optimize your current staffing situation. You can set better priorities for allocating new staff or transferring existing staff if you first use WISN to identify inequities in current staffing of health facilities or areas. The analysis of the workload pressure will further help you decide which health facilities should receive the highest priority.

- WISN can help you determine the best way to allocate new functions and transfer existing functions to different health worker categories. You can decide whether the number of existing cadres should be reduced, a new staff category created or tasks shifted between cadres. You do this by reviewing the range of functions and any possible overlap in work done by the different staff categories for which the WISN results have been calculated.

- The WISN calculations are based on current professional standards for performing a particular component of work. Thus, they allow you to see which facilities have low current professional performance in comparison with other facilities. By using improved professional standards in the WISN calculations, you can calculate how many extra staff you would require in a particular cadre to achieve these new standards.

- You can use WISN to plan future staffing of health facilities. Using data on anticipated workloads of planned future services (rather than current workload data) in the WISN calculations allows you to calculate how many health workers of a particular type you would be required to deliver future services.

- You can use WISN to examine the impact of different conditions of employment on staff requirements (e.g. changes in the length of the working week, increased vacation or different in-service training policies).

- WISN can help you to estimate the staffing requirement for health services that are delivered by a team. It can also identify services that are intended to be delivered by someone in another occupation. For example, WISN can help in estimating staffing requirements for different categories where a particular health service (e.g., HIV-related services) is delivered by a team. Identifying such shared tasks and acuity levels in the WISN analysis will optimize efforts to improve staffing and can quantify opportunities for staff sharing, to improve resource allocation.

- WISN can help in setting staffing norms. You can use the calculated requirements obtained from a “big WISN” (see Section 2.3) to estimate the staffing requirements for each facility type (e.g., clinic or health centre). This information is useful to determine the use and ranges of staffing norms for each of the workload categories of health facilities.
What is WISN and why this manual?

WISN can help with long-term health workforce planning in two ways. First, the calculated staff requirement and workload pressure can be used in restructuring efforts, to redefine organizational structures and staffing allocations. The WISN-based staff requirements provide guidance on how to allocate staff posts to health facilities, based on their workloads. Second, the WISN results provide valuable data for staffing forecasts that take into consideration population health needs, workload, and current and required staff numbers.

1.3 Limitations of the WISN method and possible mitigation measures

WISN uses annual service statistics to assess workloads. The accuracy of the WISN method is thus determined by the accuracy of those statistics. If a health facility keeps poor records, the WISN results will be inaccurate. The errors are almost always in the direction of under-recording the workload when WISN is first applied. This will result in underestimating the staffing required by the facility. If the WISN method is adopted into general use, managers and health workers will soon realize that their staffing allocations are based on annual service statistics. This may lead some people to inflate the statistics if data quality is not monitored.

Countries have found ways to mitigate these limitations and thereby ensure a more robust, valid and reliable study. For example, after the implementation of a WISN study, record keeping is likely to improve, and may even move in the direction of overreporting. Another way to mitigate the inaccuracy of results is to triangulate the data. Data triangulation is a method of data collection which involves using more than one source of data to confirm the validity and credibility thus ensuring confidence in the analysis and interpretation of the WISN results, as explained above in Section 1.1. For instance, where facility registers capture the number of antimalarial agents administered, proxy data (e.g. pharmacy stock) could be used to triangulate the data. It is also advisable to check data quality with a sample of primary data to ensure the correctness of that data.

The level of detail in the service statistics affects the precision of WISN results. For example, if routine statistics report only a single figure for total visits to an antenatal clinic, only the average time for such visits can be used in the WISN method. For good service, however, a first antenatal visit should last longer than the following visits. More precise WISN calculations would need separate service statistics for first and subsequent visits. Similarly, if service statistics give a single figure for activities of two different staff categories (e.g., registered nurses and auxiliary nurses), the WISN method can produce only a combined staff requirement of both categories.

Thus, it is advisable to further disaggregate the activity standards into their component parts to assist in the understanding of the data. For example, the subcomponents for activities relating to antenatal care may be different for a registered nurse and an auxiliary nurse, and this may be used to describe the different activity standards for these cadres.

The WISN method uses service statistics from the previous year. Hence, it calculates retrospectively what the staffing levels should have been last year. This is usually not a serious problem, since
health facility workloads change relatively slowly. A percentage correction can be made in the uncommon situations where the workload has increased noticeably in the current year.

It is also advisable to consider the annual statistics used for the WISN study. In countries where the statistics from the previous year include services for a pandemic (e.g., Ebola), the service statistics may be skewed. In such cases, it may be necessary to consider a different period to reduce anomalies. In addition, where there are no full year statistics, data can be annualized, but due care must be given to seasonal events.

The technical capacity and composition of the various implementation groups is an important determinant of the success of a WISN study. First, the activity setting step, which is done by the expert working groups, is often underestimated. Activities are set by the expert working groups and the composition of these groups would assist in determining the quality of the activities and how well they would be accepted by the professional groups as a whole. It is recommended to have a first round of activity standard setting done by the professionals who are actually providing the services, while a second round of validation could be done with tertiary institutions, professional bodies and local health authorities.

A second consideration is the technical capacity and composition of the technical task force, which should be a cross-disciplinary group with a range of skills – a broad base of knowledge is essential for a successful WISN exercise. The profiles of the training participants should include professional responsibilities related to clinical practice, quantitative data analysis, human resources planning and management, health information systems and information technology. The technical task force should be creative in their thinking of how to overcome these process or system obstacles and should be able to assist in the trouble-shooting phase when data and preliminary results are run.

### 1.4 Structure of the manual

This manual is intended as a guide to both the WISN process and the WISN method. Section 2 explains the most important components and considerations of the WISN process. Section 3 provides a clear explanation of each step in the WISN method. Section 4 explains how the results of a WISN can be used in decision-making. Section 5 contains the answers to frequently asked questions; this section is based on queries about particular points of the method that WISN users have raised.
Given the dual focus of the manual, there are two different groups of intended users. The first are directors and senior-level managers working in health administrative and governance structures. They authorize the use of the WISN method, supervise its application and then take decisions on the basis of the WISN results. The second group comprises managers and health professionals who are responsible for carrying out each step of the WISN method or who will be asked to provide professional input.

The WISN implementing team should find the step-by-step explanation of the WISN method in Section 3 especially helpful as a guide to its own actions. The team can also use relevant parts of this section to brief those with whom they collaborate on the WISN method.

The companion materials to this manual can be used to raise awareness about WISN and facilitate WISN data analysis. They include case studies, WISN software and a WISN software manual.
This section outlines the various steps of the WISN process. The steps described are intended as a guide to your own actions. You should always review them carefully in light of your own situation and adapt them where necessary. The different sets of activities in the WISN process are presented in sequence. In practice, however, some of them may take place in parallel, rather than in sequence.

2.1 Mobilizing commitment to WISN

The WISN efforts is a collaborative one that requires the commitment of all the relevant stakeholders with the inputs of senior policy-makers. The WISN effort will fail if senior directors and managers with responsibility for human resource decisions do not support it. Before the work starts, it is vital to ensure that these senior officials understand what the WISN method is, what results it will produce and how the results can help their decision-making. Organizing a half-day or 1-day workshop to inform these officials and answer their questions can increase their commitment to the process.

Two additional groups are likely to be important to WISN success. These are the professional bodies of health workers (e.g. medical and nursing associations) and trade unions. The extent of their power depends on the circumstances of each country. Thus, it is a good idea to share with both groups what the WISN method is and how the results will be used. The goal is to gain the commitment of these groups or, at the very least, avert their active opposition.
2.2 Determining the objectives and focus of the WISN process

You must define clearly why you want to use the WISN method and for what decisions it will be used. Are you a district manager who wants to know how many nursing assistants are needed in each health centre in your district to cope with the workload? Are you a director of hospital services in your province who wants to compare the workloads of current hospital staff? Are you in charge of laboratory services in your region and want to identify which laboratory staff categories in which laboratories suffer the highest workload pressure? Or are you a senior national manager planning a new health service who wants to see whether the new functions can be allocated to existing staff categories or require creating a new cadre?

The objectives of the WISN process need to be aligned to national efforts and objectives on HRH planning. The answers to why you want to apply WISN will determine the focus of your WISN process. This includes determining both the staff category or categories, and the type of health facility or facilities on which your WISN application will focus.

2.3 Designing the implementation strategy

The WISN process is very flexible. Its scope can be “small” or “big”. A small WISN takes place from the bottom up. For example, the process might be carried out at the level of a smaller administrative area, such as a district, or in an individual health facility. It is likely to focus on a single staff category or only a few categories and one, or at most two, types of health facilities. The results of a small WISN should be shared with relevant national-level officials. This encourages similar WISN applications in other parts of the country, as well as the development of common standards.

It is preferable to start small; for example, by developing WISN initially for only one staff category working in one type of health facility. The advantage of this approach is that it allows the involved officials to develop experience in the WISN method. It also helps to ensure that the WISN is implemented in a way that is feasible. The next WISN process can then have a more ambitious scope, once experience has been accumulated and the results have been used for decision-making.

Developing WISN simultaneously for several cadres in the same type of health facility is an example of a more ambitious WISN scope. Such a WISN has many advantages over a focus on only a single staff category. It provides an excellent opportunity to examine the total workload of the facility (or at least a major part of it), rather than just the work of one cadre in isolation. Often, different cadres perform the same duties. Bringing the different professional groups together to share their work helps to identify conflicting tasks, overlapping duties and gaps in service provision.
A big WISN is usually national in scope and is put into practice in a top-down manner. It would probably involve calculating WISN results for several health worker categories. The results would then be compared across administrative areas (e.g., provinces) and used for national-level decision-making.

It is difficult, if not impossible, to have a successful top-down strategy without creating consensus around WISN beforehand, through multiple local initiatives. Even when a WISN initiative starts from directors or managers at a central ministry, its development must be worked out in local-level health facilities. This is essential for involving the staff, standardizing the WISN and showing that it works and is useful.

### 2.4 Developing an operational plan and budget

The WISN implementation strategy must be translated into an operational plan and budget. The questions below are intended to help you in developing your own plan. The list is not exhaustive; there may be important additional considerations in your own setting.

#### 2.4.1 Designing strategy

- Will you do a pilot study first, or can you move right away to a full-blown WISN implementation?
- Is a special field study necessary to verify initial WISN results? If yes, where should that study be done and by whom?

#### 2.4.2 Implementing strategy

- What will be the composition of the group that guides the overall WISN process?
- Who will manage the day-to-day flow of activities in implementing WISN?
- How will you obtain well-informed advice regarding the work content of the staff categories in your WISN study?
- How frequently, when and where will the teams of implementers and work-content experts meet to do their work?

#### 2.4.3 Orienting and training

- When, where and how will the group in charge of the overall WISN process be oriented to WISN?
• How will the implementers and work-content experts be trained in WISN?
• Who will do the training? What format will it take?

2.4.4 Collecting and analysing data

• How will the necessary data on staffing and workloads be collected and who will lead these efforts?
• Will all data collection and analysis take place at the same time, or will these activities be staggered?
• How will the quality of the data be verified and triangulated?

• How will the calculations be coordinated? Will there be manual data entry or uploading of data?
• Who will analyse and interpret the WISN results? When will this take place and where?

2.4.5 Sharing results and integrating WISN

• When, where and how will the WISN results be shared, and with whom?
• How will the WISN method be integrated into the management and budget systems in the long term?

You must think through what resources you need to execute your operational plan. Which members of your own staff or staff from other relevant institutions or organizations should be assigned to the work, and will they be full-time or part-time? Do you require additional advice, either for launching the WISN process or for data collection and analysis? For example, should you involve a local university or an external consultant? What material resources will you need for meetings and workshops?

Consider the advantages and disadvantages of using a centralized data repository to access the WISN data. In a small WISN, the amount of data is relatively small. Having the representatives of the health worker cadres themselves do the calculations brings many benefits. A rich discussion can be generated regarding staff roles, workload components and service standards among these experienced health workers. Correcting each other’s calculation errors fosters an interest in data accuracy. Motivation is increased when health professionals present the evidence, they themselves prepared, particularly when decision-makers act on it. Using a computer to analyse the data undermines these positive effects in a small WISN. Doing the WISN calculations manually increases understanding of the WISN method.

In a big WISN, a considerable amount of data must be processed quickly and accurately; thus, a centralized data repository is crucial to enable the WISN data analysis. In a big WISN, the WISN software accompanying this manual is greatly beneficial to calculations and expedites results. The tool was designed with such applications in mind. A centralized data repository can also be helpful when WISN becomes an integral part of management systems. Such an approach would
Successful implementation of the WISN process requires three different groups (described below):

- a steering committee;
- a technical task force; and
- one or more expert working group (i.e., a set of individuals who work with the technical task force).

The composition of these three groups must be determined before the work starts. Other key individuals can be involved later, especially in the expert working group as the need and requirements change. It is important to clearly delineate the roles of these groups.

The descriptions of the three groups given below are intended as general guidelines. Their actual size, composition and role will depend on the focus of your WISN and your local situation. In a small WISN, for example, the technical task force may comprise only a couple of individuals who work part-time to steer the WISN process. In such a case, cadre representatives (i.e., the expert working group) would probably be responsible for the actual calculation of staff requirements.

2.5.1 Steering committee

The steering committee’s role is to approve the strategy for WISN implementation and agree to the workplan and budget. The committee monitors how the WISN implementation progresses and provides overall supervision for the work.

The steering committee should comprise of senior officials who will use the WISN results. It should also include key representatives of those providing the information for WISN calculations. Depending on the implementation strategy, the key representatives might include senior officials from national or decentralized health and personnel management levels, local government officials and heads of training institutions. There is often an overlap between this group and the providers of information. The latter group might include representatives of provincial or district health directors or departments of a central ministry of health.
2.5.2 Technical task force and its leader

The technical task force is responsible for implementing the WISN process. Its size and composition will depend on the WISN strategy and the local context. As mentioned above, for a small WISN, a couple of individuals may act as the technical task force. However, for a big WISN, the technical task force will probably have dedicated staff for the implementation of this activity, and is likely to include technical resource persons (e.g., a statistician or a computer analyst) working full-time or part-time. Such a task force might involve liaison persons, who arrange local-level activities, obtain information and undertake other similar work, as necessary.

In any sizable WISN implementation, the steering committee should appoint the leader of the technical task force. The leader should always be responsible to the steering committee, and must have sufficient seniority and experience to command respect and have access to relevant decision-makers. The leader serves as the secretary for the steering committee meetings and directs the day-to-day activities of WISN implementation.

After WISN implementation, the leader should bear the main responsibility for the eventual integration of the WISN method into routine management and budgeting procedures. Depending on the circumstances, the task force leader may be able to push such changes through alone or act as a strong advocate with relevant higher-level officials.

2.5.3 Expert working group or groups

An expert working group defines the main workload components and sets activity standards for a target staff category (e.g., nurse, doctor or pharmacist). These are two crucially important steps in the WISN method. If the process is to succeed, health workers must have confidence that the determination of workload components (i.e., the tasks that take up most of their daily working time) and activity standards has been based on solid information, and that the components and standards are appropriate and reasonable.

The expert working group comprises of selected senior representatives of the relevant staff category to ensure the confidence of the health workers. These individuals must be respected by their colleagues and have long and deep experience in their work.

Two different types of experts – those from cadres and those from different facility levels – can be used to form the expert working groups, depending on the WISN strategy. The first round of activity standards setting should be done by the professionals who are actually providing the services, while a second round of validation could be done with a combination of health workers and their representatives from professional bodies, training institutions and local health authorities.

**Cadre-based expert working groups**

A cadre group could, for example, comprise of nurses in charge of rural health facilities and midwives from hospitals at different levels.
The members of a cadre-based expert working group bring their professional expertise regarding how things should be done, as well as their experience in the feasibility of doing things in a particular way. These experts will be familiar with the training of the staff category. They will know the professional standards that apply to the work of a staff category, such as how long a nurse requires for an effective outpatient clinic visit. Moreover, they will have years of experience in performing the activities in each workload component. A cadre-based group is thus generally able to estimate with reasonable accuracy how long each workload component should take when performed to local professional standards.

**Facility-based expert working groups**

An expert working group based on facility-level experts comprises of senior staff from all departments or units in a health facility; for example, it could include specialist doctors (e.g. paediatricians from teaching hospitals). Where appropriate, the validation expert group should include a representative of the local health authority or the relevant department from the health ministry, together with respected and senior representatives from the cadre expert group. Their task is to validate the activity standards for all staff categories (set by the first group). Carefully selected subgroups of the expert groups generally draft the components and activity standards in a joint workshop. These components and standards are then debated and approved in a plenary session.

A second expert working group may be formed that does not possess sufficient breadth and depth of expertise and experience in the work of all staff categories in the health facility for which WISN is being developed, but is conversant with the expected quality and time an activity would require. It is advisable that a mixed group of both cadre and facility experts are involved.

Figure 1 summarises the WISN process, its implementation groups and their roles.
2.6 Orienting and training the implementation groups

The members of the steering committee must be oriented to the WISN method before starting work. They do not need to understand the technical details of each methodological step, but must have a good understanding of the basis for calculating the required number of staff and of why basing this calculation on the workload is a great improvement over earlier methods. It is advisable to arrange a seminar lasting between a half and a full day, to orient the steering committee on the WISN methodology and the kind of decisions that can be made using the WISN results. Participants at the seminar should have the opportunity to ask questions and clarify any misunderstandings.

In contrast to the steering committee, the members of the technical task force need training in each step of the WISN method. They should be competent in using the method both to do their own work and to interact with the expert working groups. In a small WISN, a 2–3 day training workshop is usually sufficient.

For a big WISN, it is advisable to include some practical fieldwork so that the larger technical task force can apply their newly learned skills. This will lengthen the required training to 4–5 days. A training of this length allows the trainees to travel to the field, collect the necessary data and analyse them. More time will be needed if travel to the selected field sites is time consuming.

Training is improved when the trainees can use real data from familiar facilities. Ask trainees to bring selected data on workload and staffing to the training, or arrange for such data to be collected beforehand. The length of training will depend on the prior analytical and mathematical skills of the members of the technical task force.

The expert working groups require sufficient exposure to the WISN method to understand how their input to it will be used. The first half day of a group’s first meeting should be spent explaining the method and responding to any queries. There may be several questions, particularly from people in staff categories that use other methods to plan staffing (e.g., hospital nurses regularly use nursing dependency scores to calculate ward staffing, as explained in Section 5.4).

2.7 Collecting and analysing the data

The WISN method is based on routinely collected data on the workload of health workers. Depending on which staff categories are covered, these data may include inpatient admissions, outpatient visits, deliveries, surgical operations or laboratory tests. Therefore, you need complete data from the previous calendar year for each workload component from each health facility involved in the WISN application.
Before starting the WISN process, you must ensure that annual workload statistics are available, of acceptable quality and up to date. Due consideration should be given to how easy or difficult will it be to obtain the necessary data? Do all facilities define the same data item in the same way? Are all facilities reporting regularly (e.g. if some facilities have not sent in their data for a couple of months, you will need to adjust for this before calculating the required staffing).

Obtaining current data from health facilities on the number of staff in different staff categories may be more difficult than obtaining workload data from them. This is unlikely to be a problem in a small WISN; however, in a big WISN, the lack of up-to-date information on staff numbers may require a prior, separate data collection exercise.

Doing the calculations this way ensures a complete understanding of the WISN method and its application. As mentioned above, analysing the data of a small WISN on a computer undermines the skills that the health workers would otherwise gain in producing the evidence themselves. Gaining these skills is a powerful motivating factor, particularly when decision-makers act on the evidence.

A big WISN effort will require entering and analysing the data on a computer. You can use the WISN computer program accompanying this manual or design your own formats for computerized data analysis.

### 2.8 Sharing WISN results and institutionalizing WISN

You should share the WISN results with a broad set of stakeholders, to ensure that the results and their implications are reviewed and debated. The stakeholders can include policy-makers and managers with responsibility for the health sector and the civil service, the health workers themselves and their professional organizations, and representatives of training institutions. Which groups are particularly important to a WISN effort will depend on the setting, and on the focus and size of the initiative. At the start of the implementation, it is advisable to define the most important stakeholder groups, and consider the best means of informing and engaging each group, both during the course of the WISN study (as relevant) and when the WISN results become available.

The WISN results will give the stakeholders a clear picture of which of the health facilities are relatively understaffed and overstaffed after the data have been collected and analysed. Data will also be available on the level of workload-related stress that staff are coping with in the different facilities. These WISN results should lead to improved decision-making about the health workforce – if this is not the case, the time spent on implementing WISN has been wasted. Hence, it is crucial to ensure that the results are shared and their implications reviewed and debated.
Using the WISN method should not be a stand-alone, one-off exercise. The ultimate goal is to incorporate the application of the method into the annual cycle of planning and budgeting in your organization or health system. WISN is also useful to address other HRH issues such as task sharing, health workforce planning, updating job descriptions, merging of cadres, review of training curricula, review of scope of practice and evidence-based planning. As you prepare for the initial implementation of WISN, consider what needs to happen for this to take place.

For example, will you need further WISN analyses (e.g. of other staff categories) before it would be appropriate to integrate the WISN method into ongoing management systems? Which management practices would need to be adjusted to accommodate the routine application of the WISN method? If health workers at the facility level have WISN skills, how can you encourage them to reapply WISN when their workload changes significantly, and then share that information with appropriate managers?

For more guidance on the uses of WISN, see Chapter 4.
This section of the manual describes each step of the WISN method. It explains how to calculate the required number of staff based on their workload, and how to analyse and interpret the WISN results.

The steps of the WISN method are as follows:

- Step 1: Determine priority cadre(s) and health facility type(s)
- Step 2: Estimate available working time (AWT)
- Step 3: Determine workload components
- Step 4: Define activity standards
- Step 5: Establish standard workloads
- Step 6: Calculate allowance factors
- Step 7: Determine staff requirements based on WISN
- Step 8: Analyse and interpret WISN results.

To aid understanding of how the steps are conducted, each step includes examples for three different cadres, with explanations. Each example focuses on the same single staff category in a fictional province called Wisnela.

### 3.1 Step 1: Determine priority cadre(s) and health facility type(s)

The WISN method can be applied to all health worker cadres and all types of health facilities, but it is unlikely that you will have sufficient resources to do it all at one time. Thus, you will need to decide which staff categories working in which types of facilities will be the target of your WISN. It is generally better to start with the staff and facilities at the primary care level, because this is generally the most important point of service delivery. Also, primary care is less complex than the secondary and tertiary level of hospitals. You can expand the scope in subsequent WISN applications, once you and your team have gained experience with the method.
Use a systematic approach to setting your priorities. The first task is to list all health facility types and their work units (as appropriate) and the main staff categories working there.

Considering these questions will help in making your selection:

- Which staff category is in shortest supply in relation to the need for staff?
- In which type of health facility is the staffing shortage worst?
- For which cadres is staff distribution likely to be most inequitable?
- Where (i.e., in what types of facilities) is the distribution of main staff categories most imbalanced?
- Among the staffing problems identified:
  - Which have had the biggest effect on the quality of care?
  - Which are likely to affect the quality of care?
- Are any of the staff cadres or health facility types particularly important for planned future health programmes?

Assume that you settle on conducting WISN for three cadres based on the country’s needs. Below is an example of calculating staffing requirements for midwives using the WISN methodology. Chapter 5 provides additional examples for the pharmacist and the laboratory technologist.

**Example**

You are a provincial health manager in Wisnela. You and your team have considered the staffing problems in both your provincial hospital and the health centres of your province. You have shared your analysis with those responsible for making decisions about human resource planning and allocation in your provincial government. Together, you decide that the WISN study should cover midwives, laboratory assistants and pharmacists.

3.2 Step 2: Estimate Available Working Time

Health workers do not work every day throughout the whole year. They are entitled to annual leave, and they either do not work on official public holidays or work on those days and receive compensation in time off or extra pay. In addition, health workers get sick, are away from work for training or have other personal reasons for absence. Thus, you need to consider all the possible types of staff absences in your context. Where the absences take more than 60 days consecutively in a year (e.g. for long study leave, maternity leave or sick leave), the health worker can be omitted from the existing staff count but must be mentioned in the analysis. In some cases, committees build consensus on a case-by-case basis.

The next step in the WISN method is to calculate the available working time (AWT) of a cadre.
The AWT is the time a health worker has available in 1 year to do their work, taking into account contractually and legally authorized and unauthorized absences.

The AWT can be expressed in days per year, hours per year or minutes per year. You will learn to show it in all of these three ways, because all are needed for calculations in later WISN steps.

To estimate the AWT, first count the number of possible working days in a year. Do this by multiplying the number of weeks in 1 year (i.e., 52) by the number of days that a health worker in your priority staff category works in 1 week.

For example, doctors inwisnela Province have 4.5 working days in a week, because they work a full day from Monday to Thursday, but only half a day on Friday. Nurses work 5.5 days a week, while midwives work 5 days a week. Table 3.1 below shows how to calculate the possible annual working days for these three staff categories.

<table>
<thead>
<tr>
<th>Staff category</th>
<th>Weeks in 1 year</th>
<th>Working days in 1 week</th>
<th>Possible working days in 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>52</td>
<td>4.5</td>
<td>234 (52 × 4.5)</td>
</tr>
<tr>
<td>Nurses</td>
<td>52</td>
<td>5.5</td>
<td>286 (52 × 5.5)</td>
</tr>
<tr>
<td>Midwives</td>
<td>52</td>
<td>5</td>
<td>260 (52 × 5)</td>
</tr>
</tbody>
</table>

Next, calculate the number of days on which the health worker does not work in 1 year. Start by listing the reasons for absences (e.g., authorized absences such as annual leave and public holidays, sick leave and training). Next to each reason, write down the number of days that the health worker is away from work. See Table 3.2 for an example.
You are likely to have precise information for annual leave entitlements and public holidays. However, you may lack accurate data for other reasons for absence (e.g., sick days or days off for training). Where information is lacking, use the following process to estimate the number of days absent:

1. Obtain personnel administrative notes of the health facility or work unit that is the focus of your WISN application.

2. Count how many days the health workers in your target staff category were absent for the last year (if your WISN has a wide scope, collect this information from a representative set of such facilities or units).

3. Divide the total absence days by the number of health workers in the target cadre who work in the health facility or unit. This gives you the average number of absence days for the reasons for which you lack accurate data.

4. Add together the days for each reason for absence. To calculate the total AWT, deduct this sum from the possible annual working days that you calculated earlier. The following formula shows the calculation:

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

where:
- $AWT$ is the total available working time
- $A$ is the number of possible working days in a year
- $B$ is the number of days off for public holidays in a year
- $C$ is the number of days off for annual leave in a year
- $D$ is the number of days off due to sick leave in a year
- $E$ is the number of days off due to other leave (e.g. training) in a year.

### Table 3.2. Example of calculating days not worked in a year

<table>
<thead>
<tr>
<th>Reason for absence</th>
<th>Days absent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Doctor</td>
</tr>
<tr>
<td>Public holidays</td>
<td>12</td>
</tr>
<tr>
<td>Annual leave</td>
<td>21</td>
</tr>
<tr>
<td>Sick leave</td>
<td>10</td>
</tr>
<tr>
<td>Other leave (training, personal leave, etc.)</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total annual days absent</strong></td>
<td><strong>55</strong></td>
</tr>
</tbody>
</table>
Example

Midwives in the Wisnela health centres have a 5-day working week. Given that there are 52 weeks in a year, a midwife has 260 possible annual working days in 1 year (52 × 5). The country has 12 public holidays in a year. In addition, a health-centre midwife has a leave entitlement of 14 days in 1 year.

You analysed the data on midwives’ absences due to illness, personal reasons and training by looking at personnel administrative records from a representative sample of your health centres. This showed you that, last year, a midwife was away from work an average of 14 days for illness and 10 days for other reasons.

You add together all the days that a midwife was absent in a year and deduct the sum from the possible annual working days [260 – (12 + 14 + 14 + 10) = 210]. This shows you that the AWT of a midwife in a health centre is **210 days in a year**.

The formula above calculates the AWT in working days per year. You must now translate this figure to working hours per year. To do this, multiply the AWT in working days by the number of daily working hours. The mathematical formula for calculating this is below.

\[
AWT = [A - (B + C + D + E)] \times F
\]

where:
- \( F \) is the number of working hours in 1 day.

Some categories of staff may work different hours on different days of the week. For example, a midwife in a health centre might work for 7 hours from Monday to Thursday, but 8 hours on Friday, when mobile clinics take place. Also, if the daily working hours differ on different days of the week, you must calculate the average number of working hours per working day. Add together all the working hours of the health worker in 1 week and divide this total by the number of days worked in the week.

Example

In a week, a health-centre midwife in Wisnela works a total of 36 hours in 5 days. Therefore, she works an average of 7.2 hours each day (36 / 5). You earlier calculated that a midwife has 210 available working days in 1 year; thus, the midwife’s AWT in working hours per year is **1512** (7.2 × 210).

You may find that some health worker teams have different working schedules, even though they work in the same health facility. An administrative team in a provincial hospital, for example, may work 5 days a week, whereas doctors, nurses and other health professionals in that hospital may have a 6-day staffing pattern in order to provide 24-hour coverage. Base your calculation of the AWT in working hours on the actual scheduling pattern of the staff category for which you are developing the WISN.
You now know how much time a member of a staff category has available for their work in 1 year. Next, you must define the work activities that take up most of this health worker’s daily working time; these are the workload group components of this cadre, and there are three kinds of workload groups:

- **Health service activity**: refers to the core health service-related tasks performed by that cadre; it defines the cadre’s job. All members of that staff category can perform all those tasks, and service statistics are regularly collected on these activities.

- **Category support activity**: refers to those important tasks that support health service activities and are performed by all members of that staff category. However, unlike health service activities, regular statistics are not collected on these activities, although records on their frequencies are sometimes documented.

- **Individual additional activity**: refers to specific responsibilities and tasks assigned to only some members of that staff category. They are performed by only certain members of the staff category, and annual statistics are not regularly collected on these activities.

The workload components that you define should be the activities in a health worker’s daily schedule that are most important. Each component has its own, separate demand for time. For example, for a midwife, antenatal care and deliveries are two different workload components; each requires a certain portion of the midwife’s time because that person cannot provide antenatal care while attending to a delivery. Hence, each important workload component must be listed separately.

Workload components in the health service activities group can be disaggregated into smaller subcomponents. Disaggregating the workload components assists in the understanding of the data. For example, in developing WISN for hospital nurses, it is not possible to separate a workload component of inpatients into those of high, moderate and low nursing dependency if annual statistics report only the number of all inpatients combined.

**Example**

You and your colleagues define the most important workload components of a midwife working in a health centre in Wisnela, as listed in Table 3.3.

Adding workload components that take up only a little working time will make only a small difference to the final calculation of required staff. Although a detailed list of workload components improves the accuracy of the final WISN results, it also considerably increases the cost of developing the WISN. The added accuracy is rarely worth the increased cost in terms of time and effort.
In developing a WISN for the first time, you may find that your expert working group wants to include all possible workload components, even if they consume little of the working time. With more experience, expert groups are likely to be more willing to reduce the list. This is particularly the case when the groups see how little difference the smaller components make to the final calculations of required staff.

**Table 3.3. Example of defining workload components**

<table>
<thead>
<tr>
<th>Staff category: Midwife in a health centre in Wisnela Province</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workload group</strong></td>
</tr>
</tbody>
</table>
| Health service activities of all midwives | Antenatal care | • Welcoming and registering the patient  
• Taking patient history and vital signs  
• Physical examination  
• Blood tests (e.g., HIV, syphilis and haemoglobin)  
• Treatments – if needed  
• Preventive measures  
• Health education and counselling |
| | Postnatal care (including care of neonates) | |
| | Deliveries | |
| | Family planning | |
| Category Support activities of all midwives | Recording and reporting | |
| | Staff meetings | |
| | Home visiting | |
| Individual Additional activities of certain midwives | Supervision of midwifery students | |
| | Attending continuing education sessions | |
| | General administration | |
3.4 Step 4: Set activity standards

In the previous steps, you calculated how much time your selected or identified cadre has available for work in 1 year. You then defined the components of that work. This step involves determining how much working time each component takes if it is performed well; this is called “developing activity standards”. In this section of the manual, you learn how to develop activity standards for the three different groups of workload components.

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.

There are two types of activity standard: service standards and allowance standards. The two must be considered separately, because they will be used differently in calculating the final staff requirement based on WISN.

3.4.1 Service standards for health service activities

A service standard is an activity standard for health service activities.

Service standards are set for all health service activities of a health worker category. They can be expressed in one of two ways. The first is as unit time – this is the average time that a health worker needs to perform the activity. The second is the rate of working – this is the average number of activities completed within a defined time period. For example, service standards for antenatal care by a health centre midwife can be shown as “10 minutes per pregnant woman” (unit time) or as “18 pregnant women seen during a 3-hour antenatal clinic” (rate of working).

The unit time of a service standard is measured from the start of one activity to the start of the next similar activity. Thus, the unit time of a service standard for antenatal care by a midwife is calculated from the time the midwife starts providing antenatal care to one client until she starts providing the same service for the next client.

The time estimate must include the time needed to complete all the work related to the service activity as it is being delivered. If, for example, a health centre midwife must fill out a medical record form for each antenatal client or prepare equipment for the next client, the service standard must include the time taken by these actions.
Activity standards are based on the work being performed to professional standards in the local circumstances. They assume that a health worker is well-trained, skilled and motivated. The time that a health worker spends on a particular activity is thus related to the quality of the service provided. Health care can, of course, be provided more quickly if certain actions are performed hurriedly or left out, but such a service would not meet professional standards of quality.

The professional standards used in defining activity standards must be appropriate to the local situation. “Ideal” standards, adopted from elsewhere, will result in unrealistic activity standards. Even well-trained and motivated staff cannot be expected to achieve such standards in the local setting.

Example

You and your expert working group develop service standards for a midwife in a health centre in Wisnela Province. The service standards you set are shown in Table 3.4.

Table 3.4. Example of setting service standards

<table>
<thead>
<tr>
<th>Staff category: Midwife in a health centre in Wisnela Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health service activity</td>
</tr>
<tr>
<td>• Antenatal care</td>
</tr>
<tr>
<td>• Postnatal care (including care of neonates)</td>
</tr>
<tr>
<td>• Deliveries</td>
</tr>
<tr>
<td>• Family planning</td>
</tr>
</tbody>
</table>

3.4.2 Allowance standards for support activities and additional activities

An allowance standard is an activity standard for support and additional activities.

There are two types of allowance standards: category allowance standards (CAS) and individual allowance standards (IAS):

- CAS are determined for support activities that are performed by all members of a staff category (e.g. all health centre midwives in Wisnela spend time recording and reporting); and

---

2 Where workforce policies need to address various concerns (e.g., decreased working capacity of health workers), it may be necessary to make special adjustments in setting the standards, to respond appropriately to those concerns.
• IAS are set for additional activities that only certain cadre members perform (e.g., only one Wisnela health centre midwife spends time supervising midwifery students).

Allowance standards can be expressed either as actual working time or as a percentage of working time. For example, an allowance standard for “recording and reporting” can be shown either as “1 hour per working day” or as “14% of working time”. (Note: 1 hour is 14% of 7.2 hours, the average working day of a health centre midwife in Wisnela.)

**Calculating CAS:** You need to know how much time your health workers require for all support activities that are the responsibility of all cadre members. To calculate this, do the following:

1. List the workload components in the support activities group.
2. Write down the time each component takes.
3. Convert the actual time into a percentage of working time for each workload component.
4. Add all the percentages together to obtain the total CAS percentage. You will use this figure in a later step of the WISN method.

You can use Template 1 in Annex 4 to remind you how to convert actual working time to a percentage of working time for several different time units.

**Example**

Together with your expert working group, you calculate the total CAS for the health centre midwife cadre in Wisnela Province. You first convert all the CAS into percentages of working time, making sure to express all times in the same time units.

“Recording and reporting” is the first CAS that you change into a percentage. The conversion can be done in two ways; both give the same result. The first way is to calculate the CAS as a percentage of the total annual working time. For example, imagine that a health centre midwife spends 30 minutes (equal to half an hour) each day on recording and reporting, and works 210 days in a year. Thus, that midwife spends 105 hours in a year on recording and reporting (i.e., 0.5 × 210). The midwife’s AWT is 1512 working hours in a year. Therefore, the percentage of this midwife’s working time spent on recording and reporting is 6.9% \([(105 / 1512) \times 100]\).

The second way is to calculate the CAS as a percentage of the total daily working time. For example, imagine that a health centre midwife spends 30 minutes (i.e. half an hour) daily on recording and reporting. The earlier estimation of AWT showed that the midwife’s average working day is 7.2 hours. The percentage of working time on recording and reporting is again 6.9% \([(0.5 / 7.2) \times 100]\).

Finally, you add the percentages of time spent on all support activities and discover that, in total, they take up 16.8% of a midwife’s working time. Your calculation is recorded in Table 3.5.
Calculating IAS: Next, you calculate how much time the additional activities of certain staff members require by doing the following:

1. Write down the number of staff members who perform each activity and the time it takes them.

2. Multiply the number of staff members by the time the activity requires in 1 year. Do this for each workload component.

3. Add the results together to calculate the total IAS in a year – use the same time unit (e.g., hours per year) when doing the addition.

Example
You calculate the total individual allowance standard for a health centre midwife in Wisnela. First, you list the additional activities, the number of staff performing them and the time each activity requires. You then multiply the number of staff by the annual time requirement. After adding the results together, you discover that the total IAS is 198.4 hours; that is, almost 200 hours of working time are required for additional activities among certain members of the midwife cadre. Your calculation is shown in Table 3.6.
### Table 3.6. Example of setting IAS

<table>
<thead>
<tr>
<th>Workload group</th>
<th>Workload components</th>
<th>Number of staff performing the work</th>
<th>IAS (actual working time per person)</th>
<th>Annual IAS (for all staff performing activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional activities of certain midwives</td>
<td>Supervision of midwifery students</td>
<td>1</td>
<td>2 hours, 4 times a year</td>
<td>8 hours a year</td>
</tr>
<tr>
<td></td>
<td>Continuing education</td>
<td>2</td>
<td>6 days per year each</td>
<td>12 days a year, or 86.4 hours a year (2 × 6 × 7.2)</td>
</tr>
<tr>
<td></td>
<td>General administration</td>
<td>1</td>
<td>2 hours per week</td>
<td>104 hours a year (2 × 52)</td>
</tr>
<tr>
<td></td>
<td><strong>Total IAS in a year</strong></td>
<td></td>
<td></td>
<td><strong>198.4 hours</strong></td>
</tr>
</tbody>
</table>

IAS: individual allowance standards.

You will find that, in general, activities done by only certain staff members do not take up much of the cadre’s available annual working time. Thus, they usually make little difference to the final calculated staff requirement. Health workers engaged in developing WISN for their cadre are often reluctant to exclude such activities from WISN calculations, but may be more willing to do so later as they gain experience with WISN.

### 3.5 Step 5: Establish standard workloads

You have now determined how much time a well-trained and motivated health worker requires to perform their work to an acceptable professional standard in your country. This section explains how to set standard workloads on the basis of this information. A standard workload is established for each workload component in the health service activity group.

A standard workload is the amount of work within a health service workload component that one health worker can do in a year.
For calculating standard workloads, it is assumed that a health worker devotes their total annual working time to the workload component for which the standard workload is developed. Of course, this is not the case in real life. The workload of health workers comprises several activities. This is taken into account later in the way the final WISN-based staff requirement is calculated. The formula to calculate a standard workload depends on whether the service standard is expressed as unit time or as rate of working.

Use this formula when the service standard is shown as unit time:

$$\text{Standard workload} = \frac{\text{AWT in a year}}{\text{unit time}}.$$  

Use this formula when the service standard is expressed as rate of working:

$$\text{Standard workload} = \text{AWT in a year} \times \text{rate of working}.$$  

It is vital to double-check that the AWT, unit time and rate of working are expressed in the same time unit (e.g., hours or days). Do not, for instance, divide AWT in days by unit time in hours (if you do, your calculations will be wrong).

Example

You calculate standard workloads for all health service activities of a health centre midwife in Wisnela Province using the formula above. Table 3.7 shows your calculations.

<table>
<thead>
<tr>
<th>Health service activity</th>
<th>Unit time or rate of working</th>
<th>Standard workload</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Antenatal care</td>
<td>20 minutes per client (equivalent to 3 clients per hour, or $60/20$)</td>
<td>4536 clients ($1512 \times 3$)</td>
</tr>
<tr>
<td>• Postnatal care (including care of neonates)</td>
<td>6 clients in a 4-hour postnatal clinic (equivalent to 1.5 clients per hour, or $6/4$)</td>
<td>2268 clients ($1512 \times 1.5$)</td>
</tr>
<tr>
<td>• Deliveries</td>
<td>8 hours per client</td>
<td>189 clients ($1512 \div 8$)</td>
</tr>
<tr>
<td>• Family planning</td>
<td>30 minutes per client (equivalent to 2 clients per hour, or $60/30$)</td>
<td>3024 clients ($1512 \times 2$)</td>
</tr>
</tbody>
</table>

AWT: available working time.
In the case of postnatal care, you can convert the rate of working to a unit time by dividing 4 hours by six clients, to obtain a unit time of 0.67 hours per client. Calculating the standard workload using a unit time \([1512 / (4 / 6)]\) gives the same answer (2268) as calculating it using a rate of working \([1512 \times (6 / 4)]\).

### 3.6 Step 6: Calculate allowance factors

Once you have established standard workloads, you know how much work a health worker can do in a year within all health service activities. These are the workload components for which routine statistics are collected and made available annually. However, health workers are also required to undertake other important activities for which routine data are not collected (e.g., recording and reporting) – these are the support and additional activities of health workers. This section explains how to take account of the time that such activities take.

You previously set two types of allowance standards for the workload components for which annual statistics are not available: CAS were established for activities that are performed by all members of a cadre, and IAS were developed for those activities that are performed by only certain cadre members. To take account of these support and additional activities, you need to convert the allowance standards (Section 3.4.2) into allowance factors. You will use these factors in the next step of the WISN method to calculate the total required number of health workers.

An allowance factor is calculated separately for support and additional activities. The factor for the first set of activities is called a category allowance factor (CAF) and for the second an individual allowance factor (IAF). The two allowance factors are calculated differently, and are applied differently in the final calculation of the total required number of staff.

The CAF is a multiplier that is used to calculate the total number of health workers required for both health service and support activities.

The CAF is calculated using the following formula:

\[
CAF = 1 / [1 – (\text{total CAS} / 100)]
\]

Many individuals find this formula to be the most difficult part of the WISN method to understand. We will work through it step by step, using Table 3.8.
Table 3.8. Explaining the CAF calculation

<table>
<thead>
<tr>
<th>Step</th>
<th>Calculation</th>
<th>Example</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. (Preparatory step)</td>
<td>Ensure that you have converted all CAS to a percentage of working time</td>
<td>–</td>
<td>You completed steps A and B in Section 3.4.2. See Table 3.6</td>
</tr>
<tr>
<td>B. (Preparatory step)</td>
<td>Add together all CAS percentages to calculate total CAS</td>
<td>$6.9 + 1.6 + 8.3 = 16.8%$</td>
<td>This is the total percentage of each health worker’s time taken up with support activities</td>
</tr>
<tr>
<td>C.</td>
<td>Total CAS / 100</td>
<td>Divide the total CAS by 100</td>
<td>$16.8 / 100 = 0.168$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This is the portion of one full-time health worker’s time taken up by support activities</td>
</tr>
<tr>
<td>D.</td>
<td>$[1 - \text{(total CAS / 100)}]$</td>
<td>Take the answer from Step C and subtract it from 1</td>
<td>$1 - 0.168 = 0.832$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This is the portion of one full-time health worker’s time available for other activities</td>
</tr>
<tr>
<td>E.</td>
<td>$\frac{1}{[1 - \text{(total CAS / 100)}]}$</td>
<td>Divide 1 by the answer from Step D</td>
<td>$\frac{1}{0.832} = 1.2$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This provides the CAF</td>
</tr>
</tbody>
</table>

CAF: category allowance factor; CAS: category allowance standards.

To understand the calculation above, remember that both current and future health workers are responsible for both health service activities and support activities. The CAF that you calculated above tells you that, for every full-time midwife needed to cover the health service activities, you in fact need 1.2 midwives so that you can cover both service and support activities.

The IAF is the staff requirement to cover additional activities of certain cadre members.

The IAF shows how many full-time equivalent staff members (or what proportion of such staff members’ time) are needed to cover the time required for the additional activities performed by certain members of the cadre. The IAF is not a multiplier; rather, it is added to the total required number of staff members in the final WISN step.

To calculate the IAF, divide the annual total IAS by the AWT. Be careful to use the same time units for both.
The WISN method

Example
You want to calculate the IAF for a health centre midwife in Wisnela. To do so, you need your earlier calculations of the AWT and the midwives’ annual IAS. The AWT is 1512 hours and the annual IAS is 198.4 hours (see Table 3.7).

To calculate the IAF, you divide the total IAS by the AWT (198.4 / 1512). The answer, 0.13, means that you need 0.13 of a full-time midwife to cover the additional activities of certain cadre members.

An IAF of 0.13 is not large. It will not make a significant difference to the final total number of required midwives. A large IAF would increase the staff requirement, but its impact would still be less than if all health workers performed the activity, rather than only some of them performing it.

Table 3.9 illustrates how the concepts discussed thus far in this manual relate to one other. You may find it helpful to review this table before going on to determine the required number of staff based on WISN in the next step of the method.

Table 3.9. How WISN elements interrelate

<table>
<thead>
<tr>
<th>Workload group</th>
<th>Workload components</th>
<th>Activity standard</th>
<th>Essential for calculating staff requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health service activities</td>
<td>1. 2. 3.</td>
<td>Service standard</td>
<td>Standard workload</td>
</tr>
<tr>
<td>Support activities</td>
<td>1. 2. 3.</td>
<td>CAS</td>
<td>CAF</td>
</tr>
<tr>
<td>Additional activities</td>
<td>1. 2. 3.</td>
<td>IAS</td>
<td>IAF</td>
</tr>
</tbody>
</table>

CAF: category allowance factor; CAS: category allowance standards; IAF: individual allowance factor; IAS: individual allowance standards; WISN: workload indicators of staffing need.

3.7 Step 7: Determine staff requirements based on WISN

You are now ready to determine how many health workers you require to cope with all the workload components in your WISN. To do this, you need the annual service statistics for the previous year for every facility for which you want to calculate the staff requirement. You need these data for each health service activity for which you calculated a standard workload in Section 3.5.
You must calculate the total required number of staff separately for the three different workload groups. The calculations are done in the following manner:

- **Health service activities**: Divide a health facility’s annual workload for each workload component (from annual service statistics) by its respective standard workload. This gives you the number of health workers that you require for the activity in this health facility. Add the requirements of all workload components together to obtain the total staff requirement for all health service activities.

- **Category – Support activities done by all members of the staff category**: Multiply the answer obtained above (the staff requirement of health service activities) by the CAF to obtain the number of health workers you require for all health service activities and support activities.

- **Individual – Additional activities of certain cadre members**: Add the IAF to the staff requirement calculated above.

Figure 2 summarises the main data components of the WISN methodology.

**Figure 2**

**Data components of the WISN Methodology**

The WISN methodology is based on the health worker’s workload, with activity (time) standards applied for each workload component and the health worker’s available time. The formula for staffing requirement is:

Staff required based on WISN = \((A \times B) + C\)
Congratulations! You have now calculated the final total staff requirement, based on WISN, for the health facility in question, to cope with all the workload components of the cadre.

**Example**

You want to calculate how many midwives are required by health centre A in Wisnela Province to cope with the workload. By looking at the service statistics from last year, you find that midwives in this health centre cared for 1124 antenatal and 812 postnatal clients. They conducted 267 deliveries and saw 2254 family planning clients. You previously calculated that the standard workload of a midwife for antenatal care is 4536 clients, for postnatal care 2268, for deliveries 189 and for family planning 3024 (see Table 3.10).

You calculate that the health centre needs 0.25 midwives to cope with the antenatal care load (1124/4536), 0.36 midwives for postnatal care (812/2268), 1.41 midwives for the delivery workload (267 / 189) and 0.75 midwives for family planning (2254 / 3024). Thus, this health centre requires a total of 2.77 midwives to cope with all health service activities (0.25 + 0.36 + 0.75 + 1.41).

Next, you calculate how many midwives the health centre requires to cope with both the health service activities and the support activities of all midwives. You know that the health centre requires 2.77 midwives for the health service activities and you previously calculated that the CAF for the midwives is 1.2. Thus, you need 3.32 midwives to cover both workload groups (2.77 × 1.2).

Certain midwives in the health centre have additional activities in their workload, and the health centre must be able to cover the staff time spent on these activities. You calculated earlier that the IAF is 0.13. Therefore, this health centre requires 3.45 midwives to cope with all three workload components (3.32 + 0.13). Table 3.10 shows your calculations.
### Table 3.10. Example of determining staff requirements, based on WISN

#### Staff category: Midwife in a health centre in Wisnela Province

<table>
<thead>
<tr>
<th>Health service activities of all cadre members</th>
<th>AWT: 1512 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workload component</strong></td>
<td><strong>Annual workload</strong></td>
</tr>
<tr>
<td>Antenatal care</td>
<td>1124</td>
</tr>
<tr>
<td>Postnatal care</td>
<td>812</td>
</tr>
<tr>
<td>Deliveries</td>
<td>267</td>
</tr>
<tr>
<td>Family planning</td>
<td>2254</td>
</tr>
</tbody>
</table>

#### A. Total required staff for health service activities

<table>
<thead>
<tr>
<th>Support activities of all cadre members</th>
<th>Workload component</th>
<th>CAS (actual working time)</th>
<th>CAS % (percentage working time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording and reporting</td>
<td>30 minutes per day</td>
<td>6.9%</td>
<td></td>
</tr>
<tr>
<td>Meetings</td>
<td>2 hours per month</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>Home visiting</td>
<td>3 hours per week</td>
<td>8.3%</td>
<td></td>
</tr>
</tbody>
</table>

Total CAS percentage 16.8%

#### B. CAF: \( \{1 / [1 – (\text{total CAS percentage} / 100)]\} \)

1.2

#### Additional activities of certain cadre members

<table>
<thead>
<tr>
<th>Workload component</th>
<th>Number of staff members performing the work</th>
<th>IAS (actual working time per person)</th>
<th>Annual IAS (for all staff performing activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervision of midwifery students</td>
<td>1</td>
<td>2 hours, 4 times a year</td>
<td>8 hours</td>
</tr>
<tr>
<td>Continuing education</td>
<td>2</td>
<td>6 days per year each</td>
<td>86.4 hours</td>
</tr>
<tr>
<td>General administration</td>
<td>1</td>
<td>2 hours per week</td>
<td>104 hours</td>
</tr>
</tbody>
</table>

Total IAS in a year 198.4 hours

#### C. IAF (annual total IAS / AWT)

0.13

**Total required number of staff based on WISN: \((A \times B + C)\)**

3.45

---

AWT: available working time; CAF: category allowance factor; CAS: category allowance standards; IAF: individual allowance factor; IAS: individual allowance standards; WISN: workload indicators of staffing need.
**Fractional results:** The final total of required staff is often a fraction. You need to round this to a whole number. The impact of rounding a number up or down is much greater in a health facility with only a few workers in the WISN cadre than in a better staffed facility. Therefore, you should be more generous in rounding up a small calculated staff requirement (e.g., one or two) than a large one. Use the recommendation below as a guide to deciding whether you should round up or down.

- 1.0 – 1.1 is rounded down to 1 whereas >1.1 – 1.9 is rounded up to 2
- 2.0 – 2.2 is rounded down to 2 whereas >2.2 – 2.9 is rounded up to 3
- 3.0 – 3.3 is rounded down to 3 whereas >3.3 – 3.9 is rounded up to 4
- 4.0 – 4.4 is rounded down to 4 whereas >4.4 – 4.9 is rounded up to 5
- 5.0 – 5.5 is rounded down to 5 whereas >5.5 – 5.9 is rounded up to 6

Following this recommendation, you round the calculated requirement of midwives for health centre A up from 3.45 to 4. This health centre thus requires a total of four midwives to cover all health service, support and additional activities.

**3.8 Step 8: Analyse and interpret WISN results**

You have now finished determining how many health workers are needed, based on WISN, to cope with the total workload in your priority health facility or facilities. The next step is to analyse the results and consider their possible implications.

The WISN results are analysed in two ways. The first analysis looks at the difference between the current and required number of staff. The second analysis examines the ratio of these two numbers. The two analyses help you to examine different aspects of the staffing situation in your facilities.

- **Difference:** By comparing the difference between current and required staffing levels, you can identify those health facilities that are relatively understaffed or overstaffed.

- **Ratio:** By using the WISN ratio as a proxy measure, you can assess the work pressure that health workers experience in their daily work in a health facility.

To calculate the WISN ratio, divide the current number of staff by the required number. A WISN ratio of:

- 1 show that current staffing is in balance with the staffing demands of a health facility’s workload;

- >1 is evidence of overstaffing in relation to the workload; and

- <1 indicates that the current number of staff is insufficient to cope with the workload.
The smaller the WISN ratio, the greater the work pressure.

**Example**
You analyse the difference between the current and required number of midwives in four health centres in Wisnela Province. As shown in Table 3.11, you discover that staffing in health centre D is in balance with its workload, but health centre A needs two more midwives to cope with its work. Health centres B and C, in contrast, are relatively overstaffed: each has two midwives more than the calculated staff requirement.

Next, you calculate the WISN ratios for these health centres. A WISN ratio of 0.5 in health centre A tells you that the midwives are under considerable workload pressure. The WISN ratios of health centres B and C are 2.0 and 1.2, respectively, indicating that the midwives are not under workload pressure in these health centres. However, the pressure is considerably lighter in health centre B than in health centre C. The WISN ratio of 1.0 in health centre D is an indication that staffing and workload are in balance.

<table>
<thead>
<tr>
<th>Health centre</th>
<th>Current number</th>
<th>Required number, based on WISN</th>
<th>Shortage or excess</th>
<th>Workforce problem</th>
<th>WISN ratio</th>
<th>Workload pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>4</td>
<td>-2</td>
<td>Shortage</td>
<td>0.5</td>
<td>High</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>2</td>
<td>+2</td>
<td>Surplus</td>
<td>2.0</td>
<td>None</td>
</tr>
<tr>
<td>C</td>
<td>11</td>
<td>9</td>
<td>+2</td>
<td>Surplus</td>
<td>1.2</td>
<td>None</td>
</tr>
<tr>
<td>D</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>Balance</td>
<td>1.0</td>
<td>Normal</td>
</tr>
</tbody>
</table>

Considering only the numerical results of WISN can be misleading. You must examine both the differences and the WISN ratios, then use your own knowledge of the local situation to interpret what these numbers mean. Here are some questions to ask, as you and your colleagues examine the results:

- Do the results make sense in light of what we know about the staffing of these facilities?
- What might be causing any discrepancy between the WISN-based staffing requirements and our own understanding of the situation?
- Are the activity standards used in the WISN calculations reasonable?
- Do the activity standards need to be validated? If yes, by whom?
- Do the WISN calculations take into account all the important workload components?
- Are all the workload components appropriate for the cadre in question?
The WISN calculations can be refined if they appear to be untenable. Inaccurate activity standards are usually the most common reason for WISN results to be considered invalid. Two ways to increase the accuracy of activity standards are direct observation of work activities and a time-and-motion study. However, achieving higher accuracy always carries a certain cost, and it is important to consider whether the increased accuracy will be worth the added cost.

Analysing and interpreting WISN results is essential to ensure that they represent the staffing situation with an acceptable level of accuracy. Otherwise, the decisions made on the basis of the results may not be the right ones.

**Example**

You have just finished calculating the required number of midwives for all the health centres of Wisnela Province. Your WISN results indicate a serious shortage of midwives in 14 of the 20 health centres. Looking only at the numerical WISN results would lead you to decide that you need to increase the staff strength of midwives as fast as possible. You decide to examine the situation more closely before proposing an increase in midwifery staffing.

Your further analysis shows that many non-midwifery tasks (e.g. school health, TB and elderly care) are included in the workload components of midwives. Talking to the midwives reveals that they are being asked to take on more and more of these types of activities. These tasks are not in their job description, nor have the midwives been trained for them.

You repeat the WISN calculations, excluding the non-midwifery workload components. You discover that there would be enough midwives if they were allowed to perform only the midwifery-related components of their daily workload. You wonder whether the shift of other tasks to midwives is a result of work overload or understaffing among health centre nurses. You decide that you need to calculate WISN for nurses before making a decision about midwifery staffing.

In a situation like the one described in the example above, a decision to immediately increase the number of staff on the basis of the first WISN results would not be the correct one. A manager should first examine why the additional tasks have become the responsibility of the WISN cadre. Once the reasons are clear, the task allocation can either be left unchanged or the tasks transferred to a more appropriate category. If the additional tasks remain in the workload of the present cadre, the staff must be trained in the necessary competences and staff numbers adjusted appropriately. If, however, the tasks are transferred to another staff category, it would be advisable to calculate the WISN for the new cadre. These WISN calculations should include the additional workload imposed by the transferred activities.
The WISN results can improve many types of decisions regarding the health workforce and their work environment. Such decisions include the best ways to address current staffing challenges and how to staff future health services. WISN results complement the understanding and the analysis of the health labour market better. However, the whole WISN effort is wasted if the results are not used to improve human resource management. This section provides some examples of how WISN results can be used to make better decisions about staffing.

4.1 Improving distribution of current staff and reducing workload pressure

The WISN results can be compared between similar types of health facilities (e.g., health centres), different types of health facilities in the same administrative area (e.g., health posts, health centres and hospitals in one district) or within units of a large health facility (if the cadre in question is large). An analysis of this type helps you to determine:

- which health facilities have a shortage of staff in relation to the workload;
- how big the staffing shortage is;
- which staff categories in which facilities are under workload pressure, and how much workload pressure these staff members are under;
- which health facilities have more staff than their workload requires, and how many extra staff these facilities have;
- what staff transfers would result in a more equitable distribution of staff in all health facilities;
- how many extra staff would be required to increase the total staffing of all facilities to the level that corresponds to acceptable professional standards; and
- to which facilities new staff should be posted to achieve maximum impact on the quality of health services.
There are various ways to improve an unbalanced staffing situation. For example, you can post new staff to understaffed health facilities, or transfer existing staff from better staffed facilities to those that are less staffed.

Allocating new staff to health facilities with a staff shortage has the advantage of not disrupting the life and work of health workers in the facilities with a staff surplus. In many countries, however, there is little scope to hire and post new staff because of stagnant or even diminished salary budgets and staff establishments. In such situations, allocating new staff to address severe staff shortages is not an option.

Transferring current staff from an overstaffed health facility can provide rapid relief to an understaffed facility, but may not be easy to achieve. Provisions in employment contracts, difficulties in finding appropriate housing for transferred staff, reluctance of staff to move and other similar factors may be considerable barriers to staff transfers.

Where transferring staff is difficult and the staffing gaps are not critical, surplus staff can be used to improve services in a health facility. Start by evaluating the scope and quality of health services in the better staffed health facilities. Then, examine the potential for using those surplus staff to increase service quality. Consider whether the extra staff should be used to expand existing services or to start new services.

**Example**

You compared both the differences between current and required staffing and the WISN ratios for four health centres in Wisnela Province. The WISN results, shown in Table 3.1 above, indicated that health centre A is short of two midwives, whereas health centres B and C each have two extra midwives. You want to find the best way to improve staffing equity between these health centres.

Your first option is to post two new midwives to health centre A, while maintaining current staffing levels in health centres B and C. This option involves increasing your current civil service staff establishment. Imagine that you are not able to request such an increase, because the government imposed a staff ceiling for hiring in this budget year and your staffing is already at the limit.

Your second option is to transfer two midwives to health centre A from either health centre B or C. You decide to explore this option. You must first decide which of the two relatively overstaffed health centres should lose the midwives. The WISN ratios show that, even though health centre C has the larger number of midwives, they are under more workload pressure than the midwives in health centre B. A transfer of two midwives from health centre B to health centre A would bring the staffing in both centres (A and B) into balance with the workload. In contrast, a transfer of two midwives from health centre C to health centre A would create a balance in staffing in health centres A and C, but staff in health centre C would now be working under even higher workload pressure than before compared with health centre B.
You decide to try to transfer two midwives from health centre B to health centre A. You discuss this with the managers and staff at health centre B, and one of the four midwives agrees to move. You consult the appropriate authorities and receive their consent to the transfer. This helps you to alleviate the staffing shortage in health centre A for now. In the next fiscal year, you hope to be able to create the other midwifery post that health centre A requires.

Using WISN results in this way demonstrates how concrete evidence can be used to inform decisions and improve health workforce planning. The numbers and types of health workers required per health facility can also improve cycles of organization, planning and budgeting. Health facilities can estimate the costs of additional health workers for the next year and can budget accordingly.

4.2 Reviewing and aligning task allocation between cadres

The WISN results can help you to examine the implications of staff shortages for the current allocation of tasks between similar cadres. For example, most countries have several different nursing categories, such as registered nurses and auxiliary nurses. These cadres work in the same facilities and have somewhat overlapping roles. Thus, if registered nurses are in short supply but there is a surplus of auxiliary nurses, it is reasonable to conclude that auxiliary nurses could perform some tasks of registered nurses.

Where possible, in a cadre with a shortage of staff you can increase the number of staff so that they have sufficient time to perform all their tasks. However, such a staff increase may not be possible. An alternative is to shift certain tasks to a less highly trained health worker, but this may lower the quality of services being provided unless that issue is appropriately addressed. If the staff members with less training are likely to continue performing the tasks in the future, you must ensure that they receive the appropriate training for these tasks. To do this, you need to work together with those in charge of decisions regarding pre-service training and continuing education. In this way you could perhaps review training curricula to ensure that the training provided would appropriately address population health needs.

Another use of WISN results is to help in identifying which cadres have overlapping roles. Using the workload components, you can review the range of functions of each cadre to revise the job descriptions and scopes of work of the cadres involved. You can also identify those tasks currently undertaken by a cadre on an ongoing basis, even though the tasks are not part of their current role.

Types of decisions that can be made using WISN results include the following:

- Should tasks be transferred between existing staff categories?
- What would be the staffing consequences of creating a new staff category to undertake specific tasks that are currently part of existing staff categories?
Using WISN results

You can use the WISN ratio to examine the implications of staff numbers for quality of care. Health facilities with a low WISN ratio may be forced to “cut corners” to cope with the workload; this often reduces the quality of health services provided. In turn, health workers in a facility with a high WISN ratio should have adequate time to provide good quality services. If this is not the case, you should explore the reasons for poor performance and use the adequate staffing to improve service quality.

You can use WISN results to review the types of service packages being provided at each level of care. When you realize that health facilities categorized as similar are offering different services or are not offering some of the services prescribed for that level of care in the health service package, this information can be used to reclassify health facilities into appropriate levels and the services offered.

WISN results can help you to examine the influence of other factors of the health systems that have an effect on health services, such as lack of appropriate equipment, medicines and commodities. For example, if medicines are out of stock in a facility for 2 months, there will be an effect on the workload of the pharmacy staff during that period.

Improving the quality of current health services

4.3 Improving the quality of current health services

You can use the WISN ratio to examine the implications of staff numbers for quality of care. Health facilities with a low WISN ratio may be forced to “cut corners” to cope with the workload; this often reduces the quality of health services provided. In turn, health workers in a facility with a high WISN ratio should have adequate time to provide good quality services. If this is not the case, you should explore the reasons for poor performance and use the adequate staffing to improve service quality.

You can use WISN results to review the types of service packages being provided at each level of care. When you realize that health facilities categorized as similar are offering different services or are not offering some of the services prescribed for that level of care in the health service package, this information can be used to reclassify health facilities into appropriate levels and the services offered.

WISN results can help you to examine the influence of other factors of the health systems that have an effect on health services, such as lack of appropriate equipment, medicines and commodities. For example, if medicines are out of stock in a facility for 2 months, there will be an effect on the workload of the pharmacy staff during that period.

Planning future staffing of health services

4.4 Planning future staffing of health services

In general, the first use of the WISN method is for review of current staffing levels. Once the method has been established, WISN can be used to plan future staffing of health services. You can examine staffing requirements to:

- plan for future health services, by using anticipated workloads of future services in the WISN calculations;
• improve professional standards, by using new, relevant activity standards;
• change conditions of employment, by using the AWT that corresponds to changes in working hours, vacation time and so on;
• change medical practice, by using unit times or rates of working that correspond to the new medical practices or the use of new medical equipment;
• establish staffing norms, by using a flexible classification system for health facilities based on use and determining a range of staffing norms for each of the workload categories, and thus establish acceptable staffing norms for the various categories of health facilities;
• plan for restructuring efforts, by providing guidance in allocating positions based on workload to health facilities; and
• enable analysis in determining staffing forecasts, by providing a baseline for health workforce requirements that considers factors such as population health needs, workload, and current and required staffing.

4.5 Improving health service data collection

WISN results can be useful in revising the health service data collection tools in health facilities. The service statistics used in the WISN study are useful in guiding the standardization of data collection tools and their corresponding elements. Standardized data collection in the country makes it easier to analyse and compare across the services, facilities and administrative levels. This information is equally useful for programming of health services and planning for future HRH needs. Questions to ask are:

• Does the current data collection tool capture all the activities of the health workers?
• Are the health workers using the data collections tools correctly?
• Are the forms standardized for the level of care?
• Are the data collection tools user friendly?
Health workers who are on-call are available for service during official off-duty hours at nights and weekends. However, they work during these hours only when there is a demand for their services. This type of working arrangement does not fit into the way AWT in a year is normally calculated. The way in which WISN calculations take into account on-call time depends instead on the method of compensating the staff for on-call duty. Two main methods are in use: time off in lieu of the on-call hours and extra payment.

In some countries, health workers are compensated by giving them a proportion of the on-call time as time off in lieu. Thus, a night or a week spent on-call might be followed by a day or a week off. For WISN purposes, the time off in lieu is counted as ordinary working time, and the actual duration of the on-call time is ignored. A health facility with this kind of on-call arrangement has two components in its calculation of required number of staff:

- staff required to cope with the normal workload – this is calculated using the normal WISN method and based on service statistics; and
- staff equivalent of the time off in lieu.

**Example**

Midwives staff a large health centre in Wisnella during the daytime working hours, 7 days a week. One midwife is on call every night of the year and receives the following day off in lieu of the hours worked.

The available working time of a midwife in a year is 210 days. To cover the on-call duty during all 365 days in a year, the health centre needs 1.74 midwives (365 / 210). The total
If health workers are compensated for their on-call time by paying them extra, the on-call time is not counted in the WISN calculations because the staff members are considered to provide the extra on-call duty time out of their own free time. However, if the staff receive both extra payments and time off in lieu, only the time off is included in the WISN calculations.

The staff may be available within the health facility itself during on-call hours. Alternatively, they may be on-call from their own homes, coming in to the health facility only if needed. The accommodation arrangements for on-call staff are irrelevant to the WISN calculation.

**How do I calculate staffing requirements for posts that must be staffed according to fixed hours?**

For some categories of staff, the workload of the post does not determine the staffing requirement. Rather, these posts are staffed according to a specified, fixed time pattern during the year, regardless of the workload. The staffing requirement of these posts is determined using the previously calculated AWT in a year.

The calculations below are an example of how to estimate staffing requirements to meet different fixed hour demands. In this example, the normal working hours in health facilities are from 8:30 to 16:30 (i.e., 8 hours in a day). Staff in Category A work 7.2 hours a day. Their annual AWT is 1512 hours.

**The post is staffed during normal working hours throughout the year, but not on weekends and public holidays:** These types of posts are found in day clinics or district and provincial health offices, for example. There are 261 weekdays and 10 public holidays in a year; thus, the post must be staffed on 251 days in a year (i.e. 261 – 10). Since the health facility is open for 8 hours a day, the post must be covered for 2008 hours a year (8 × 251). This type of post requires 1.33 staff of Category A (2008 / 1512). In other words, having the appropriate health worker in this post during normal working hours and working days throughout the year requires one full-time member of Category A, plus an additional 0.33 staff or 33% of a similar staff member’s time.

**The post is staffed 8 hours a day, 7 days a week throughout the year:** Posts of maintenance workers in major hospitals, for example, must be covered every day during normal working hours. Such a post needs to be staffed 2912 hours in a year (8 × 7 × 52). This post would require 1.93 staff of Category A (2912 / 1512). Expressing it another way, almost two full-time members of Category A are needed to have one staff member in post on day shifts throughout the year.

**The post is staffed from 8:00 to 22:00 on 6 days a week and from 8:00 to 18:00 on Sundays:** Such working hours might be found in a hospital pharmacy, for example. This post...
must be covered 4888 hours in a year (14 × 6 × 52 + 10 × 52). It requires 3.23 staff in Category A (4888 / 1512). Thus, this post would require three full-time staff in Category A, working in shifts, plus an additional 23% of a fourth health worker’s time.

The post is staffed continuously throughout the year; these posts are frequently found in hospitals—those of ward nurses, for example. A continuously staffed post must be covered 24 hours a day, 7 days a week the whole year through. This means having it filled 8736 hours in a year (24 × 7 × 52). Because one member of Category A is available for 1512 hours in a year, this post requires 5.78 staff (8736 / 1512). In other words, six full-time staff, working in shifts, must be employed. This covers the continuous shiftwork, weekends and public holidays, as well as vacation, training and absence time of all involved staff.

### 5.3 How do I set activity standards for cadres when service statistics do not cover any of their workload components?

You cannot set activity standards if service statistics are not collected on any workload components of a particular staff category. Instead, you must define a different staffing standard, which must be one of the following:

- ratio of the staff in question to other staff (e.g., one nurse supervisor for 30 hospital nurses);
- fixed number per health facility (e.g., three watchpersons per health centre);
- fixed number per item of equipment (e.g., two radiographers per one X-ray machine, where no statistics on X-rays are collected);
- fixed number per administrative unit (e.g., one district medical officer per district); and
- staffing according to organizational structure, which specifies the senior posts (e.g., director general and deputy directors), with workloads used only for junior staff (e.g., clerical workers).

In these cases, no separate allowances (e.g., for administration or supervision) are made because the allowances are already included in the above standards.

### 5.4 How does the WISN method differ from using dependency levels to calculate hospital nursing requirements?

The WISN method is based on a principle that is similar to calculations that use dependency levels, but the WISN method targets a more “macro” level than the dependency method. WISN determines how many health workers in a particular cadre are needed to cope with the workload of a particular health facility. In contrast, the dependency method is intended to produce more detailed results at the “micro” level; for example, calculating how many nurses are needed to staff a specific hospital ward tomorrow.
In the dependency method, the inpatients are divided into a number of nursing dependency levels, then nursing time required by patients at each dependency level is specified. The requirement calculations are more detailed and sophisticated than in the WISN method, requiring detailed statistics of the number of inpatients at each dependency level. Such statistics are often available to nursing administrators in hospitals, but are only rarely collected as part of annual statistics. The WISN calculations can be refined to take account of inpatients at different dependency levels, if such statistics are routinely available.

The WISN and dependency methodologies are not contradictory, but complementary. The work-study observations, which usually form the basis of the dependency method, can be useful for setting activity standards in the WISN method.


4 Workload indicators of staffing need (WISN): selected country implementation experiences. Human Resources for Health Observer Series No. 15 https://www.who.int/publications/i/item/9789241510059
This annex provides examples of terms of reference for the three types of committees involved in workload indicators of staffing need (WISN). If necessary, the chair of the steering committee can expand the roles of the various committees.

Steering committee
The steering committee should comprise the top management of the ministry of health; it should also include regional representation if health systems functions are highly decentralized. The roles of the steering committee are to:

- provide policy direction on WISN implementation in the country;
- mobilize resources for implementing WISN;
- approve the WISN implementation plan, strategy or roadmap;
- use the results for decision-making and setting policy direction; and
- monitor and oversee the WISN implementation process while giving guidance to the technical task force.

Technical task force for WISN implementation
The roles of the technical task force are to:

- be responsible for WISN implementation in the country;
- train and provide technical support to the expert working groups;
- participate in the collection, verification and collation of annual statistics;
- integrate WISN into human resources for health (HRH) management practices; and
- maintain close communication with other relevant ministries (e.g., ministry of finance and public service authorities) to ensure that those ministries are updated regularly and understand the process.

Expert working group for setting WISN standards for health facilities
The roles of the expert working group are to:

- be trained to define workload components, sub activities and activity standards for the respective cadres under study; and
- in some cases, participate in the data collection process.

NOTE: Committee roles can be expanded as deemed fit by the chairperson of the Steering Committee
Annex 2

Example of a WISN for a laboratory technologist

This annex explains the process of developing a workload indicators of staffing need (WISN) for a laboratory technologist.

A2.1 Estimating available working time

The first step is to calculate the technologist’s possible working days for 1 year, as shown in Table A2.1.

Table A2.1. Example of calculating possible annual working days

<table>
<thead>
<tr>
<th>Administrative area: Wisnela Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff category</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Laboratory technologists</td>
</tr>
</tbody>
</table>

The next step is to calculate the number of days the laboratory assistant does not work in a year for various reasons. Leave includes public holidays, annual leave, sick leave, training and other leave with no notice. Next to each reason, write down the number of days that the health worker is away from work, using Table A2.2 as an example.

Table A2.2. Example of calculating days not worked in a year

<table>
<thead>
<tr>
<th>Reason for absence</th>
<th>Days absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Possible working days in a year</td>
<td>260</td>
</tr>
<tr>
<td>B Public holidays</td>
<td>10</td>
</tr>
<tr>
<td>C Annual leave</td>
<td>21</td>
</tr>
<tr>
<td>D Sick leave</td>
<td>3</td>
</tr>
<tr>
<td>E Other leave (training, personal leave, etc.)</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total non-working days</strong></td>
<td><strong>39</strong></td>
</tr>
</tbody>
</table>
Table A2.3. Example of calculating Available Working Time (AWT)

\[
\text{AWT} = [260 - (10 + 21 + 3 + 5)] \times 8 \\
= 1768 \text{ hours}
\]

Some categories of staff may work different hours on different days of the week. For example, a midwife in a health centre might work 7 hours/day from Monday to Thursday, but 8 hours on Friday, when mobile clinics take place. If the daily working hours are not the same for each day of the week, you must calculate the average number of working hours per working day. To do this, add together all the working hours of the health worker in 1 week and divide this total by the number of days worked in the week.

Make sure that you base your calculation of the AWT in working hours on the actual scheduling pattern of the staff category for which you are developing the WISN.

A2.2 Workload components
The second part of the WISN is to determine the workload components for the laboratory technologist, as shown in the example in Table A2.4.
<table>
<thead>
<tr>
<th>Workload group</th>
<th>Workload component</th>
<th>Subcomponents</th>
</tr>
</thead>
</table>
| Health service activities      | Malaria smear test | • Receive patient  
• Review the doctor’s order  
• Explain procedure to the patient  
• Collect sample from the patient and label it  
• Counsel patient  
• Document the results |
|                                | Sputum AFB         | • Receive patient  
• Review the doctor’s order  
• Explain procedure to the patient  
• Collect sample from the patient and label it  
• Counsel patient  
• Document the results |
|                                | hCG test           | • Receive patient  
• Review the doctor’s order  
• Explain procedure to the patient  
• Collect sample from the patient and label it  
• Counsel patient  
• Document the results |
| Category support activities    | Departmental meeting |                                                                                   |
| (all laboratory technologists) | Preparation of reagents and culture media |                                                                                   |
|                                | CPD/CME            |                                                                                   |
| Individual additional activities | External meetings for laboratory supervisors at the province |                                                                                   |
| (some laboratory technologists)| Procurement Bid and Awards Committee membership |                                                                                   |
|                                | Ordering of supplies (reagents) |                                                                                   |

AFB: acid-fast bacilli; CME: continuing medical education; CPD: continuing professional development; hCG: human chorionic gonadotropin.
A2.3 Setting activity standards
The first steps involved calculating how much time the WISN cadre has available for work in 1 year and defining the components of that work. The next steps are to determine how much working time each component takes if it is performed well (i.e., setting activity standards) and to set allowance standards for support activities and other activities.

A2.3.1 Service standards for health service activities
This example illustrates the development of activity standards for the three different health service activities shown in Table A2.4. In each case, you must determine how much working time the component takes if it is performed well.

<table>
<thead>
<tr>
<th>Health service activity</th>
<th>Unit time or rate of working</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria smear test</td>
<td>15 minutes per sample</td>
</tr>
<tr>
<td>Sputum AFB</td>
<td>35 minutes per sample</td>
</tr>
<tr>
<td>hCG test</td>
<td>8 minutes per sample</td>
</tr>
</tbody>
</table>

AFB: acid-fast bacilli; CME: continuing medical education; CPD: continuing professional development; hCG: human chorionic gonadotropin.

A2.3.2 Allowance standards for support activities and additional activities
There are two types of allowance standards: category allowance standards (CAS) and individual allowance standards (IAS). Allowance standards can be expressed either as actual working time or as a percentage of working time.

Category allowance standards (CAS)
For example, an allowance standard for “department meetings” can be shown either as “1 hour per month” or as “0.68% of working time” (i.e., 1 hour equals 0.68% of 12 months, the average 160 hours worked per month by a laboratory technologist in the health centre in Wisnela).

If expressing CAS as a percentage of the total daily working time, imagine that a health centre laboratory technologist spends 30 minutes (or half an hour) daily on preparing reagents and culture media. The earlier estimation of AWT showed that the person’s average working day is 8 hours. The percentage of working time on recording and reporting is 6.25% \( [0.5 / 8] \times 100 \).

You add together the percentages of time spent on all support activities, and discover that together they take up 9.43% of a laboratory technologist’s working time. Your calculation is recorded in Table A2.6.
### Table A2.6. Example of setting CAS

<table>
<thead>
<tr>
<th>Staff category: Laboratory technologist in a health centre in Wisnela Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average available working hours in a day = 8 hours</td>
</tr>
<tr>
<td>Available working days in a week = 5 days</td>
</tr>
<tr>
<td>Available working hours in a week = 40 hours</td>
</tr>
<tr>
<td>Available working days in a year = 221 days</td>
</tr>
<tr>
<td>Available working hours in a year = 1768 hours</td>
</tr>
<tr>
<td>Available working minutes in a year = 106 080 minutes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workload group</th>
<th>Workload components</th>
<th>CAS (actual working time)</th>
<th>CAS % (percentage working time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support activities of all cadre members</td>
<td>Departmental meeting</td>
<td>1 hour per month</td>
<td>0.68% = ([(1 \times 12) / 1768]) × 100</td>
</tr>
<tr>
<td></td>
<td>Preparation of reagents and culture medias</td>
<td>30 minutes per day</td>
<td>6.25% = ([(30 / 60) / 8]) × 100</td>
</tr>
<tr>
<td></td>
<td>Continuing professional development</td>
<td>1 hour per week</td>
<td>2.5 % = ((1 / 40)) × 100</td>
</tr>
</tbody>
</table>

| Total CAS % | 9.43% |

CAS: category allowance standards.

**Individual allowance standards (IAS):**

Next, you calculate how much time the additional activities of certain staff members require:

1. Write down the number of staff members who perform each activity and the time it takes them.
2. Multiply the number of staff members by the time the activity requires in 1 year. Do this for each workload component.
3. Add the results together to calculate the total IAS in a year, ensuring that you use the same time unit (e.g., hours per year) when doing the addition.
### A2.4 Establishing standard workloads

You have now determined how much time a well-trained and motivated health worker requires to perform their work to an acceptable professional standard in your country. Next, you need to set standard workloads on the basis of this information, establishing a standard workload for each workload component in the health service activity group.

You assume that a health worker devotes their total annual working time to the workload component for which the standard workload is developed (the fact is that the actual workload of health workers comprises several activities is taken into account later).

The formula to calculate a standard workload depends on whether the service standard is expressed as unit time or as rate of working:

\[
\text{Standard workload} = \frac{\text{AWT in a year}}{\text{unit time}}.
\]

\[
\text{Standard workload} = \text{AWT in a year} \times \text{rate of working}.
\]

It is very important to double-check that the AWT, unit time and rate of working are expressed in the same time unit (e.g. hours, days, etc.). Do not, for instance, divide available working time in days by unit time in hours. Now calculate standard workloads for all the health service activities of the laboratory technologist; the calculation is shown in Table A2.8.
2.4.1 Calculating allowance factors

Having established standard workloads, you know how much work a health worker can do in a year within all health service activities. These are the workload components for which routine statistics are collected and available annually. The next step is to take into account time spent on other important activities for which routine data are not collected (e.g. recording and reporting).

You previously set two types of allowance standards for the workload components for which annual statistics are not available: Category Allowance Standards (CAS) were established for activities that are performed by all members of a cadre. Individual allowance standards (IAS) were developed for those activities that are performed by only certain cadre members. You now need to convert these allowance standards into the relevant allowance factors: CAF for CAS and IAF for IAS. The two allowance factors are calculated differently. They are also applied differently in the final calculation of the total required number of staff.

Table A2.9 goes through this calculation step by step.
To understand the calculation above, remember that both current and future health workers are responsible for both health service activities and support activities. Based on the calculated CAF, for every full-time laboratory technologist needed to cover the health service activities only, you actually need 1.1 laboratory technologists to cover both service and support activities.

The IAF shows how many full-time equivalent staff members (or what proportion of such a staff member’s time) are needed to cover the time commitment of certain cadre members to additional activities. The IAF is not a multiplier. Instead, it is added to the total required number of staff members in the final WISN step.

To calculate the IAF, divide the annual total IAS by the AWT, using the same time units for both. Example: To calculate the IAF for the laboratory technologist in Wisnela, use the answer from the earlier calculations of the AWT (1768 hours) and the laboratory technologist’s IAS (Table A2.7).

To calculate the IAF, divide the total IAS by the AWT (124/1768); this gives 0.07, which means that you need 0.07 of a full-time laboratory technologist to cover additional activities of certain cadre members.

The grid below shows you how the concepts discussed thus far in this manual relate to each other. You may find it helpful to review this grid before you go on to determine the required number of staff based on WISN in the next step of the WISN method.

<table>
<thead>
<tr>
<th>Step</th>
<th>Calculation</th>
<th>Example</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. (Preparatory step)</td>
<td>Ensure that you have converted all CAS to a percentage of working time</td>
<td>–</td>
<td>You completed steps A and B in Section 3.4.2 see Table 3.5</td>
</tr>
<tr>
<td>B. (Preparatory step)</td>
<td>Add together all CAS percentages to calculate a total CAS</td>
<td>0.68 + 6.25 + 2.5 = 9.43%</td>
<td>This is the total percentage of each health worker’s time taken up with support activities</td>
</tr>
<tr>
<td>C.</td>
<td>Total CAS / 100</td>
<td>9.43 / 100 = 0.0943</td>
<td>This is the portion of one full-time health worker’s time taken up by support activities</td>
</tr>
<tr>
<td>D.</td>
<td>[1 – (total CAS / 100)]</td>
<td>1 – 0.0943 = 0.9057</td>
<td>This is the portion of one full-time health worker’s time available for other activities</td>
</tr>
<tr>
<td>E.</td>
<td>1 / [1 – (total CAS / 100)]</td>
<td>1 / 0.9057 = 1.1</td>
<td>This provides the CAF</td>
</tr>
</tbody>
</table>

CAF: category allowance factor; CAS: category allowance standards.
### 2.5 Determining staff requirements based on WISN

Next, you need to determine how many health workers are required to cope with all the workload components of your WISN cadre. To do this, you need the annual service statistics for the previous year for every facility for which you want to calculate the staff requirement; you need these data for each health service activity for which you calculated a standard workload.

You must calculate the total required number of staff separately for the three different workload groups:

- **Health service activities**: Divide the laboratory unit’s annual workload for each workload component (from annual service statistics) by its respective standard workload to determine the number of laboratory technologists required for the activity in this health centre. Add the requirements of all workload components together to obtain the total staff requirement for all health service activities for the laboratory technologist.

- **Support activities done by all members of the staff category**: Multiply the answer for the staff requirement of health service activities by the CAF to obtain the number of laboratory technologists required for all health service activities and support activities.

- **Additional activities of certain cadre members**: Add the IAF to the above staff requirement to calculate the final total staff requirement for the laboratory technologist, based on WISN for the health centre in Wisnela, taking into account the staff needed in the facility to cope with all the workload components of the cadre.

#### Example

You want to calculate how many laboratory technologists the health centre in Wisnela Province requires to cope with its workload. The service statistics from last year indicate that the laboratory technologist in this health centre conducted 1000 malaria smear tests, 890 sputum AFB samples and 792 human chorionic gonadotropin (hCG) tests. You previously worked out that the standard workload for a laboratory technologist for malaria smear tests is 7072, for sputum AFB tests 3031 and for hCG tests 13 260 (Table A2.7).

You calculate that the health centre needs 0.14 laboratory technologists to cope with the malaria smear tests (1000/7072), 0.29 to conduct sputum AFB tests (890/3031) and 0.06 to conduct the hCG test (792/13260). Thus, the health centre requires a total of 0.49 laboratory technologists to cope with all health service activities (0.14 + 0.29 + 0.06).

Next, you calculate how many laboratory technologists the health centre requires to cope with both the health service activities and the support activities. You know that the health centre requires 0.49 laboratory technologists for the health service activities and that the CAF is 1.1. Thus, you need 0.54 laboratory technologists to cover both workload groups (0.49 × 1.1).

Certain laboratory assistants in the health centre have additional activities in their workload. The health centre must be able to cover the staff time spent on these activities also. You calculated earlier that the IAF is 0.07. Therefore, this health centre requires 0.61 laboratory technologists to cope with all three workload components (0.54 + 0.07). Table A2.9 shows the calculations.
### Table A2.10. Example of determining staff requirements, based on WISN

#### Staff category:
Laboratory technologist in a health centre in Wisnella Province
AWT: 1768 hours

<table>
<thead>
<tr>
<th>Health service activities of all cadre members</th>
<th>Workload component</th>
<th>Annual workload</th>
<th>Standard workload</th>
<th>Required number of staff members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria smear test</td>
<td>1000</td>
<td>7072</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>Sputum AFB test</td>
<td>890</td>
<td>3031</td>
<td>0.29</td>
<td></td>
</tr>
<tr>
<td>hCG test</td>
<td>792</td>
<td>13 260</td>
<td>0.06</td>
<td></td>
</tr>
</tbody>
</table>

#### A. Total required staff for health service activities

<table>
<thead>
<tr>
<th>Support activities of all cadre members</th>
<th>Workload component</th>
<th>CAS (actual working time)</th>
<th>CAS (Percentage working time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental meetings</td>
<td>1 hour per month</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>Preparation of reagents and culture media</td>
<td>30 minutes per day</td>
<td>6.25</td>
<td></td>
</tr>
<tr>
<td>Continuing professional development</td>
<td>1 hour per week</td>
<td>2.5</td>
<td></td>
</tr>
</tbody>
</table>

Total CAS (percentage) 9.43%

#### B. CAF: \{1 / [1 – (total CAS percentage / 100)]\}

<table>
<thead>
<tr>
<th>Additional activities of certain cadre members</th>
<th>Workload component</th>
<th>Number of staff members performing the work</th>
<th>IAS (actual working time per person)</th>
<th>Annual IAS (for all staff performing activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>External meetings</td>
<td>1</td>
<td>8 hours per year</td>
<td>8 hours</td>
<td></td>
</tr>
<tr>
<td>Procurement Bid and Awards Committee member</td>
<td>1</td>
<td>1 hour per month</td>
<td>12 hours</td>
<td></td>
</tr>
<tr>
<td>Ordering of supplies and reagents</td>
<td>1</td>
<td>2 hours per week</td>
<td>104 hours</td>
<td></td>
</tr>
</tbody>
</table>

Total IAS in a year 124 hours

#### C. IAF (annual total IAS / AWT)

Total required number of staff based on WISN: \((A \times B + C)\)

| CAF: category allowance factor; CAS: category allowance standards; hCG: human chorionic gonadotropin; IAF: individual allowance factor; IAS: individual allowance standards; WISN: workload indicators of staffing need. |
Annex 3  

Example of a WISN for a pharmacist

This annex explains the process of developing a workload indicators of staffing need (WISN) for a pharmacist. It follows the same process as is described in Annex 2 but provides only the tables, not the accompanying text.

**Table A3.1. Example of calculating possible annual working days**

<table>
<thead>
<tr>
<th>Staff category</th>
<th>Weeks in 1 year</th>
<th>Working days in 1 week</th>
<th>Possible working days in 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacists</td>
<td>52</td>
<td>5</td>
<td>260 (52 × 5)</td>
</tr>
</tbody>
</table>

**Table A3.2. Example of calculating days not worked in a year**

<table>
<thead>
<tr>
<th>Reason for absence</th>
<th>Days absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Possible working days in a year</td>
<td>260 Pharmacist</td>
</tr>
<tr>
<td>B Public holidays</td>
<td>12</td>
</tr>
<tr>
<td>C Annual leave</td>
<td>25</td>
</tr>
<tr>
<td>D Sick leave</td>
<td>2</td>
</tr>
<tr>
<td>E Other leave (training, personal leave, etc.)</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total non-working days</strong></td>
<td><strong>54</strong></td>
</tr>
</tbody>
</table>

Add together the days for each reason for absence. To calculate the total available working time (AWT), deduct this sum from the possible annual working days that you calculated earlier. The mathematical formula for calculating this is:

\[ \text{AWT} = A - (B + C + D + E) \]
The formula above calculates the AWT in working days per year. The next step is to translate it to working hours per year, by multiplying the AWT in working days by the number of daily working hours. The mathematical formula for calculating this is:

\[ \text{AWT} = (A - (B + C + D + E)) \times F \]

where \( F \) is the number of working hours in one day.

**Table A3.3. Example of calculating Available Working Time (AWT)**

\[
\text{AWT} = [260 - (12 + 25 + 2 + 15)] \times 8 \\
= 1648 \text{ hours per year} \\
= 98,880 \text{ minutes per year.}
\]

**Table A3.4. Example of defining workload components for pharmacists**

<table>
<thead>
<tr>
<th>Staff category: Pharmacist in a district hospital in Wisnela Province</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workload group</strong></td>
</tr>
<tr>
<td>Health service activities for a pharmacist</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Support activities for all pharmacists</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Additional activities for certain pharmacists</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

ART: antiretroviral therapy.
### Table A3.5. Example of setting service standards for health services for pharmacists

<table>
<thead>
<tr>
<th>Health service activity</th>
<th>Unit time or rate of working</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ART dispensing</td>
<td>10 minutes per patient</td>
</tr>
<tr>
<td>• Dispensing to patients</td>
<td>7 minutes per patient</td>
</tr>
<tr>
<td>• Discharge patients</td>
<td>15 minutes per patient</td>
</tr>
</tbody>
</table>

ART: antiretroviral therapy.

### Table A3.6. Example of setting CAS

<table>
<thead>
<tr>
<th>Workload group</th>
<th>Workload components</th>
<th>CAS (actual working time)</th>
<th>CAS % (percentage working time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support activities of all cadre members</td>
<td>Monthly stock taking</td>
<td>2 hours per month</td>
<td>1.46% = ((2 \times 12) / 1648) x 100</td>
</tr>
<tr>
<td></td>
<td>Packaging of medicines</td>
<td>30 minutes per week</td>
<td>1.25% = ((0.5 / 40)) x 100</td>
</tr>
<tr>
<td></td>
<td>Staff meeting</td>
<td>24 hours per year</td>
<td>1.46% = ((24 / 1648)) x 100</td>
</tr>
<tr>
<td>Total CAS %</td>
<td></td>
<td></td>
<td>4.17%</td>
</tr>
</tbody>
</table>

CAS: category allowance standards.
### Table A3.7. Example of setting IAS

<table>
<thead>
<tr>
<th>Workload group</th>
<th>Workload components</th>
<th>Number of staff performing the work</th>
<th>IAS (actual working time per person)</th>
<th>Annual IAS (for all staff performing activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional activities of certain pharmacists</td>
<td>Ward rounds</td>
<td>2</td>
<td>4 hours per week</td>
<td>$(2 \times 4) \times 52$ 416 hours a year</td>
</tr>
<tr>
<td></td>
<td>Monthly reporting</td>
<td>1</td>
<td>1 hour per month</td>
<td>$(1 \times 12)$ 12 hours per year</td>
</tr>
</tbody>
</table>

Total IAS in a year: **428 hours**

IAS: individual allowance standards.

### Table A3.8. Example of standard workload calculation

<table>
<thead>
<tr>
<th>Health service activity</th>
<th>Unit time or rate of working</th>
<th>Standard workload</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART dispensing</td>
<td>10 minutes per patient</td>
<td>9 880 clients (98 880 / 10)</td>
</tr>
<tr>
<td>Dispensing to patients</td>
<td>7 minutes per patient</td>
<td>14 126 clients (98 880 / 7)</td>
</tr>
<tr>
<td>Discharge patients</td>
<td>15 minutes per patient</td>
<td>6 592 clients (98 880 / 15)</td>
</tr>
</tbody>
</table>

ART: antiretroviral therapy; AWT: available working time.
Table A3.9. Example of determining staff requirements, based on WISN

**Staff category:** Pharmacist in a district hospital in Wisnela Province

**AWT:** 1648 hours / 98 880 minutes

<table>
<thead>
<tr>
<th>Health service activities of all cadre members</th>
<th>Workload component</th>
<th>Annual workload</th>
<th>Standard workload</th>
<th>Required number of staff members</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART dispensing</td>
<td>6 398</td>
<td>9 880</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>Dispensing medicines to patients</td>
<td>23 355</td>
<td>14 126</td>
<td>1.65</td>
<td></td>
</tr>
<tr>
<td>Discharge patients</td>
<td>9 425</td>
<td>6 592</td>
<td>1.43</td>
<td></td>
</tr>
</tbody>
</table>

**A. Total required staff for health service activities** 3.73

<table>
<thead>
<tr>
<th>Support activities of all cadre members</th>
<th>Workload component</th>
<th>CAS (actual working time)</th>
<th>CAS (percentage working time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly stock taking</td>
<td>2 hours per month</td>
<td>1.46%</td>
<td></td>
</tr>
<tr>
<td>Packaging of medicines</td>
<td>30 minutes per week</td>
<td>1.25%</td>
<td></td>
</tr>
<tr>
<td>Staff meeting</td>
<td>24 hours per year</td>
<td>1.46%</td>
<td></td>
</tr>
</tbody>
</table>

**Total CAS percentage** 4.17%

**B. CAF: \( \frac{1}{1 - \left( \frac{\text{total CAS percentage}}{100} \right)} \)** 1.04

<table>
<thead>
<tr>
<th>Additional activities of certain cadre members</th>
<th>Workload component</th>
<th>Number of staff members performing the work</th>
<th>IAS (Actual working time per person)</th>
<th>Annual IAS (for all staff performing activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward rounds</td>
<td>2</td>
<td>4 hours per week</td>
<td>416 hours</td>
<td></td>
</tr>
<tr>
<td>Monthly reporting</td>
<td>1</td>
<td>1 hour per month</td>
<td>12 hours</td>
<td></td>
</tr>
</tbody>
</table>

**Total IAS in a year** 428 hours

**C. IAF (annual total IAS / AWT)** 0.26

**Total required number of staff based on WISN: \( A \times B + C \)** 4.14

ART: antiretroviral therapy; CAF: category allowance factor; CAS: category allowance standards; IAF: individual allowance factor; IAS: individual allowance standards; WISN: workload indicators of staffing need.
Annex 4  WISN overview

Figure 2  Data components of the WISN Methodology

METHODOLOGY

The WISN methodology is based on the health worker’s workload, with activity (time) standards applied for each workload component and the health worker’s available time.

Staff required based on WISN = (A × B) + C
### Table A4.1. Converting actual working time to percentage of AWT

<table>
<thead>
<tr>
<th>Time unit</th>
<th>Conversion to percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes per day =</td>
<td>$\frac{(\text{Actual working time in minutes divided by 60}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
<tr>
<td>Minutes per week =</td>
<td>$\frac{(\text{Actual working time in minutes divided by (AWHd \times \text{WDw} \times 60)}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
<tr>
<td>Hours per day =</td>
<td>$\frac{(\text{Actual working time in hours divided by AWHd}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
<tr>
<td>Hours per week =</td>
<td>$\frac{(\text{Actual working time in hours divided by AWHw}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
<tr>
<td>Hours per month =</td>
<td>$\frac{(\text{Actual working time in hours divided by (AWHy \div 12)}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
<tr>
<td>Days per week =</td>
<td>$\frac{(\text{Actual working time in days divided by AWHw}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
<tr>
<td>Days per month =</td>
<td>$\frac{(\text{Actual working time in days divided by (AWHy \div 12)}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
<tr>
<td>Days per year =</td>
<td>$\frac{(\text{Actual working time in days divided by AWHy}) \times \text{AWHd}}{\text{AWHd}} \times 100$</td>
</tr>
</tbody>
</table>

AWT: available working time.
This annex provides a set of templates for planning the implementation of the workload indicators of staffing need (WISN) approach.

<table>
<thead>
<tr>
<th>Stakeholder(s) (who)</th>
<th>Method/ means of engagement (how)</th>
<th>Expected result(s) (why)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**Objective(s) of WISN implementation**

The objectives of conducting include the following

<table>
<thead>
<tr>
<th>Cadre(s)</th>
<th>Health facility types</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
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</tbody>
</table>

**Focus of the WISN**
# Composition of WISN implementation groups

<table>
<thead>
<tr>
<th>WISN Steering Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member (Name) Organization/Institution</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical Task Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member (Name) Organization/Institution</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expert Working Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member (Name) Organization/Institution</td>
</tr>
</tbody>
</table>

## WISN implementation plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Subactivities/ Tasks</th>
<th>Person responsible</th>
<th>Budget</th>
<th>Time frame (month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocacy with key HRH stakeholders in the country</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalize the draft WISN Implementation Plan (objectives, focus, targeted cadres, series of training, pilot/sampling, etc.) together with ToRs for Steering Committee approval</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Constitute and Inaugurate Steering, Technical Committees as well as Expert Working Groups with clear Terms of References

Train the Technical Task Force

Train the Expert Groups to set workload components and activity standards

Organize meeting to validate workload components and activity standards

Collect data and upload into the software

Analyse data and interpret results

Validate and finalization of WISN Report/results

Present WISN report to the Steering Committee WISN for approval

Disseminate WISN report to stakeholders

Implement WISN results

Institutionalising WISN through integration into HRH systems
### Template 1. Possible annual working days

<table>
<thead>
<tr>
<th>Administrative area:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff category</td>
<td>Weeks in 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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</tbody>
</table>
**Template 2. Days not worked in a year**

<table>
<thead>
<tr>
<th>Reason for absence</th>
<th>Days absent</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Staff category A</td>
<td>Staff category B</td>
<td></td>
</tr>
<tr>
<td>Public holidays</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual leave</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sick leave</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other leave (training, personal leave, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Template 3. Workload components**

<table>
<thead>
<tr>
<th>Workload group</th>
<th>Workload component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health service activities of all cadre members</td>
<td></td>
</tr>
<tr>
<td>Support activities of all cadre members</td>
<td></td>
</tr>
<tr>
<td>Additional activities of certain cadre members</td>
<td></td>
</tr>
</tbody>
</table>
**Template 4. Service standards**

<table>
<thead>
<tr>
<th>Staff category:</th>
<th>Health service activity</th>
<th>Unit time or rate of working</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**Template 5. Category allowance standards**

<table>
<thead>
<tr>
<th>Staff category:</th>
<th>Average available working hours in a day =</th>
<th>Available working days in a week =</th>
<th>Available working hours in a week =</th>
<th>Available working days in a year =</th>
<th>Available working hours in a year =</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Workload group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support activities of all cadre members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Template 6. Individual allowance standards

<table>
<thead>
<tr>
<th>Staff category:</th>
<th>Workload group</th>
<th>Workload components</th>
<th>Number of staff performing the work</th>
<th>IAS (actual working time per person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional activities of certain cadre members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>