Republic of Kenya

Human Resources For Health Norms and Standards Guidelines For The Health Sector

Required investments for equitable, and adequate capacity to deliver the Kenya Essential Package for Health

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Foreword

The Kenya health sector has re-aligned its policy and strategic direction in line with the Kenya 2010 constitution, Kenya Health Policy and Kenya Health Sector Strategic Plan so as to achieve its long and medium term health sector strategic intents respectively.

The health workforce is one of seven policy orientations specified in the Kenya Health Policy. Specifically, it intends to ensure that there is adequate and equitable distribution of human resources for health. To achieve this, evidence based health workforce norms and standards for the different tiers/levels of healthcare have been revised building upon the previous 2006 Norms and Standard Guidelines. Norms and standards refer to the minimum and appropriate mix of human resources and infrastructure that is required to serve the expected populations at the different levels of the system with the defined health services.

To achieve this intent, the Kenya Health Sector Strategic and Investment Plan (KHSSP 2014 – 2017) has called for prioritization of a minimum number of health workers in each facility, based on expected services to be delivered as defined in the Kenya Essential package for Health (KEPH). A staffing norm has been defined for each level, to outline the minimum health workers, by cadre, needed to assure provision of the KEPH. During the period of the KHSSP, the sector efforts shall be geared towards assuring this minimum number of staff. Once this is assured, additional funds would be used to provide additional human resources to attain optimum norms that facilities and Counties will have elaborated.

In the past, the health sector based staffing requirements on fixed patterns of staff for different levels of care. The previous Norms and Standards (2006) brought these requirements into one document, and also introduced population ratios for critical staff. These two approaches have been quite useful in assessing overall staffing requirements at the National or County level, and so guiding HRH investments and planning.

These norms and standards are designed in a manner to maintain the advantages of the existing norms, while addressing their deficiencies. They are a guide to the required staff that different levels of the health sector need to work towards having, for effective delivery of standard and quality health services in the country. They will greatly assist in rationalizing and equitable distribution of the health workforce across the different tiers/levels of healthcare delivery in the country so that there is fairness and equity.

The sector has therefore developed these guidelines to help provide a rational framework to guide our investment in health sector inputs across the country, and to ensure equity in availability of investments needed for the delivery of services to the Kenyan population. They are a presentation of the expected inputs that are needed to ensure the efficient and effective delivery of defined health services at the different tiers/levels of the health system.

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Preface

Norms and standards refer to the minimum and appropriate mix of human resources that is required to serve the expected populations at the different tiers/levels of the system with the defined health services. They define:

1. The health system structure needed to deliver the defined health services to the population in an efficient, equitable and sustainable manner.

2. The expected service standards for different activities to be delivered at the different levels of the health system to ensure comprehensive health service delivery.

3. The minimum human resources and infrastructure needed to ensure that the different levels of the system are able to offer the expected service standards.

4. The process and expectations for supervision and monitoring for adherence to the norms and standards.

In these revised Human Resources for Health Norms and Standard Guidelines, the health sector has used an adaptation of the Workload Indicator of Staffing Needs (WISN) approach. The traditional WISN Method is based on deriving staffing needs based on the work actually undertaken by staff. It is facility based, aimed at capturing the effort (i.e. time) from specific health staff to carry out particular activities. The method identifies the different activities a staff category is expected to carry out, and uses **"Activity Standards, Activity Time"** and expected numbers of the activity (from annual statistics) to derive **"Standard Workload"** due to the given activity.

To this, the methodology also adds a "Category Allowance Factor", which is additional time spent on non service activities (e.g. management or record keeping), plus "Individual Allowance Factor", which is time spent on activities by specific individuals in a staff grouping (e.g. a matron has additional activities above other nursing staff).

These estimates are compared with the available working time for each cadre (available time, minus time off duty for various reasons) to derive a WISN ratio for the particular staff group that is used to generate the staffing needs.

These updated norms and standards are designed in a manner to maintain the advantages of the 2006 norms and standard guidelines, while addressing their deficiencies.

The guidelines give a rationale and objectives of the norms and standards, methodology, the HRH staffing needs by cadre, facility type and per community unit. Finally it gives an implementation matrix plan.

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Acknowledgements

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Acronyms and Abbreviations

ANC	Ante Natal Care
ART	Ante Retro Viral Therapy
CDC	Centres for Disease Control
CDD	Clinical Data Documentation
CHEW	Community Health Extension Worker
CHW	Community Health Worker
CRA	Commission for Revenue Allocation
CTX	Cotrimoxazole
HPV	Human Papilloma Virus
HR	Human Resource
HRH	Human Resource for Health
IEC	Information, Education and Communication
KDHS	Kenya Demographic Health Survey
KEPH	Kenya Essential Package for Health
KEPI	Kenya Expanded Program on Immunization
KNBS	Kenya National Bureau of Statistics
KNH	Kenyatta National Hospital
KQMH	Kenya Quality Model for Health
MCH	Maternal and Child Health
NCD	Non-Communicable Diseases
NTD	Neglected Tropical Diseases
OPD	Out Patient Department
PCR	Polymerase Chain Reaction
PEP	Post Exposure Prophylaxis
PMTCT	Prevention of Mother To Child Transmission
RDT	Rapid Diagnostic Test
STI	Sexually Transmitted Infections
UNGASS	United Nations General Assembly Special Session
VCT	Voluntary Counselling and Testing
VHF	Viral Haemorrhagic Fever
WHO	World Health Organization
WISN	Workload Indicators of Staffing Need

CHAPTER 1:
BACKGROUND

1.1 Introduction

With the promulgation of the 2010 constitution, the health sector has re-aligned its policy and strategic direction, taking cognizance of the lessons learnt in the preceding years. A Kenya Health Policy and Kenya Health Sector Strategic Plan have been developed, which outline the health sector long, and medium term strategic intents respectively.

Maximizing the potential of the health workforce is one of seven policy orientations specified in the Kenya Health Policy. Specifically, the sector intends to ensure there is adequate and equitable distribution of human resources for health. To achieve this, the health sector has to review, and apply evidence based health workforce norms and standards for the different tiers of care.

Figure 1: Kenya Health Policy Framework for defining Policy directions
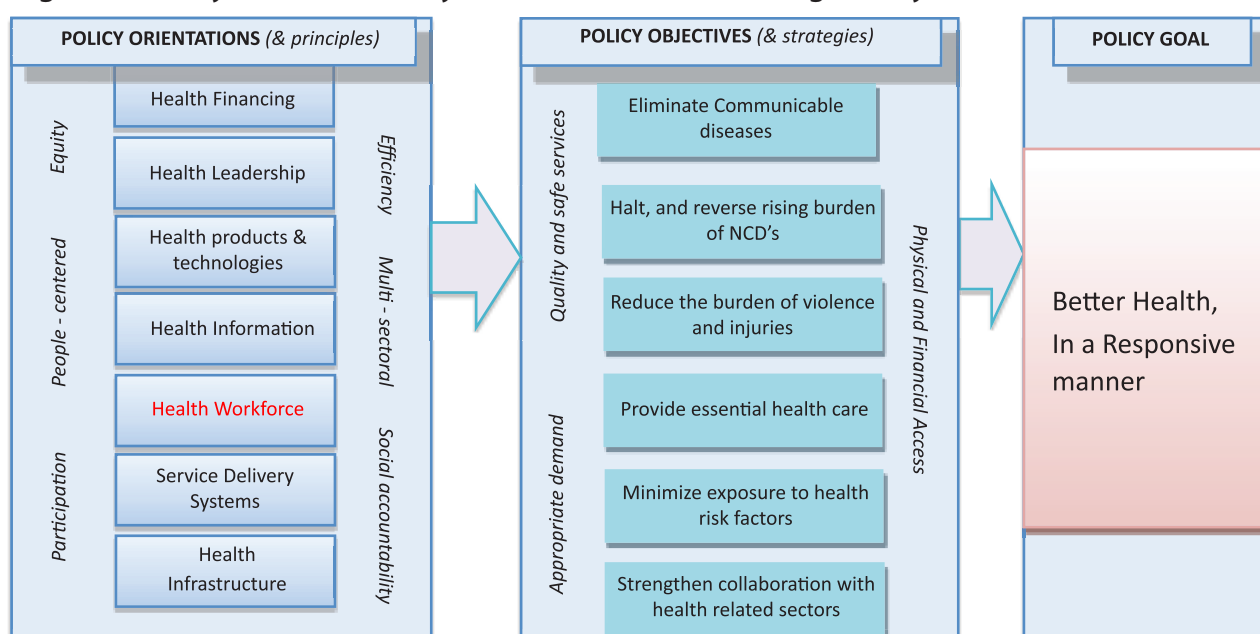
In line with the need to attain this intent, the Kenya Health Sector Strategic and Investment Plan (KHSSP 2013 – 2017) has called for prioritization of a minimum number of health workers in each facility, based on expected services to be delivered as defined in the Kenya Essential package for Health (KEPH). A staffing norm has been defined for each level, to outline the minimum health workers, by cadre, needed to assure provision of the KEPH. During the period of the KHSSP, the sector efforts shall be geared towards assuring this minimum number of staff. Once this is assured, additional funds would be used to provide additional human resources to attain optimum norms that facilities and Counties will have elaborated.

As a result of this, there is need for the health sector to define staffing norms that will ensure delivery of the KEPH as defined. The KHSSP outlines Norms and Standards as one of its supporting documents, which will facilitate guidance of its implementation

Table 1: Related and operational documents emanating from the KHSSP

Related documents	Operational documents
The Kenya Essential Package for Health	County Health Strategic / Investment plans
Costing of the KHSSP	SAGA Health Strategic / Investment plans
County Health System Concept	Program Strategic / Investment plans
Health Sector Norms & Standards (HR)	HRH Investment plan
Monitoring and Evaluation plan	Health Infrastructure investment plan
Health Partnership Code of Conduct, 2013 – 2017	Medium Term Procurement Plans
Health Sector Norms & Standards (Infrastructure)	Medium Term Expenditure Framework
	Health Information System Investment plan
	Health Financing Strategy
	Functional Assignment and Transfer Policy Paper

Source: KHSSP, 2014 – 2018

A number of critical innovations were introduced in the KHSSP that affect the elaboration of Norms and Standards. These include:

- Ensuring a comprehensive plan that which brings together all the health and relates services by all actors. The KHSSP, unlike the NHSSP II, focuses on giving guidance not only for priorities, but on all health and related actions needed to attain health objectives

- Consolidation of all Sector Medium Term Plans into one plan.

- Redefinition of the service package (KEPH), to ensure it provides appropriate guidance to health investments and targeting of services

- Incorporation of the environment within which the plan is being developed in the process of defining targets and interventions. As such, efforts towards implementing devolution and the right to health are an integral part of the plan implementation process.

- An M&E plan is being developed to guide follow up of implementation of the strategic objectives

To facilitate implementation of its defined strategies, the KHSSP also re-defines the service delivery system, around the following four tiers:

1. Community services focused on demand creation

2. Primary care services comprising dispensaries, health centres and maternity homes of both public and private providers.

3. County referral services include all the former level 4 and district hospitals in the county – government, and private.

4. The national referral services will include the service units providing tertiary / highly specialized services including high level specialist medical care, laboratory support, blood product services, and research.

1.2 Rationale and objectives for deriving the Norms and Standards

The need for a rational and evidence based method of setting the correct staffing levels has been a challenge for the health sector. In the past, the health sector based staffing requirements on fixed patterns of staff for different levels of care. The previous Norms and Standards (2006) brought these requirements into one document, and also

introduced population ratios for critical staff. These two approaches have been quite useful in assessing overall staffing requirements at a National or County level, and so guiding HRH investments and planning. However, they have had challenges in their adaptation in the Country.

i) The fixed patterns of staff, and population based norms were based on critical staff, not all staff available for health service provision. Many staff cadres were not included, and so they had no guidance in planning for their development

ii) While the 2006 norms were based on expected workload, the workload used was for a minimum set of services, ignoring the workload due to the bulk of activities carried out in the facilities (clinical services), and did not factor the many new interventions introduced for health workers since 2006

iii) The 2006 norms did not have guidance to individual facilities on how to determine their specific needs, as Country-wide standard workloads were not derived for the various KEPH interventions. Actual staffing needs can vary widely across facilities of the same type.

As a result of these challenges, HRH planning and development was not largely guided by the 2006 HRH norms and standards. Facilities and districts were developing and recruiting staff based on their perceptions of need, not guided by evidence. Those cadres / districts most able to lobby for staff got more staff irrespective of the relative needs.

These updated norms and standards are designed in a manner to maintain the advantages of the existing norms, while addressing their deficiencies as below;

• The comprehensive definition of the KEPH has now allowed the norms and standards to base their workload on a more realistic expectation of service provision on the ground, not only on a select few interventions. As a result, they reflect the actual workload expected of the system

• In using the comprehensive KEPH, the norms have included current, and expected interventions to derive the staffing needs. Thus, they are not just based on current workload, but on expected workload to deliver the KEPH

• The norms are providing staffing requirement information in a number of ways, to facilitate various uses. They present staffing requirements based on staffing needs, population ratios, and fixed staff requirements per level of care. In addition, they present national and county specific staffing needs arising from this.

• The norms also provide standard workload components and available working times for these, to guide facilities that want to derive their specific norms.

These norms and standards are a guide as to the required staff that different levels of the health sector need to work towards having, for effective delivery of the KEPH. They have therefore considered three factors;

i) Human Resources for Health norms by facility type, and population for adequate and equitable efficient and sustainable delivery of the KEPH

ii) Minimum staffing needs required for each level, and County to deliver the KEPH based on the derived norms

iii) Workload components for different KEPH services

The norms therefore are useful in guiding HRH investment decisions at the County, and National Government levels. They are also useful for monitoring how close different implementation levels are to the attainment of required HRH for delivery of the KEPH.

CHAPTER 2:

DEVELOPMENT PROCESS AND METHODOLOGY

2.1 Methodology

2.1.1 Introduction to the methodology

The sector has used an adaptation of the Workload Indicator of Staffing Needs (WISN) approach. The traditional WISN Method is based on deriving staffing needs based on the work actually undertaken by staff. It is facility based, aimed at capturing the effort (i.e. time) from specific health staff to carry out particular activities. For example, a vaccination requires time of specific staff (e.g. nurse) to carry out. The method identifies the different activities a staff category is expected to carry out, and uses **Activity Standards, Activity Time** and expected numbers of the activity (from annual statistics) to derive **Standard Workload** due to the given activity. For example, a nurse may spend 1 minute **(Activity Time)** on average inoculating a child (one of the **Activity Standards** in providing immunization), and the facility carries out 1,000 vaccinations in a year implying the standard workload for a nurse resulting from immunizations in this facility is 1,000 vaccination minutes. The WISN estimates the **Standard Workload** for a nurse at this facility by adding the total time required for carrying out the different activities the nurse is expected to do.

To this, the methodology also adds a **Category Allowance Factor**, which is additional time spent on non service activities (e.g. management or record keeping), plus **Individual Allowance Factor**, which is time spent on activities by specific individuals in a staff grouping (e.g. a matron has additional activities above other nursing staff).

These estimates are compared with the available working time for each cadre (available time, minus time off duty for various reasons) to derive a WISN ratio for the particular staff group that is used to generate the staffing needs.

The traditional WISN approach was followed, but with some adaptations to allow for deriving these norms and standards. These included:

- Activities to be carried out were based on the KEPH, not the staff cadres.

- Annual workloads for activities were based on estimated national targets for achievement of the different KEPH interventions, not on current statistics.

2.1.2 Description of the methodology

In line with the above, the derivation of the norms was done in the following nine steps:

Step 1: determining the priorities and focus of the exercise

This was carried out by the health sector planning Core Team, made up of different stakeholders in the sector. It was agreed the HRH norms would

- Include all staff cadres, not only priority cadres

- Align to the KEPH – so ensure they are able to guide implementation of the KEPH

- Provide information for all levels of the sector with regards to staff requirements

- Provide information on staffing needs, population based norms, and facility based norms

Step 2: Estimating Available Work Time for different staff cadres

For each of the above sub categories, the available time in a year for work was estimated, by looking at the possible working days per year, and subtracting annual leave days, public holidays, sick leave entitlements, and estimates for time spent in workshops, and other unclassified absences. From this, the estimated available working time (hours) was estimated.

Step 3: Defining workload components

The Kenya Essential Package for Health has defined the KEPH services that need to be delivered, together with the resultant interventions within each service. For each intervention, components of workload required to deliver it were then derived. The workload components are limited to health sector actions.

Step 4: Setting activity standards

The activity standards define the time expected to carry out each of the workload components defined in the previous step. These were derived based on expert opinion, by teams comprising different staff cadres, at two retreats held for the purpose. The participants (experts) were all practicing health workers, and so were drawing on their personal experiences and information.

Where different perceptions of activity standards arose, the experts debated on the reasons for the different perceptions, and eventually agreed on what should be a standard for the Country. Further operations research would be required in the coming years to test these different activity times in the field, and improve on their accuracy.

Step 5: Establishing standard workloads

Standard workloads were then derived, for each staff cadre as a function of the workload component activity times they are involved in, and the annual expected numbers for each. Where these are not available, then international literature was used to derive an expected annual workload.

Step 6: Calculating allowance factors

Two allowance factors were calculated, to include in the time required for each staff cadre:

- The category allowance factor: To capture those additional activities that all members of a given cadre group is expected to carry out, but are not directly service provision.

- The individual allowance factor: To capture the additional activities that specific members of a given cadre group are expected to carry out.

Step 7: Determine Staffing requirement

This final step in the methodology is worked out automatically, as follows:

- Derive total activity time required for each workload component (product of the annual target and time required to provide the activity)

- Add up all the total activity times associated with a given staff cadre

- Divide the resultant figure by the available work time for the staff cadre, to get the estimated number of staff required for delivering the activities (standard workload)

- The staffing requirement is derived from the product of the standard workload and the Category Allowance factor, to which the individual allowance factor is added

Staffing Need = [STANDARD WORKLOAD × CATEGORY ALLOWANCE FACTOR] + INDIVIDUAL ALLOWANCE FACTOR

2.2 Process and stakeholders involved

The process for elaboration of these norms and standards was driven by two critical considerations namely, ensuring the process is evidence-based and rational and the process is highly participatory, with the outputs being a result of a wide group of stakeholders

The subsequent section elaborates how the process has been evidence based, and rational. With regard to the process, though, different stakeholders have been involved at each of the steps, depending on their strengths and skills (see appendix 3). These norms are a result of these different stakeholder inputs and deliberations.

When the decision to derive HRH Norms and standards was taken, a team of 10 persons was identified and taken for orientation in Accra, Ghana on the WISN methodology in August 2011. These persons were representative of all actors in the sector, and included clinical staff (public, and faith based), partner institutions (KNH/UON and KMTC), representatives of implementing partners (AMREF), development partners (WHO), and Ministry of Health from the departments of standards, planning and human resources. This team formed a core technical team to facilitate the process in the Country.

In addition to this team, additional expertise existed from previous WISN orientations in the MOH and implementing partners that was called on.

A first retreat was called by this team in May 2012, to discuss and agree on activity standards and workload components. During this retreat, the team was joined by representatives from all staff cadres selected from the Coast general hospital and surrounding facilities, both public and private. These persons deliberated, and derived draft activity standards and workload components for most of the services.

To ensure independence in the outputs, a consultancy was then given to University of Nairobi to put all the resulting information together, and derive evidence based estimates for any gaps that the original retreat team hadn't addressed. The resultant estimates were presented to a second team of stakeholders in June 2013, which comprised staff cadre representatives primarily drawn from Mbagathi hospital and its surrounding facilities, plus implementing and technical partners for validation. All components (activity times, workload components, available working time, category and individual allowance factors) were scrutinized by this expert group, and updates provided.

The outputs were then reviewed by Ministry of Health heads of department to further contextualize the cadre numbers derived. The consultancy then consolidated all the outputs to share with the Ministry.

This report, therefore, is a result of this process. The outputs here are not only generated by Ministry of Health, but by all its stakeholders.

2.3 Issues, and challenges

In many areas, data completeness and accuracy were a major challenge, while in other areas there was no data. All information was therefore being compared with what was expected based on literature, and modifications to the estimates made depending on the situation.

The large number of cadre categories – is not limited to Kenya (Poz et al., 2007). However, as a result, it was difficult in some instances to specifically justify existence of some cadres from the workload perspective – the expected functions were too few to have a cadre.

The limitation on three workload components for each intervention was rational and practical, but in some instances

where the interventions were not well defined, it limited the resultant workloads. These were, however, the exceptional few as opposed to a norm, so we don't expect the effects to significantly affect the staffing requirement estimates.

Related to the above, the description of interventions in the KEPH is not to a uniform depth. For example under the clinical laboratory service area there is an intervention "parasitology RDT" while under inpatient care there is an intervention "management of mental illness". The former intervention can be read as being specific while the latter intervention can be interpreted broadly, including having to take into account parasitology. Such difficulties call for greater care in specifying the interventions to ensure they are or similar weight.

Task shifting is an objective of the ministry of health as part of the process of strengthening HR planning and management,(Ministry of Medical Services Ministry of Public Health and Sanitation, 2010). However at present there is no national task shifting strategy or policy,(Luoma et al., 2010). We therefore assigned workload components to the cadres expected to carry them out rather than what is presently done. This has resulted in the reduction of numbers of certain cadres for example nurses and increases in others such as health information records officers, nutritionists, clinical officers and medical officers. This is a reflection of the fact that the nurses in this example are carrying out tasks that other lower cost cadres should be carrying out, and if the sector prioritises recruitment of these lower cost cadres, then the workload on (and therefore demand for) the nursing staff should reduce significantly.

The methodology was not appropriate for deriving workload for some staff categories – particularly the various forms of assistant staff cadres. This is because their functions are not well defined. A general rule of thumb was therefore applied in these cases, to have 2 assistants supporting the respective staff cadre

In spite of these challenges, the resultant norms and standards are robust enough to provide appropriate guidance to HR planning and investment across the Country.

NORMS FOR SERVICE DELIVERY

3.0 Critical inputs

The norms relate to the following critical inputs for delivery of the essential package:

1. Physical infrastructure norms: What numbers of physical facilities are required, for equitable capacity to deliver the defined health services?

2. Human Resources for Health norms: What are the staffing needs, and norms for different staff cadres, at each of the above physical facilities for equitable capacity to deliver the defined health services

3.1 Physical infrastructure norms

There are three service unit classifications – community level, primary care facilities and hospitals. Within these, there are sub classifications within each, as shown in the figure below.

Figure 2: Organization of Health Services
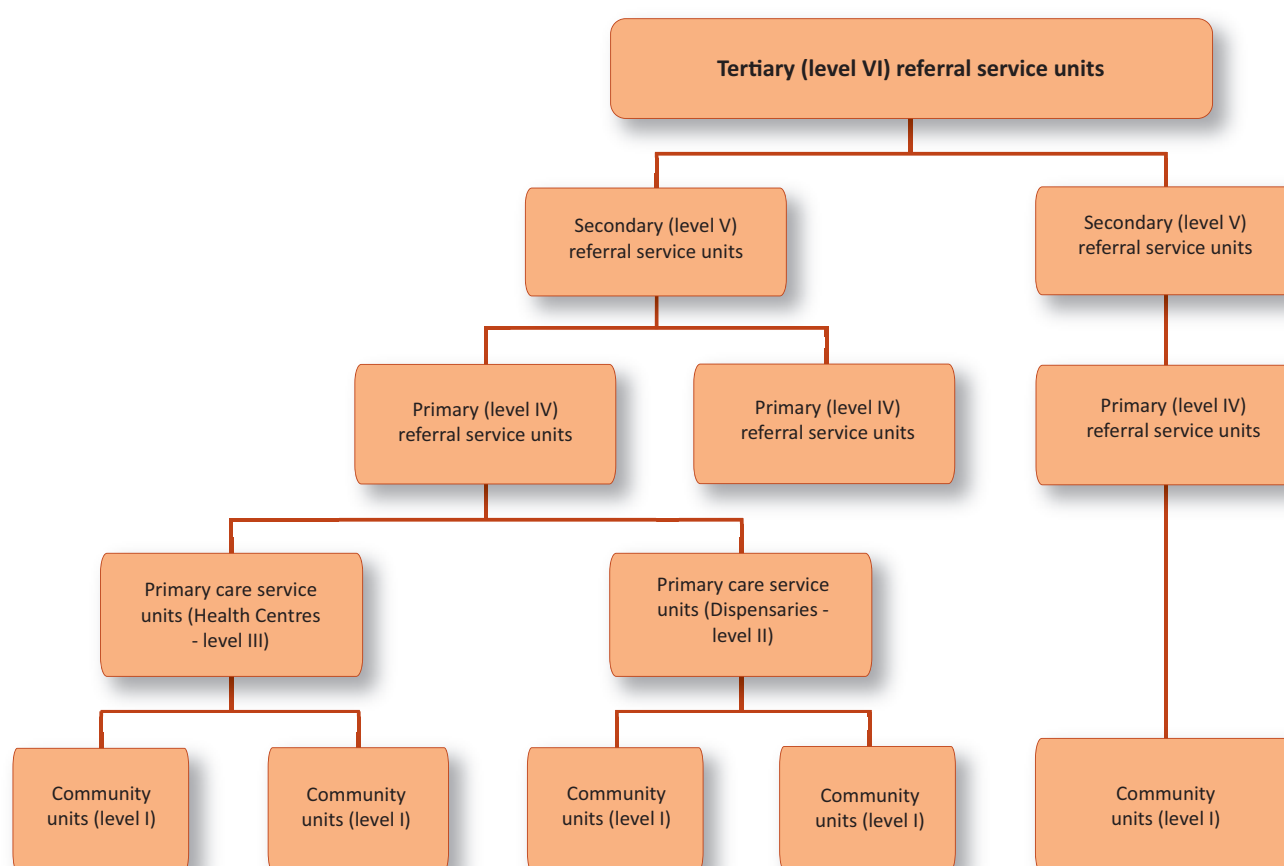
Primary care service units are either health centres, or dispensaries (mobile clinics in areas where population density is very low, and/or mobile).The health sector aspires to upgrade all dispensaries into fully primary care units (model health centres) in the long run, ensuring every facility is able to at least carry out a normal delivery. However, this aspiration will not be achieved in the period of the current KHSSP, for which these norms and standards are developed. Therefore, this has necessitated inclusion of dispensary norms.

Hospitals on the other hand focus on management of referral care, and are of three types: primary, secondary, or tertiary referral units. The scope and complexity of services increase from primary to tertiary referral units.

The requirements for physical facilities are based either on population, by level of care. The target populations, and overall numbers of physical infrastructure by level of care are shown below.

Table 2: Average populations expected to be served with different facility types

Catchment populations	Hospitals			Primary Care Units		Community Units
	Tertiary (level VI) referral hospital	Secondary (level V) referral hospital	Primary (level IV) hospital	Health Centre (level III) services	Dispensary (level II) services	
	5,000,000	1,000,000	100,000	30,000	10,000	5,000
Numbers of Facilites	**9**	**44**	**440**	**1,468**	**4,404**	**8,808**

Source: The Kenya Essential Package for Health, 2013

In addition, it is expected each person lives within 5km of a health facility, primarily to ensure access to basic health services.

Actual numbers of service units required for each County will differ, depending primarily on the population density– as a rule of thumb, a higher population density calls for fewer facilities than the norm suggests due to better access – but with more inputs (equipment, workforce, etc) to cater for the larger population.

On average, for every 5,000 population a community unit needs to be established. This translates to over 8,800 community units nationally. A dispensary should exist for every 10,000 persons on average. This should allow for an average of 30 dispensary OPD visits per day for any services, if everyone in the catchment area is to visit a health facility at least once a year for any form of services (curative, preventive, or health promotion activities), as suggested in the Kenya Health Policy. Such dispensary units are physical facilities, but in areas where populations are mobile and sparse – such as in Arid or Semi Arid lands, mobile facilities would replace dispensaries as much as is rationally possible.

Looking at health centres, an average population of 30,000 per health centre allows for at least 4 deliveries per day – a workload that is fair on the system and staff. These estimates translate to a targeted 4,404 dispensaries, and 1,468 health centres nationally.

For primary referral facilities, a population of 100,000 is targeted for each primary level hospital, allowing for at least one complicated delivery per day – a workload fair on the system and staff. This would call for approximately 440 County level primary hospitals across the Country. These currently are of various capacities (from sub district hospitals, through to high volume facilities), and would require at least ensuring capacity to carry out emergency surgery is functional in all. The secondary referral facilities are required to serve a population of approximately 1 million persons – usually crossing a number of Counties. These facilities shall be managed jointly by the national and affected County governments, and will provide a higher level of specialized services, and provide clinical supervision and support to the primary referral facilities. The tertiary referral facilities finally would focus on highly specialized services, and serve a cross County population of approximately 5,000,000 persons.

Given this direction, the expected numbers of facilities by population, and by distance in each County can be calculated.

Actual standards for these, including equipment standards will be defined in a separate document.

3.2 HRH Staffing Needs and norms

From the process described in the previous chapter, the following were the workloads, allowance factors and final staffing needs based on the need to deliver the KEPH in Kenya.

Table 3: National HRH staffing needs

STAFF CATEGORY	Sub categories	Standard workload	Category Allowance Factor	Individual Allowance Factor	Calculated Staff Needs	Final staff Needs
Dental staff	Community Oral Health Officers	817	1.12	690	1,604	**1,604**
	Dental assistant	-	1.20	-	-	**1,924**
	Dental general practitioner	493	1.82	66	962	**962**
	Dental specialist	**175**	**2.05**	**-**	**359**	359
Laboratory staff	**Laboratory assistant**	**-**	**1.36**	**-**	**-**	**11,137**
	Laboratory technician	4,107	1.36	-	5,569	**5,569**
	Laboratory technologist	1,085	1.36	-	1,471	**1,471**
Medical practitioners	Nutritionist	1,322	1.72	60	2,335	**2,335**
	Clinical Officer	9,188	1.72	471	16,278	**16,278**
	Medical Officer	7,650	1.70	121	13,141	**13,141**
Midwives	**Enrolled Midwife**	**-**	**2.05**	**-**	**-**	**0**
	Registered Midwife	5,847	2.19	493	13,308	**13,308**
Non surgical specialists	**Emergency / trauma specialist**	**4**	**1.93**	**-**	**8**	572
	Physician / internal medicine	601	1.82	452	1,544	**1,544**
	Psychiatrists	5	1.82	452	461	**461**
Surgical specialists	ENT	-	1.82	452	452	**452**
	General surgeon	264	1.82	467	947	**947**
	Obstetrics / Gynaecology	73	1.82	452	585	**585**
	Ophthalmologist	47	1.82	467	552	**552**
	Orthopedician	15	1.82	467	495	**495**
	Pediatrician	30	1.82	452	506	**506**
	Orthopedic technician	**-**	**1.20**	**-**	**-**	831
	Orthopedic technologist	299	1.20	56	416	**416**
	Plaster technician	-	1.20	-	-	**0**
Nurses	Nurse assistant	-	1.27	-	-	**0**
	Enrolled nurse	17,360	1.27	1,529	23,574	**23,574**
	Registered nurse	2,085	2.05	7,059	11,335	**11,335**
	BSN nurse	-	9.41	467	467	**467**
	specialised nurse	1,110	2.54	121	2,939	**2,939**
Pharmacy staff	Dispenser	-	1.22	-	-	**0**
	Pharmacy technologist	2,543	1.22	-	3,106	**3,106**
	Pharmacist	3	2.05	719	724	**724**
Radiology staff	**Radiology assistant**	**-**	**1.30**	**-**	**-**	**1,505**
	Radiographer	579	1.30	-	753	**753**
	Radiologist	0	2.35	575	576	**576**
Environmental health staff	Public Health Officers	3,359	1.12	471	4,229	**4,229**
	Public Health Technicians	2,046	1.30	0	2,662	**2,662**
Community staff	Trained Community Health Worker	87,149	1.22	14,444	120,886	**120,886**
	Social Health Worker	1,470	1.58	1,200	3,528	**3,528**
Rehabilitation specialists	Occupational Therapists	537	1.20	58	704	**704**
	Physiotherapists	994	1.72	58	1,768	**1,768**
Management staff	Health Records and Information Officer	2,048	1.76	471	4,071	**4,071**
	Health Records and Information Technician	-	1.76	-	-	**0**
	Medical engineering technologist	202	1.12	187	413	**413**
	Medical engineering technician	**-**	**1.12**	**-**	**-**	**825**

Administrative staff	Drivers	125	1.10	-	137	7,252
	Clerks	-	1.03	-	-	8,661
	Cleaners	-	1.06	-	-	11,890
	Security	-	1.06	56	56	9,718
	Accountants	-	1.03	-	-	3,846
	Administrators	-	1.06	-	-	4,330
	Cooks	-	1.03	-	-	6,503
	Secretaries	-	1.03	-	-	3,362
General support staff	Casuals	2,529	1.03	-	2,593	2,593
	Mortuary attendants	-	1.06	-	-	749
	Patient attendants	-	1.06	-	-	7,858

The final staffing needs were calculated based on the following adjustments to the staff cadres.

- **Dental staff:** The methodology was not able to provide estimates for dental assistants. As a result, an estimate of 2 assistants per dental general practitioner was used.

- **Laboratory staff:** The methodology was not able to provide estimates for dental assistants. As a result, an estimate of 2 assistants per laboratory technician was used.

- **Medical practitioners:** Numbers required are high, as they (especially clinical and medical officers) have significant amounts of activities beyond clinical care (allowance factors)

- **Midwives:** No estimates were derived for enrolled midwives. The workload for enrolled, and registered midwives was essentially the same, so estimates are only derived for registered midwives. A process of upgrading the enrolled to registered midwives should be accelerated.

- **Non surgical specialists:** The KEPH services were not appropriate for deriving workload for emergency / trauma specialists. As such, an estimate is used of at least 1 per County hospital (estimated 1 County hospital required per 100,000 population), and 5 per National referral hospital (estimated 1 national referral hospital required per 5,000,000 population)

- **Surgical specialists:** The methodology was not able to derive workload for orthopaedic technicians. As such, an estimate of 2 technicians per orthopaedic technologist was used

- **Nurses:** No workload was derived for nursing assistants. In addition, while there is no standard workload for BSN nurses, their activities are primarily under the Individual Allowance Factor, given their high level of specialization vis-à-vis the expected nursing activities in the sector.

- **Pharmacy staff:** No workload was derived for dispensers – the related activities are all handled by pharmacy technologists.

- **Environmental health staff:** Workload was able to be disaggregated between public health officers and public health technicians. This is one of the categories where cadres have not un-necessarily been created.

- **Community staff:** Trained Community Health Workers are required in large numbers, contributed to by both standard workload and individual allowance factors

- **Rehabilitation specialists:** Only two were assessed, and the functions could appropriately be handled by these two.

- **Management staff:** The methodology was not able to provide estimates for Health Records Information technicians. The standard workload was all captured within the health records information officers. The methodology was not able to provide estimates for medical engineering technicians. As a result, an estimate of 2 medical engineering technicians per medical engineering technologist was used.

- **Administrative staff:** The methodology was not able to provide estimates for all the administrative staff categories. Estimates are therefore based on the numbers required per facility, as shown in the table below.

- **General support staff:** The methodology was not able to provide estimates for all the general support staff categories. Estimates for patient attendants are therefore based on the numbers of nurses (1 patient attendant for every 4 nurses). One mortuary attendant was estimated to be required per County hospital, and 5 per national referral facility.

Table 4: Estimates of administrative staff required, by facility type

Cadres	Requirements per facility				
	Tertiary referral hospital	*Secondary referral hospital*	*Primary hospital*	*Health Centre*	*Dispensary*
Drivers	40	10	8	2	-
Clerks	50	20	10	2	-
Cleaners	25	15	5	3	1
Security	20	10	4	2	1
Accountants	20	10	4	1	-
Administrators	25	10	5	1	-
Cooks	30	15	6	2	-
Secretaries	15	10	3	1	-

3.3 Kenya HRH norms by facility type

A further analysis of these staffing needs was carried out by the HRH norms working group, to define specific norms for all the range of cadres required for delivery of the KEPH from level 1 to level 5 of the health system. The final agreed staff norms for each level, by cadre are shown in the table below.

Table 5: Distribution of Staffing norms by level of care

STAFF CATEGORY	Sub categories	Regional (2ndary referral) hospital-L5	County (primary) hospital-L4	Health Centre-L3	Dispensary-L2	Community Unit-L1
Medical Officers & Specialists	Medical Officers	50	16	2	–	–
	Anesthesiologist	6	2	-	–	–
	Oromaxillofacial Anesthesiologist	1	–	–	–	
	Cardiologist	2	–	–		
	General Surgeon	4	2			
	Orthopaedic Surgeon	2	1			
	Cardiothoracic Surgeon	1				
	Critical Care Physician	1				
	ENT surgeon	2	1			
	Gastroentologist	2				
	Obs/Gyne Specialist	3	2			
	Palliative Care Specialist	2				
	Neonatologist	2	1			
	Nephrologist	2	1			
	Neurologist	1	1			
	Plastic Surgeon(Recon-structive Surgeon	1				

STAFF CATEGORY	Sub categories	Regional (2ndary referral) hospital-L5	County (primary) hospital-L4	Health Centre-L3	Dispensary-L2	Community Unit-L1
	Neuro-Surgeons	1				
	Oncologist	4				
	Opthamologist	2	1			
	Optiometrist	1	1			
	Dermatologists	1	1			
	Paediatric Endocrinologist	1				
	Paediatric Nephrologist	1				
	Paediatric Neurologist	1				
	Paediatric Surgeon	1				
	Paeditrician	4	2			
	Pathologist	2	1			
	Psychiatrist	4	2			
	Radiologists	4	2			
	Rheumatologist	1				
	Specialist Physician(Internist)	4	2			
	Medical Endocrinologist	1				
	Public Health Physician	2	1			
	Urological Surgeon	1				
	Child & Adolescent Psychiatrist	1				
	Community Psychiatrist	1				
	Forensic Psychiatrist	1				
Clinical Officers	General Clinical Officers(Diploma)	44	30	6	2	1
	Graduate Clinical Officers	7	14	1		
	Specialised Clinical Officers	4	2	1		
	Clinical Officer ENT/Audiology					
	Clinical Officer Lung & Skin	2	4	1		
	CO Ophthalmology/Cataract Surgery	2	4			
	CO Paediatrics	6	2	1		
	CO Reproductive Health	2	2	1		
	CO Dermatology/ Venereology	2	1	–	–	
	CO Orthopaedics	2	1	–	–	
	CO Anaesthetists	15	6			
	CO Psychiatry/Mental Health	2	1			
	CO Oncology/Palli--ative Care	2	1			
Nurses and specialist nurses	BSN Nurse	12	4			
	Cardiology Nurse	2				
	Critical Care Nursing	20				
	Dental Nurse	8	8	2		
	Forensic Nurse	2				
	Kenya Enrolled Community Health Nurse	250	100	12	4	1
	Kenya Registered Community Health Nurse	260	50	8	2	1
	Kenya Registered Nurse	80	20	2		
	Enrolled Nurse	10	6	4	2	

STAFF CATEGORY	Sub categories	Regional (2ndary referral) hospital-L5	County (primary) hospital-L4	Health Centre-L3	Dispensary-L2	Community Unit-L1
	Nephrology Nurse	10				
	Oncology Nurse	10	2			
	Ophthalmic Nurse	6	2			
	Paediatric Nurse	10	2			
	Palliative Care Nurse	6	4			
	Psychiatrist Nurse	20	6			
	Registered Midwives	60	20	6		
	Sign Language Nurse	2	1	1		
	Theater Nurses	60	10			
	Anaesthetist Nurse	4	6			
	Accidents & Emergency Nurse	10	10			
Pharmacy Staff	Pharmacist	6	4	1		
	Clinical pharmacist	4	2			
	Oncology Pharmacist	1				
	Pharmaceutical Technologist	10	8	4	1	
Plaster Staff	Plaster Technicians/Technologists	6	4	2		
Rehabilitative staff	Orthopaedic Technologist	6	3	1	1	
	General Physiotherapist	12	6	3	1	1
	BSc Physiotherapy	2	1			
	Specialized Physiotherapists	3	2			
	Occupational Therapist	12	10	3	2	1
Clinical psychologists	Clinical psychologists	2	1			
Dental staff	Dental Officers	10	4	1		
	Oromaxillofacial Surgeon	2	1			
	Paediatric Dentist	6	2			
	Orthodontist	2	1			
	Dental Technologists	10	6	2		
	Community Oral Health Officers		2	4	2	1
Diagnostics & Imaging	General Radiographer	10	6	2		
	Ultrasonographer	2	1			
	Mammographer	1				
	CT Scan /MRI Radiographer	3				
	Dental Radiographer	2	1			
	Therapy Radiographer	2				
	Nuclear Medicine Technologist	2				
	Radiation Monitoring & Safety Officer	1				
Health Promotion Officers	Health Promotion Officers	6	4	4	2	2
Medical Social Work	Medical Social Work	8	6	2	1	1
Health Administrative staff	Medical Superintendent	1	1			
	Health Administrative Officers	2	2	1		
	Human Resource Management Officer	2	2			

STAFF CATEGORY	Sub categories	Regional (2ndary referral) hospital-L5	County (primary) hospital-L4	Health Centre-L3	Dispensary-L2	Community Unit-L1
	Clerks	20	10	4	2	
	Secretaries	2	1			
	Accountants	6	2			
	Supply Chain Assistant	6	4	1		
	Supply Chain Officer	2	2			
Health Information ICT	Health Records Information Management Officers-HRIMO	12	8	4	1	
	ICT Officer	4	2	1		
Medical Engineering Staff	Medical Engineers	2				
	Medical Engineering Technologists	8	5			
	Medical Engineering Technician	6	2	2		
Medical Laboratory Scientists	Medical Laboratory Technologists	50	40	10	2	
Nutrition staff	Nutrition & Dietetic Officer	20	10	2		
	Nutrition & Dietetic Technologist	12	8	4	2	1
	Nutrition & Dietetic Technician	4	4	2	1	1
	Cateress	2	2			
Environmental Health Staff	Public health Officers	4	4	2	1	2
	Public Health Technician			2	2	4
Community Health Service Staff	Community Health Service Personnel(CHSP)					5
	Community Health Volunteers(CHV)					10
Support staff	Cooks	20	10	2		
	Drivers	15	12	4		
	Support Staff	60	40	10	4	
	Mortuary Attendant	10	6	2		
	Security	16	10	4	2	

These represent the numbers of different staff cadres required at each level of care, for effective progressive attainment of the staffing needs and therefore assuring capacity available for delivery of the KEPH.

The above numbers of staff per facility type allow the sector plan for actual staff recruitments, given the numbers of facilities of different types.

GUIDELINE FOR IMPLEMENTATION OF THE NORMS

4.1 Overview of the guideline

The government of Kenya (GOK) recognizes that for health workers to function at their best (*delivering quality, affordable and accessible services*) decisions that affect health workforce which include; staffing ratios or skill mix, geographic distribution, training and incentives to improve performance must be grounded on firm evidence.

To achieve this, the Ministry of Health (MOH) informed by the Kenya Health Sector Strategic & Investment Plan (KHSSP 2014-2018) call for the prioritization of a minimum number of health workers in each facility based on the expected services to be delivered as defined in the Kenya Essential Package for Health (KEPH) and reviewed and applied evidence based health workforce norms & standards for the different tiers of care. A staffing norm has been defined for each level outlining the minimum health workers by cadre needed to assure provision of KEPH. Through training, MOH efforts shall be geared towards assuring this number of staffs needed to attain optimum norms that state and non- state facilities and counties will require. This is to ensure delivery of preventive care as called for in Kenya's Vision 2030 blueprint for economic development.

Critical shortage of health workers is a worldwide concern and the Government of Kenya is aware of globalization impact in the movement of skilled labour. The government therefore endeavours to ensure that health training institutions in the country train skilled healthcare professionals for national, regional and international markets informed by supply and demand dynamics. It also encourage strategic and planned expansion of the existing health training institutions and/or establishment of new health training institution to meet the ever increasing demand of well trained and skilled manpower in the health sector within the framework of this Guideline.

The aims is to increase the number of health training opportunities particularly for school leavers taking into consideration the health manpower needs of the economy as a whole. However, the GOK is also cognizant to the fact that increasing the number of training opportunities alone will not ensure equity in the access for all groups. In this regard, the government ensures that priority is given to disadvantaged groups such as women, disabled persons and other vulnerable groups in the provision of health training opportunities and as such commits to support innovative approaches including PPP initiatives aimed at creating more financial access to training fees to bridge the HRH gap.

Beyond a need for more health workers, the current health workforce is also challenged by inequities in geographic distribution, attraction and retention issues and limited access to quality and affordable training's. It is therefore necessary to apply evidence based strategic planning processes such as HRH planning & forecasting to help Kenya address these challenges and implements an HRH plan that meets long-term development objectives.

Currently, Kenya is grappling with emerging health issues that have an influence on its workforce to include; increased disease burden, accessibility of health services, and socio-economic status of populations and utilization of services. To meet this demand, increased output from training institutions, retention and out-migration of health workers, wage rates consideration, job satisfaction and the quality of work environments are critical in the HRH strategic plan. In this regard, policies and regulations governing the health workforce are important determinants of health worker demand and supply.

From the foregoing, Health workforce planning and forecasting is therefore essential to better understand the state of supply and demand dynamics and can be used to accurately project the numbers, skill mix and geographic distribution of health workers needed to meet health priorities.

There is no coordinated and structured institutional framework for the collection and management of the HRH data for Kenya workforce planning. To address this situation, a reliable routine process for health workforce planning & forecasting that takes into account data from the private sector needs to be institutionalized. This chapter articulates Norm and standard implementation guidelines that address the above needs.

It is noted that successful implementation of this Guideline requires support from all players concerned about the quality of health care services in Kenya, working together in partnership to build and strengthen the workforce planning capacity for the health sector. Among these are:

    i.   Ministry of Health (MOH)

    ii.   Other relevant ministries such as the Ministry of Education (MOE), Ministry of Planning & Devolution, The National Treasury, Ministry of Labour Social Security & Services

    iii.   Private Sector - all non-state actors in the health sector including commercial, Faith Based Organizations (FBO) and Non Governmental Organizations (NGO)

    iv.   Development Partners

    v.   Public & Private Universities

    vi.   Public & Private Medical Training Colleges

    vii.   Government bodies involved in training such as Kenya Medical Research Institute, Kenyatta National Hospital, Moi Teaching & Referral Hospital

    viii.   Regulatory boards and councils and professional associations.

These guidelines will enable decision makers in the health sector to determine current number of workforce, the most appropriate mix and the number of new health workers needed by the system to meet established targets. In turn, this will improve the following; the accuracy and completeness of forecasting data, institutionalize forecasting capacity within MOH, integrate data from the entire health system (state and non-state), ensure costing and financing issues are part of the model, incorporate attrition, current vacancies, available facilities, payroll, retirement plans and emigration into the planning so that trained health workers can be absorbed by the health system.

4.2 Goal and Objectives of the guideline

The main goal of this guideline is to ensure provision of quality health care and improve access and equity of essential health care service for the Kenyan population.

The objectives of this *National HRH Norms & Standards Implementation Guideline* are to:-

    i.   Improve the HRH planning and forecasting;

    ii.   Determine the most appropriate mix and number of health workers required;

    iii.   Determine the new number of health workers needed to be produced to meet established targets over time;

    iv.   Improve the accuracy and completeness of forecasting data & institutionalize health workforce planning & forecasting.

    v.   Ensure integration of forecasting data from the entire health system including the non- state;

    vi.   Ensure costing and financing issues are part of the model;

    vii.   Ensure better incorporation of attrition, current vacancies, available facilities, payroll, retirement plans & emigration;

    viii.   Ensure there is adequate planning for the absorption & deployment of any increase in health worker production;

    ix.   Ensure better use of forecasting information to facilitate policy dialogue including building strong cases for increased public- and- private sector investment in health workforce production to reduce the HRH gap.

4.3 Scope of the guideline

The *National HRH Norms & Standards Implementation Guideline* is divided into three major areas of concern. These include:

a.   Continuous Provision of pre-service training data: - setting forth the requirement that training institutions (state & non- state) and the regulatory boards & councils should routinely provide and update training database of the MOH with pre-service data. This data should track:-

i.   Sex-and age disaggregated intake, pipeline & graduation;

ii.   On-going in-service Continuous Professional Development (CPD) trainings of the current health workforce to ensure that health professionals remain up-to- date with relevant skills and knowledge.

b.   Continuous updating of current health workforce databases (stock):- setting forth requirement that:-

i.   All databases bearing HRH data within the country be integrated (both state & non- state);

ii.   All of the databases are unified by standardizing the coding of profession, skills and employer in all datasets;

iii. Adopt the use of unique identifiers for all facilities and staff across datasets to avoid duplication.

c.   Financing of the implementation of this policy.

4.4 Contextual guidance for the guideline

The health sector operates in the context of a number of policy frameworks. These include:

• The Kenya Health Strategic and Investment Plan, (KHSSP 2014 – 2018):- Accelerating attainment of health goals,

• The Kenya Health Policy Framework (2014-2030)

• The proposed Health Bill 2014

• Annual Operating Plans

• County Strategic Plans

These documents, as well as factors within the institutional and organizational context shape the internal environment in which the *National HRH Norms & Standards Guideline* is implemented.

4.5 Guideline Statements

i.   **The government has taken measures to enable evidence-based routine health workforce planning**. This is achieved through measures to improve availability, accessibility, accuracy and completeness of Human Resources for Health (HRH) data in Kenya, both for the public and the private health sectors.

ii.   **The government recognizes that there needs to be systematic and comprehensive collection and management of HRH data.** Fragmented data distributed across multiple databases requires harmonization and information exchange, and the private sector has to be included in routine data collection efforts. In this regard, a coordinated data collection process is in place to facilitate policy dialogue on setting HRH targets to address health sector priorities.

iii. **The government mandates the Directorate of Health Standards, Quality Assurance and Regulatory Services of the Ministry of Health to oversee the coordination & full implementation of this Guideline.** This includes action to achieve necessary legislative authority.

iv.   **The government requires this guideline to be implemented collaboratively**. The regulatory boards & councils are the de-jure bodies for accreditation and regulating pre-service health training in the country.

The Ministry of Health will therefore provide support to these bodies to review existing, and/or to introduce practical and innovative models to improve forecasting and planning the HRH needs. This guideline is be adhered to by all stakeholders to include; Division of Regulation & Legislation, the Division of Health Sector Policy & Planning, the Human Resources Management (HRM) and Human Resources Development (HRD) departments, health training institutions, employers of health professionals and health professionals.

4.6 Guiding principles

i. **Introduction of standard codes:** To harmonize databases and allow aggregate statistics and analyses, standardized codes or classifications need to be inserted in the different HR databases. Such standard codes will not affect existing codes. The codes shall be used by all health training institutions and healthcare facilities within the public (state) and private (all non- state) sectors, and by the regulatory bodies accrediting and regulating health training and registering qualified health professionals in Kenya.

ii. **Private Sector Inclusion:** The lack of reliable, aggregate information about the health workforce in the private sector needs to be addressed by:

a. Collecting key staffing information as part of routine data collection, through the modification and activation of a HR module in the District Health Information System (DHIS2), coordinated and monitored by the Health Information Systems Unit. MOH will attempt to keep the burden of collecting and submitting data for health facilities as low as possible.

b. Incentivizing, and if necessary enforcing routine data submission by private sector facilities and training institutions through regulation, and making aggregate information accessible to health facilities.

c. Encouraging and supporting the rigorous enforcement of the license renewal requirement in regulatory bodies, and requesting each regulatory body to link each licensed, employed health worker to the unique facility identifier provided in the Master Facility List

iii. **Access to data:** There are several co-existing human resources databases each with a notable amount of information on the health workforce in the public sector, access to this data has been suboptimal because (a) knowledge about the structure, content and quality of the various databases is not consolidated and (b) access to and utilization of the data requires separate authorization for each database. Access to the databases will be made easier by:

a. Reviewing possible duplication among databases and eliminating/harmonizing databases if there are large overlaps

b. Develop protocols and agreements for information exchange

c. Through application programming interfaces (API) and connectivity, create a platform where all relevant databases can be queried simultaneously by authorized staff;

d. Ensure that historic data is maintained in all databases to allow for tracking of historical trends

e. Use unique identifiers for all facilities and staff across the different datasets

iv. **Setting health workforce norms and targets:** A systematic and replicable methodology, as agreed on by consensus among experts and stakeholders has been I be used to set national norms. These norms will define the 'ideal' numbers of health workers, to be achieved no later than 2030 in each county. The number of health workers will be defined depending on the method agreed upon by the involved experts and stakeholders from the public and the private sector; it may include reference to population (HCW: population ratio); actual workload; theoretical workload to achieve specified health outputs; disease burden; and/or facility staffing norms. Counties will be required by the Ministry of Health to define annual targets related to their health workforce in the public and private sectors, designed to gradually achieve the national norms.

v. **Forecast information dashboards:** The Ministry of Health is supporting the development of a national dashboard system that allows for the quick and easy retrieval of information, drawing on HRH data either stored in a centralized data-warehouse, or selectively accessing decentralized data from databases owned and managed by the MOH, the County Governments, National Referral Hospitals, the Regulatory Bodies and Training Institutions. The dashboard is designed in such a way that enables decision-makers at the national and county levels to monitor HRH indicators at timely intervals and take measures to regulate the size, composition and distribution of their respective workforce.

4.7 Applicability of the guideline

This guideline is a road map for the work of various institutions and actors involved indifferent aspects of health worker training state & non- state. These include;

i. All health training institutions that provide basic and post-basic health training and education including CPDs;

ii. All health care facilities that employs' health care professionals;

iii. All health care professionals, who are licensed certified or registered to provide health care service in Kenya;

iv. All other providers of continuing professional development in Kenya;

v. All health professional and regulatory boards & councils involved in the training for the health sector;

vi. All institutions / organization dealing with health information systems;

vii. Development & implementing partners in health

STATEMENT OF RESPONSIBILITIES

This Guideline identifies and defines responsibilities for its implementation. All public and private organizations shall take the full responsibility of their role as defined in this guideline.

Ministry of Health (MOH) shall

i. Establish the *National HRH Norms & Standard Technical Workin Group* within health standards and norms unit/ division as a vehicle for the implementation of these NTS.

ii. Define the critical mass required based on the HRH norms and standards for essential health care delivery per population ratio or per facility per level of care;

iii. Define critical cadres with shortages for urgent attention;

iv. Define the numbers of new health workers required to be produced for effective service delivery over a given period of time;

v. Define competencies required by cadre in collaboration with regulatory bodies;

vi. Identify training needs and gaps for basic and post-basic levels by cadre and by location;

vii. Develop training plans at facility, county and national levels;

viii. Develop, update and maintain a health care professional database identifying individual health care professionals by cadre, level, qualifications and location.

ix. Develop and implement regulations and procedures necessary to ensure the implementation of this guideline at all levels by all the relevant stakeholders both in public and private sectors.

x. Establish and maintain effective linkages with the health training institutions, other relevant GOK ministries and agencies, regulatory boards & councils, development & implementation partners, and others as needed for effective implementation of this policy.

xi. Enforce integration of HRH databases and unified & standardized coding of healthcare profession & skills to avoid duplication.

xii. Develop a monitoring and evaluation framework to monitor the implementation and the effectiveness of the policy.

xiii. Enforce full implementation of the guideline

xiv. Enact necessary appropriate laws and regulations for the proper implementation of this guideline.

County Governments

i. Will carry out implementation of the *National HRH Norms & Standard Guideline*

Health Sector Regulatory Boards & Councils shall

i. Monitor and evaluate training programmes& CPDs to ensure compliance with standards for their respective professions;

ii. Establish competencies required for licensing of health care professionals;

iii. Grant licenses and license renewals to qualified health care professionals;

iv. Maintain an inventory of health care professionals currently licensed or certified to practice in Kenya in the training databases established (database establishment);

v. Collaborate with MOH divisions of standards & quality Assurance, health regulation & legislation and the health training institutions in the implementation of this guideline.

Health Training Institutions, including public & private Universities, Colleges, Faith Based Organizations and Non-Governmental Organizations shall;

i. Develop programmes and curricula in the health training fields, in collaboration with relevant regulatory and professional bodies and the health standards and norms units to ensure there is linking between the supply and the demand sides;

ii. Collaborate with appropriate institutions and facilities to provide practical training activities;

iii. Examine students and award degrees, diplomas and/or certificates as appropriate upon successful completion of their programmes;

iv. Abide by the quality control framework and any other rules as set out by their relevant accrediting bodies.

v. Continuous Provision of pre-service training data

4.8 Institutional and legal framework for the guideline

The *National HRH Norms & Standards Implementation Guidelines* requires certain enabling institutional and the legal instruments to operationalize the broad guideline objectives into law, regulations, and activities. The main enabling legal and institutional instrument for the purposes of implementing the policy guideline is: The Directorate of Health Standards Quality Assurance and Regulation. Through this directorate, the HRH Norms & Standards Guideline will define, among other things, types and scope of health training; data to be submitted, maintained &analysed from the training and workforce planning databases, integration of the existing databases to avoid duplication, the unified coding system guideline and financing of health workforce forecasting activities.

Under the said guidelines, there are regulations, which are statutory instrument providing details of all the regulations that are needed to guide the implementation of this guideline. A monitoring and evaluation framework will also be developed to monitor the effectiveness and efficiency of this guideline implementation.

Governance & Management of National HRH Norms & Standards Guideline

i. MOH in consultation with other relevant ministers shall frame the policies to define strategies and to implement in accordance with the needs and resources of the Kenya Health Policy Framework 2012-2030 & the KHSSP III 2013-2018 to improve access and equity of essential health care services and improve the overall health of the Kenyan population in line with the vision 2030 and the Kenya Constitution 2010.

ii. MOH through health standards and norms unit shall take the overall responsibility for all matters pertaining to health workforce planning & forecasting and shall be responsible for ensuring that there is linkage between the supply and demand side and highly qualified health workers are produced and deployed to the relevant facilities.

The role of the Directorate of Health Standard, Quality Assurance & Regulation

   a. The directorate shall have overall responsibility for the implementation of the *National HRH Norms & Standards Implementation Guideline* adopted by Government.

   b. The role of the directorate shall be coordinating and supervising functions which also include but not limited to:

   i. Improving mechanisms for projecting the number of new health workers production for Kenya at any given time;

   ii. Improving the accuracy and completeness of the HRH forecasting data

   iii. Institutionalizing HRH planning & forecasting capacity within MOH

   iv. Ensure integration of data from the entire health system including commercial, NGO and faith based sectors;

   v. Ensuring costing and financing issues are part of the HRH planning & forecasting model;

   vi. Incorporation of attrition, vacancies, available faculties, payroll, retirement plans and emigration into the HRH planning & forecasting model;

   vii. Ensuring there is adequate planning for the deployment and absorption of any increase in health workforce production by the health training institutions;

   viii. Ensuring proper use of forecasting information in policy dialogue and future decision making;

   ix. Facilitating and ensuring HRH databases and integrated and there is uniformity of health profession & skills coding;

   x. Ensuring compliance in the submission of training data by the health training institution, regulatory bodies and other relevant key stakeholders to the national training database;

   xi. Ensuring there is reliable and aggregate information about the health workforce in the private sector and is incorporated during the health workforce planning and forecasting activities.

Presently a number of these functions are performed by several government departments and bodies within the education and training system while others are not performed because they do not exist at all. Upon the adoption of the policy guideline all the relevant functions shall be transferred to the directorate of Health Standard Quality Assurance & Regulation.

4.9 Financing of the implementation of the norms

In order to implement this guideline successfully, MOH will source funds from the following;

   i) The National Treasury to facilitate the implementation of this guideline;

   ii) In addition to funds predominantly generated from the National Budget, the government will endeavour to mobilize funding from additional sources including but not limited to;

   iii) Resources from development partners

   Private sector contributions:

   i) Health training levy

   ii) Any other source as may be determined from time to time

Appendix 1:

Participants involved in elaboration of Norms

ACTIVITY 1: DERVING ACTIVITY TIMES, AND STAFF AVAILABLE WORK TIMES		ACTIVITY 2: REVIEW AND VALIDATION OF WISN CALCULATIONS	
Name	**Designation / Agency**	**Name**	**Designation / Agency**
Dr Francis M. Kimani	Director Medical Services (Former)	Dr Pauline Duya	Ministry of Health
Dr Pacifica Onyancha	Ministry of Health	Douglas Ngaira	HIS, Ministry of Health
Dr John Odondi	Ministry of Health	Mwanza Joachim	PHS, Ministry of Health
Dr John Masasabi	Ministry of Health	John Toweett	TPCD, Ministry of Health
Dr William Maina	Ministry of Health	Mollent Okech	HRM, Ministry of Health
Dr Wycliffe Mogoa	Ministry of Health	Dr. Humphrey Karamagi	WHO
Dr JohannsenOduor	Ministry of Health	Jeniffer Kiema	Ministry of Health
Dr Simon Kibias	Ministry of Health	Joseph Nganga	Mbagathi District Hospital
Dr Jackson Omondi	Ministry of Health	Mungai Kabuka	Mbagathi District Hospital
Dr David Kiima	Ministry of Health	Isaiah Sarara	Mbagathi District Hospital
Dr MakauMatheka	Ministry of Health	Mary Chiwai	Mbagathi District Hospital
Rose Kuria	Ministry of Health	Catherine Muendo	Mbagathi District Hospital
Mary Chege	Ministry of Health	Margaret Mwago	IntrahealthFunzo Project
Alex Kisyanga	Ministry of Health	Joel Lehmann	Project Funzo
Titus Kilika	Ministry of Health	Roselyne Nyakona David	Mbagathi District Hospital
B.K Inoti	Ministry of Health	Diana Nyanchama	Mbagathi District Hospital
Martin Owino	Ministry of Health	Richard Ayah	UoN
Samuel Nyabiosi	Ministry of Health	Hesborne Nambarah	Mbagathi District Hospital
Stephen Kanyette	Ministry of Health	Kellen J. Karimi	UoN
Betty Samburu	Ministry of Health	Dr Hazel Mumbo	Funzo Kenya
Henry Nate Simiyu	Ministry of Health	Emily Mungai	Funzo Kenya
Dr IsaqOdongo	Ministry of Health	Joyce Nyaboga	HRH ICC Secretariat/Capacity Kenya
Micah K. Kisoo	Ministry of Health	Eunice Muthomi	MOH
Dr Jonah Maina	Ministry of Health	Jenniffer Merry Othigo	Coast Provincial General Hospital
Livingstone Mwambela	Ministry of Health	Josephine Mwangi	Coast Provincial General Hospital
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JosephatYundu	Ministry of Health	Zenabu Abdalla Zuberi	Coast Provincial General Hospital
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John Toweett	Ministry of Health	Dr. Cyprian E. Muyodi	Coast Provincial General Hospital
Jane Oburu	Ministry of Health	Dr. Peter A. Sore	Coast Provincial General Hospital
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ZiphorahMomanyi	Ministry of Health	Hassan Abdi Mohammed	Coast Provincial General Hospital
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Mary Maingi	Ministry of Health	Patrick Njuki Njeru	Coast Provincial General Hospital
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DrHarissonKiambati	Ministry of Health	Purity K. Nyaga	Coast Provincial General Hospital
Geoffrey Kimani	Ministry of Health	Ben Katana	Coast Provincial General Hospital
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Dr. KarimaNoorani	Coast Provincial General Hospital	John Tembu	Coast Provincial General Hospital
Gilbert Nzomo	Coast Provincial General Hospital	Beth Gathura	Coast Provincial General Hospital
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Appendix 2:

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Appendix 3:
Definition of terms

Analysis & Reporting – Analysis of data collected and report writing.

Case management - Process to ensure timely access to and coordination of medical services for a patient.

Clinical management – Activities involved in the care of a patient by a clinician **Consultation** – A formal meeting with a medical doctorfor discussion or the seeking of advice

Counselling – Professional guidance of the individual by use of standard psychological methods such as collecting case-history data, using various techniques of the personal interview, and testing interests and aptitudes.

Demonstration – Process whereby the healthcare worker practically shows the patient how to use an intervention.

Diagnostic testing - *Medical test*performed to aid in the *diagnosis of a disease or condition.Usually done by laboratory qualified personnel.*

Diagnostics – laboratory and imaging tests conducted to augment the clinical findings to arrive at a conclusive diagnosis

Drug dispensing - The preparation, packaging, labelling, record keeping, and transfer of a prescription drug to a patient or an intermediary, who is responsible for administration of the drug

Health education – Combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes.

Household Screening – The initial evaluation of an individual, intended to determine suitability for simple treatment or referral to health facility

Inoculation – Provision of a vaccine as a precaution against contracting a disease

Inspection –An official, careful and critical examination, especially for flaws.

Inspection – Thorough and unhurried visualization of the client by use of the naked eye

Lab screening/testing – diagnostic tests conducted in the laboratory to confirm a diagnosis

Lab specimen preparation – Collection, preparation and processing of laboratory specimens

Nursing care - Care services carried out or supervised by a qualified nurse

Patient assessment+CDD – Clinical assessment of the patient including history taking and physical examination in line with Hutchison's clinical assessment manual. **Clinical data documentation** – Entails recording the patient assessment findings into the various patient data collection tools

Patient Data capture – Involves patient registration, documentation of patient's bio data and vital signs.

Procedure – A course of action intended to achieve a result in the care of persons with health problems.

Referral and linkage – Process of transferring a patient from one clinician or service to another

Registration – Documentation of the patient's bio data

Screen Testing - A test designed to identify and eliminate those who are not affected by a disease. Usually using a rapid diagnostic test.

Surgery – Use of operative manual and instrumental techniques on a patient to investigate and/or treat a pathological condition such as a disease or injury

Therapy session – Session forremediation or curing of a health problem, usually following a diagnosis

Transfusion – Is the process of receiving blood products into one's circulation intravenously

Treatment – Specific therapeutic intervention given to a patient aimed at cure

Triage – A process of sorting and prioritizing patients to determine need and proper place of treatment.

Appendix 4:
Assumptions & information sources for deriving standard workload

Service area	Assumptions and methods to derive annual targets
POLICY OBJECTIVE 1	
Immunization	The targets for children to undergo immunization was arrived at based on total number of expected pregnancies, with the assumption that the number of pregnancies will be equal to the number of births and that each delivery will be a single delivery. More than 75% of children had received all of the recommended Kenya Expanded Package on Immunization (KEPI) vaccines in 2008/09,(Kenya National Bureau of Statistics and ICF Macro, 2010). Typhoid vaccine though not routinely offered under the Kenya Expanded Program for Immunization (KEPI), is available and recommended by Centres of Disease Control (CDC),(Centers for Disease Control and Prevention (CDC), 2011) for administration in institutions and in typhoid prone areas. The fever vaccine is given to children at 9 months and to travellers in high risk areas such as Kilifi and Kwale districts,(World Health Organization, 2012). The World Health Organization (WHO) recommends Human Papilloma Virus (HPV) vaccine to be given to females at the age of 13 to 26 years of age, before sexual debut,(World Health Organization, 2007).
Child Health	The targets for deworming were based on the net primary school enrolment for the year 2010,(Kenya National Bureau of Statistics, 2012). The assumption is that all children will be offered mass deworming services through school-based programs. In addition, during the home visits, community health workers will offer the services to children who will not have attained school going age. WHO recommends an integrated approach to the management of common paediatric conditions such as pneumonia, malaria and diarrheal diseases at primary levels and symptomatic management at the community level,(World Health Organization, 2005). The targets for these conditions were derived from reported outpatient patient attendance for the year 2010,(Kenya National Bureau of Statistics, 2010). Despite the declining infant mortality rate, it is projected that 1 in every 20 children born in Kenya will die before the first birthday,(United Nations Inter-Agency Group for Child Mortality Estimation, 2012).
Screening for communicable conditions	Communicable diseases contribute the largest proportion of all morbidities in Kenya,(Kenya Institute for Public Policy Research and Analysis, 2010). Approximately 1.4 million Kenyans were infected with HIV in 2009, and about 80,000 Kenyans die each year from conditions related to the disease,(National AIDS Control Council, 2009). Almost all hospitals (99%) and health centres (95%) have an HIV testing system. Post Exposure Prophylaxis (PEP) services are located in hospitals (89%) though also available in most stand-alone Voluntary Counselling and Testing (VCT). The National TB program aims at increasing case detection rate of bacteriologically confirmed TB from 72% to 80% by 2013 and to successfully treat 90% of all registered TB cases,(Ministry of Public Health and Sanitation, 2011a). Kenya reported TB treatment success rates of 86% for the year 2010,(Ministry of Public Health and Sanitation, 2011a); this translates to screening of 14% of patients initiated on TB treatment for multi drug resistance, assuming the mortality rate does not significantly impact on the treatment success rate. The value for screening for animal transmitted conditions include animal bites, VHF, Plague, Brucellosis as documented in the KNBS outpatient records for 2010,(Kenya National Bureau of Statistics, 2010).
Antenatal Care	It is estimated that 91% and 50% of pregnant women attend the 1st and 4th ANC visits respectively,(Kenya National Bureau of Statistics and ICF Macro, 2010). We considered the impact of maternal mortality rate of 488 per 100,000,(Kenya National Bureau of Statistics and ICF Macro, 2010) but factoring maternal deaths would not significantly impact on the number of ANC visits. It was assumed that; a) three doses of tetanus vaccine will be offered to the mother; b) the doses would be given four weeks apart during the pregnancy and the last one six months after; c) all the mothers attending ANC get one form of micro nutrient supplementation. Intermittent presumptive treatment for malaria is routinely gven to mothers in areas where malaria is endemic. These areas include parts of rift valley, coast and western Kenya,(Ministry of Public Health and Sanitation and Ministry of Medical Services Kenya, 2009). It is general practice to conduct ante natal profiling and discuss delivery planning during the first ante natal visit. The prevalence of hypertensive diseases in pregnancy was taken at 5% of all pregnancies,(Lubano & Qureshi, 2007). Screening for syphillis is routinely done once, during the first ANC visit. About 0.4% of mothers test positive for syphillis,(National AIDS and STI Control Program, 2010) .Treatment is given in four doses given every week.
Prevention of Mother to Child HIV Transmission	To derive the number of women requiring PMTCT, we used the proportion of women attending at least ANC visit at 92%,(Kenya National Bureau of Statistics and ICF Macro, 2010)2 and that out of those attending ANC, 95% get HIV counselling and testing,(National AIDS Control Council, 2009). The HIV prevalence in these women was estimated at 6.9%, (National AIDS and STI Control Program, 2010). All the mothers testing HIV positive at the first visit (assuming all of them start ANC at 14 weeks) will be offered monthly PMTCT services throughout the pregnancy (total of 6 visits) and the breastfeeding period in line with the national guidelines, (National AIDS/STI Control Program (NASCOP) Kenya, 2011). It is assumed that each pregnant woman gives birth to only one live infant and that 100% of the exposed infants will be started on ARV prophylaxis,(National AIDS/STI Control Program (NASCOP) Kenya, 2011). Exposed infants will require ARVs and CTX for prophylaxis (from age 6 weeks), and access to replacement feeding. It was estimated that 50% of women will accept replacement feeds, 50% will exclusively breastfeed,(National AIDS Control Council, 2009).
Integrated Vector Management	About 77% of kenyans live in malaria endemic zones,(Ministry of Public Health and Sanitation and Ministry of Medical Services Kenya, 2009). Indoor residual spraying will be done in all households within the malaria endemic zones,(Kenya National Bureau of Statistics, 2012). Insecticide treated mosquito nets will be distributed in the malaria endemic zones where one net will be given to two persons. On average, one mosquito net is given out every three years,(Ministry of Public Health and Sanitation and Ministry of Medical Services Kenya, 2009). It was assumed that all households will require annual vector control to eradicate coakroaches, fleas and rodents.
Good hygiene practices	All the 44million Kenyans in their respective households will benefit from measures put in place for appropriate hand washing. Information and demonstrations on appropriate use latrines and household water trearment will be offered at the level of the household that has a mean size of 4.4 persons,(Kenya National Bureau of Statistics and ICF Macro, 2010).
HIV and STI prevention	Voluntary medical male circumcision as an intervention for HIV prevention is largely practiced in certain parts of the country in communities where circumcision is not traditionally practiced,(Ministry of Public Health and Sanitation Kenya, 2009). It is estimated that 250, 000 persons will benefit from this intervention for the year 2013, (National AIDS Control Council, 2009)11. The estimate for the sexually transmitted infections was derived from the actual outpatient visits classified as sexually transmitted infections in 2010,(Kenya National Bureau of Statistics, 2010). For post exposure prophylaxis, it was assumed that all health facilities (assume total of approximately 4,500) will have one low risk case (i.e. from occupational exposure) every 3 months (40% of cases) and one high risk case (sexual assault) every 2 months (60% of cases),(National AIDS Control Council, 2009). United Nations General Assembly Special Session (UNGASS) reported that 124.5 million and an estimated 180 million condoms, both male and female, will be distributed to all the health facilities and social places,(National AIDS/STI Control Program (NASCOP) Kenya, 2010)18. For HIV testing and counselling (HTC), three tests will be used; screening test (100% - Determine), and a confirmatory test (10%, - Bioline), tiebreaker (2% - Unigold). Quality Assurance tests using panels will be at five per cent; assuming that five per cent of the tests will be invalid and due to losses,(National AIDS Control Council, 2009).
Port health	The Kenya government has 42 actual and proposed immigration entry points, (http://www.immigration.go.ke/). However a figure of annual number of persons entering Kenya is not readily available. Kenya recorded the highest number of tourists' arrivals ever at 1,095,945 tourists and another 700,000 cross border visitors as at 31st December, 2010,(Ministry of Tourism, 2011).
Control and prevention neglected tropical diseases	The target group for mass education on prevention and mass screening of NTDs was derived from the estimates as made in the NTD strategic plan for Kenya.Mass deworming for schistomiasis control is done in shistosoma endemic areas,(Ministry of Public Health and Sanitation, 2011b).
POLICY OBJECTIVE 2	

Service area	Assumptions and methods to derive annual targets
Health Promotion and education for NCD's	Public information on NCDs is to be delivered to persons 18 years of age and above.
Institutional Screening for NCD's	The American cancer society recommends routine screening for cardiovascular diseases including blood glucose testing and lipid profiling for persons 45 years of age and above. Cervical cancer screening is recommended for women above 25 years within a period of 3 to 5 years,(Saslow et al., 2012). In Kenya, screening using visual inspection is highly recommended; use of Pap smear has insignificant contribution towards the national target. Though not routinely done in Kenya, the European and United States oncological societies recommend screening for bowel cancers every 2 years in persons between 60 and 70 years. Clinical breast examination is for breast cancer screening is recommended for all women above 20 years and should be repeated every 3 years, (Smith et al., 2003). Furthermore, it is recommended that women in this age group be sensitized and educated to perform self breast examinations on a regular basis. Prostate cancer screening by clinical examination is to be performed at least annually in all men above 50 years old. Lung function tests are not routinely done in the country. However it is assumed that 4 per cent of the population have chronic respiratory conditions.
Community screening for NCD's	Routine blood pressure measurement in the community is recommended by JNC VII for all persons above 18 years every 2 years, (Chobanian et al., 2004). Nutritional assessment using adult mid upper circumference in adults is recommended to be done at least once per year during the home visits by the CHWs.
Rehabilitation	In the year 2010, the outpatient visits for hypertension, diabetes an cancers amounted to 104, 362. These conditions and related complications constitute a greater percentage of persons in need of home based care. The national strategic plan for people with disabilities has estimated the number of disabilities in Kenya for the year 2011 to be about 2 million. It is assumed that all these persons will at some point need occupational, psychosocial and provision of rehabilitative appliances as part of their therapy at least once in a year. Out of these, about 700,000 are projected to have physical disabilities that will need physiotherapy at least once in a year.
Workplace health and safety	Approximately 2,059,100 persons are employed in the formal sector in Kenya, that is about 18.8 per cent of the working population are found in the formal sector,(Kenya National Bureau of Statistics, 2012) . It is assumed that employers will organize work place wellness and safety education programs for all the employed persons at least once in a year. The same number of workers will undergo at least one inspection and certification per year.
Food quality and safety	Food demonstrations to be conducted during monthly dialogue meetings (community strategy) and during specially organized nutritional sessions at all the 12,000 health facilities in the country. We made the assumption that each facility and community unit will benefit from at least one such demonstration in a year.
POLICY OBJECTIVE 3	
Health Promotion and education	Awareness creation on violence and gender-based violence is assumed to be aimed at all adults 18 and above.
Pre hospital Care	The number of persons needing first aid, in this case defined as emergency treatment administered to an injured or sick person before professional medical care is available was arrived at based on the new outpatient cases for the year 2010,(Kenya National Bureau of Statistics, 2010). This is with the assumption that the conditions that are effectively managed in the community minimally contribute to this number. The estimates for evacuation services for injuries were based on the number of the documented number of injuries and fractures for the year 2010; we assume that these conditions needed evacuation for further management.
OPD/Accident and Emergency	The number of people injured annually in road traffic accidents that occurred in the year 2010 was used an indirect measure for advanced emergency trauma care services (KNBS).
Management for injuries	Performing x-rays and basic laboratory evaluation such as grouping and cross matching form a basic examination investigation for management of injuries in the outpatient and emergency units. We made the assumption that all the patients received at the outpatient department with injuries will have to undergo this basic examination. One-third of these patients will require more advanced imaging investigations (KNBS 2010). The figure for performing DNA testing was based on the total number of reported cases of sexual assault; this test is recommended as a baseline forensic test. Other incidences requiring DNA testing such as paternity disputes do not significantly change the figure.
Rehabilitation	It was envisioned that all the reported cases of violence and injuries will need some form of physiotherapy and psychotherapy; one third of these patients will benefit from occupational therapy and rehabilitative appliances.
POLICY OBJECTIVE 4	
General Outpatient	ENT and respiratory conditions are fairly common in Kenya especially during the rainy seasons. This necessitates frequent use of the outpatient services at the primary health care levels. As reported in the KNBS, nine million episodes of ear nose and throat (ENT) and related conditions were noted (KNBS 2010). Eye and dental problems were noted to be relatively fewer. At level two facilities, the KEPH guidelines recommend screening and referral of patients suspected to have cardiovascular conditions,(Ministry of Health, 2006b). Management of cardiovascular diseases routinely takes place at levels 3 and 4. Gastro intestinal conditions especially diarrheal diseases are commonly managed at level 2 facilities with referral of patients for more advanced investigations such as hepatitis and stool evaluation. Sexually transmitted infections (STIs) are fairly common in Kenya, but the full scope of treatment is not available in most facilities. Almost all facilities (94%) offer STI services as a primary service, usually in the general outpatient department, as well as in the family planning service area and the ANC service area. The KNBS, 2010 reported over 500,000 cases of genitourinary infections attending outpatient services at level 2 facilities,(Kenya National Bureau of Statistics and ICF Macro, 2010) . Gender and sexual based violence cases are primarily evaluated at these levels where basic tests are conducted and samples collected for forensic evaluation. Primary management of fractures and other musculoskeletal conditions takes place at level 3 facilities. Skin conditions such as scabies and impetigo are relatively common, symptomatically managed at level 2 and 3 facilities with referral to level 4 facilities for management of more chronic skin conditions. At level 2 and 3 facilities, the commonly managed neurological conditions as documented in the KNBS are meningococcal infections, epilepsy and follow up of patients with hypertensive and diabetic neurologic complications. The figure for the mental conditions was arrived at by adding the value of the prevalence of undiagnosed mental disorders (4.1%) and actual diagnoses made in 2010. About 23,000 clients were reported to have been managed for sexual and gender based violence in outpatient setups,(Kenya National Bureau of Statistics, 2010). At level 2 facilities, endocrine, metabolic and other non communicable disease conditions such as diabetes mellitus, hypothyroidism, hyperthyroidism and leukaemia entails chronic follow up, identification of complications and management of acute on chronic complications with subsequent referral to higher levels of health care delivery. The identified birth defects as documented are usually referred to level 4 and 5 facilities for more specialized management. The 2009 KDHS reported a stunting rate of 46% in children under 5 years of age,(Kenya National Bureau of Statistics and ICF Macro, 2010). These, with other acute nutritional deficiencies constituted slightly over 2 million cases of outpatient care in 2010. Infectious conditions are the leading cause of morbidity and mortality in Kenya,(Kenya National Bureau of Statistics, 2010); with the decentralization of these services, most of the infectious conditions are managed at level 2 with referral for more complicated cases to levels 3 and 4. Note however that these conditions have different follow ups and this has an influence on the workload component. With the exception of yellow fever vaccine which is available in specific parts of the country where yellow fever is prevalent, rabies and tetanus toxoid vaccines should be provided in primary health care centres. It is assumed in calculating the prevalence of serious cardiovascular conditions that end up in health facilities that 11% of all deaths are due to cardiovascular conditions. The crude death rate of 10.54 per 1000 population is used.

Service area	Assumptions and methods to derive annual targets
Integrated MCH / Family Planning services	Vitamins A supplementation is routinely given to all children up to the age of 5 years in line with the WHO guidelines. Mothers attending ANC are routinely given folic acid in the first trimester, and based on the clinical evaluation, given iron supplementation. Weight monitoring and measurement of the mid upper arm circumference and counselling on maternal nutrition and infant feeding are recommended to be done for all mothers attending ANC visits and for all children during each visit to the child welfare clinic. Taking of womens' height was assumed to be done at least once during the first ANC visit. The value for the weight monitoring is for women attending ANC and FP services. Women of reproductive age constitute 24% of the Kenyan population,. It was estimated that 65% of women in their reproductive age group will use modern family planning services. The KDHS further gives the proportions of the preferences for each family planning method in women who have ever used FP method,(Kenya National Bureau of Statistics and ICF Macro, 2010) .
Accident and Emergency	The annual targets are derived from outpatient data reports of the ministries of health. However these figures reflect a demand of under one visit per person per annum. In a well functioning health system, annual demand is estimated at about two visits per person per annum. Therefore the figures obtained have been doubled to reflect what the real demand should be.
Emergency life support	Those with minor injuries are assumed to require some triage at community level. advanced life support care is assumed as a baseline to be persons fatally injured in road traffic crashes at the rate of 8.6 per 100,000 population,(Macharia, Njeru, Muli-Musiime, & Nantulya, 2009).
Maternity	Despite the high ante natal care attendance at first visit, most women seek care well after the first trimester of pregnancy; 43% of women give birth in a health care facility,(Kenya National Bureau of Statistics and ICF Macro, 2010) . About 15 per cent of pregnant women in developing countries develop complications including pre eclampsia, eclampsia and haemorrhage. Labour monitoring is assumed to take place in all mothers delivering at health facilities. With skilled delivery of 18 per cent, this was taken as a proportion of all deliveries. Approximately 15 per cent of all pregnancies have complications at birth. It is estimated that 5.4 per cent of all pregnant mothers end in caesarean sections,(Chu et al., 2012) ; these mothers and their new born children will be offered post operative care. Other modes of assisted delivery procedures such as vacuum and forceps delivery have been observed to be rare. It is assumed that all pregnant mothers who attend skilled deliveries will undergo routine registration and offered a maternal package that entails, among other services, active management of labour by a mid wife and post partum care including post partum feeding. Clients in need of more advanced management, either pre or post partum, are offered referral services to level 3 and 4 facilities for monitoring by the medical officers or obstetricians.
Newborn services	The WHO report, Kenya country profile 2010 reported that 3.5% of newborns weighed less that 2.5 kg (premature). It is estimated that of newborns will need resuscitation commonly due to birth asphyxia, or birth trauma ; a proportion will end up with neonatal sepsis hence necessitating a longer stay in hospital post partum. WHO recommends all newborns to be initiated on breastfeeding within the first of birth. The midwife is therefore to reinforce the health education and practically demonstrate the best breast feeding practices to the mother. In situations where there are no incubators, kangaroo nursing is recommended for under weightnewborns; these children also require special feeding either through a naso-gastric tube or intravenously.
Reproductive health	Breast examination is recommended for all women aged attending outpatient and in patient services in all levels of health care service delivery. The Nairobi cancer registry, though not fully reported, indicates that slightly over 5,000 patients in Kenya have confirmed reproductive tract tumours. It was estimated that women attending gynaecological clinics with genitourinary symptoms and cervicitis will require a high vaginal swab for a more definitive diagnosis. AMREF estimates that about 1,000 new cases of obstetric fistula occur in Kenya annually.
In Patient	The annual targets are derived from outpatient statistics worked out in the outpatient section divided by a ratio of 1: 39. The ratio of 1:39 is the ratio of outpatient to inpatient visits. Caution is that inpatient data tends to be incomplete and is therefore likely to be an underestimate. For visits to referral facilities that is; hospitals that were formerly classified as provincial and above the ratio used is 1:125 of outpatient visits
Clinical Laboratory	Clinical laboratory investigations form a key component of clinical diagnosis of patients. The values for most of the tests were derived from the national reporting for the tests done in 2010 (personal communication, National reference laboratory). The reported pregnancy tests are for both positive and negative results. Bleeding and coagulation time is done at level 4 and 5 hospitals. The rapid diagnostic tests for parasitological were not readily available as microscopy is the mainstay diagnostic approach. Bacteriology tests, commonly ZN and Gram staining are quite common especially in areas with high prevalence of HIV, TB and other respiratory tract infections. ELISA tests are done especially as confirmatory tests for in determinate HIV rapid diagnostic tests in line with the WHO guidelines,(National AIDS Control Council, 2009). A widal test is recommended for the patients presenting with febrile conditions and diarrhoea for the diagnosis of typhoid fever. The following were key assumptions made in arriving at the quantities of CD4 tests needed to for the period: Minimum CD4 count for initiation of treatment is 350; every patient, including pregnant women in the PMTCT program requires 2 tests per year; patients with treatment failure and patients starting on ART will require 3 tests for the 1st year. The CD4 test is conducted at the time of HIV diagnosis and six monthly thereafter. PCR tests are conducted as confirmatory tests for all children born out of HIV infected mothers. This is done at 6 weeks and repeated at 9 months in children in whom antibody tests turn positive at 9 months,(National AIDS/STI Control Program (NASCOP) Kenya, 2011). Urinalysis is commonly done in patients presenting with urinary tract symptoms while renal function tests are for evaluation of renal complications for conditions such as diabetes and hypertension. It was assumed that all patients presenting with jaundice and other symptoms suggesting liver pathology will have the liver function tests performed
Specialized laboratory	Faecal occult blood testing done once at age 50 years. Blood analysis for alcohol and drugs is done for all those injured in road traffic crashes. Prevalence of injury is 59.96 per 100, 000 population,(Bachani et al., 2012). For most of the tests under the specialized laboratory service area it was difficult to derive annual targets as the basis for the tests could not be easily derived. Semen analysis is carried out where there is couple infertility. Infertility is defined as inability to achieve conception in a period of one year in a couple, despite regular and adequate unprotected sexual intercourse. It is estimated that 35-50% of male attending infertility clinics are sub-fertile(Adeniji, Olayemi, M.A., & Aimakhu, 2003).
Imaging	The target for ultrasounds is based on pregnant women receiving one ultrasound during pregnancy. Chest radiography (CXR) is an important diagnostic method for evaluation of the airways, pulmonary parenchyma and vessels, mediastinum, heart, pleura and chest wall. It is one of the most widely used diagnostic imaging techniques in Western societies; on average 236 CXRs per 1000 patients per year are performed and this technique accounts for 25% of the annual total numbers of diagnostic imaging procedures(Speets et al., 2006).
Pharmaceutical	There may be overlap in the annual target for drug dispensing which has been taken as one per person per annum. However many of the individual interventions have drug dispensing as one of the core workload activities.
Blood Transfusion Service	National blood needs is estimated to be 400,000 pints (1% of the country's population) of blood per annum as at 2010, (WHO).
Rehabilitation	Estimate that 100% of those injured in road traffic crashes require rehabilitation. Patients from road crashes and those born with birth defects among those that require occupational therapy. We assumed that persons injured in road traffic crashes and those suffering from birth defects would require some kind of rehabilitation and therefore orthopaedic technology (appliances)
Palliative care	Palliative care and pain management primarily for those suffering from cancer.
Specialized clinics	
Comprehensive youth friendly services	Adolescents and youths aged 10 to 24 years constitute 36% of the total population. It is assumed that all these youths will require information on healthy lifestyles and provided with basic life skills as they develop in to adulthood.

Service area	Assumptions and methods to derive annual targets
Operative surgical services	Outpatient operations refers to minor operations such as wound suturing, incision and drainage, evacuation of the uterus and closed reduction of fractures. The annual national target for these cases was estimated at 3,000 per population of 100,000, of 42million people. Emergency operations refer to operations such as caeserian sections, laparatomies and herniorrhaphies. This is estimated at 500 emergency operations per 100,000 persons. A study conducted at the Rift Valley provincial hospital indicated elective surgical operations accounted for 16.8% of all surgical operationswhile specialized operations accounted for 1% of all major operations.
Specialized Therapies	Presently public radiotherapy services are only offered at Kenyatta National Referral Hospital. The radiotherapy unit, which has two machines, takes in 150 patients per day and the sessions run up to midnight. There are no official records on cancer in Kenya, but estimates show there are about 20,000 to 22,000 new cases every year. The Economist Intelligence Unit, pegging its numbers on Globocan figures, notes that in 2009 new cancer cases in Kenya stood at 34,197 with those in 2020 expected to rise to 48,144 per year. It is assumed that all cancer patients will have chemotherapy administered.

The major reason for dialysis is end stage renal disease following cardiovascular disease and diabetes. Prevalence of end stage renal disease in Kenya is estimated at 16 per million population,(Naicker, 2009). It is assumed that all these patients will need to undergo dialysis. Renal transplant is the only organ transplant taking place at Kenyatta National hospital. On average, 30 patients benefit from renal transplant annually,(Ngigi, 2012) |
POLICY OBJECTIVE 5	
Health Promotion including health Education	All households included as target population for mass health education.
Sexual education	Those who are sexually active and adolescents form the target population.
Substance abuse	Target populations based on those most vulnerable, KEPH lifecycle cohorts from adolescents to adults.
Micronutrient deficiency control	Entire households are the targets.
POLICY OBJECTIVE 6	
Safe water	Other than targets that can be directly related to households, many of the targets are difficult to determine and require further definition of objectives.
Sanitation and hygiene	For home inspections for sanitation adequacy it is assumed that the natural life of pit-latrines is 10 years.
Nutrition services	One third of children under 5 years are stunted,(Kenya National Bureau of Statistics and ICF Macro, 2010).
Pollution control	Approximately 79 per cent of the population live in rural areas. We assume that 90% of the rural households depend on biomass fuel for cooking and heating,(van Gemert, van der Molen, Jones, & Chavannes, 2011).
Housing	Ministry of housing estimates that annual output of 150,000 housing units in urban areas and 300,000 units in rural areas is needed to meet demand,(Ministry of Housing, 2004)
School health	Estimated annual targets based on number of schools in the country,(Ministry of Education, 2012) , and population aged 6 – 14 years. Children with a disability estimated at 2.3 per cent, (National Coordinating Agency for Population and Development, 2008).
Food fortification	Estimated annual targets based on number of households.
Population management	Estimated annual targets based on number of households.
Road infrastructure and Transport	Estimated annual targets based on number of public health facilities.

Norms and Standards for Health Service Delivery

The second National Health Sector Strategic Plan 2014-2018 (NHSSP II) provides the framework for reversing the download spiral in the trends of Kenya's health indicators. To achieve the strategic focus, the plan defined a common service delivery package, the Kenya Essential Package for Health (KEPH), KEPH is a unique combination of integrated activities that will be provided to all the citizens of the country to enable the achievement of the health results. To make it work, however, there must be an appropriate mix of inputs - human resources, infrastructure and commodities.

This booklet sets out the norms and standard that are established to guide the efficient, effective and sustainable delivery of this package of services, service delivery standards relate to the expectations of each level of care with regard to service delivery and the human resources needed to meet these expectations. Service delivery *norms* define the quantities of these resource inputs needed to efficiently, and sustainably offer the service delivery package.

Besides detailing the norms and standards for the various service delivery inputs, the booklet specifies the process and expectations of supervision tool not to. The booklet also provides guidelines for norms and standards are adhered to. The booklet also provides guidelines for calculating the staffing and infrastructure status of individuals service delivery facilities.