Republic of Ghana

Ministry of Health

Ghana Human Resources for Health Country Profile

Human Resources for Health Country Profile

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Acronyms

AHSA	Association of Health Service Administrators
AIDS	Acquire Immune Deficiency Syndrome
CBD	Community Based Distribution
CHAG	Christian Health Association of Nigeria
CHO	Community Health officer
CHIM	Centre for Health Information Management
CHNTS	Community Health Nursing Training School
CHPS	Community-Based Health Planning and Services
CIDA	Canadian International Development Agency
CMR	Crude Mortality Rate
CSM	Cerebro-Spinal Meningitis
DANIDA	Danish International Development Agency
DFID	Department for International Development
DHIMS	District Health Information Management Systems
ENT	Ear, Nose and Throat
FBO	Faith-Based Organisation
GCE	General Certificate of Education
GDP	Gross Domestic Product
GHS	Ghana Health Service
GLSS	Ghana Living Standards Survey
GMA	Ghana Medical Association
GOG	Government of Ghana
GPRS	Ghana Poverty Reduction Strategy
GRNA	Ghana Registered Nurses Association
GRMA	Ghana Registered Midwives Association
GSS	Ghana Statistical Service
HATS	Health Assistants Training School
HIV	Human Immuno-deficiency Virus
HR	Human Resources
HRDD	Human Resources Development Division
HRH	Human resources for health
HRIS	Human Resources Information System
HSWU	Health Services Workers Union
ICC	Inter-Agency Coordinating Committee
ICM	International Confederation of Midwives
IMR	Infant Mortality Rate
IPPD	Integrated Personnel Payroll Database
IST	In-service Training
JICA	Japan International Cooperation Agency
MCH	Maternal and Child Health
MDAs	Ministries, Departments and Agencies
MoH	Ministry of Health
MS	Micro Soft
MTHS	Medium Term Health Strategy
MTS	Midwifery Training Schools
NDHS	National Demographic and Health Survey
NHIL	National Health Insurance Levy
NHIS	National Health Insurance Scheme
NGO	Non Governmental Organisation
NNMR	Neo-Natal Mortality Rate
NTC	Nursing Training School

PNNMR	Post Neo-Natal Mortality Rate
PHC	Primary Health Care
POW	Programme of Work
RGN	Registered General Nurse
PSG	Pharmaceutical Society of Ghana
RM	Registered Midwife
RMN	Registered Mental Nurse
SDHS	Strengthening District Health Systems
SIST	Structured In-Service Training
SRN	State Registered Nurse
SSS	Senior Secondary School
TB	Tuberculosis
TBA	Traditional Birth Attendant
TAMPD	Traditional and Alternative Medicine Practitioners Directorate
TIS	Training Information System
U5MR	Under-5 Mortality rate
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VHC	Village Health Committee
VHW	Village Health Worker
WASSSCE	West African Senior Secondary School Certificate Examination
WHO	World Health Organisation

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Executive Summary

Ghana attained a Republic status on the 1st of July, 1960, after gaining independence from the British on 6th March, 1957. Ghana has a total land area of 239,000 sq km. It shares common boundaries with La Cote D'Ivoire on the West, Togo on the East, Burkina Faso on the North and Gulf of Guinea on the south. The country has ten decentralized regions and 170 districts. Ghana's decentralisation is anchored on devolution of power to regional, district, local and unit levels across the country. The districts are administered by Assemblies of directly elected and government appointed members.

Provisional results of the 2010 population census show that, Ghana has a population of **24,233,431**, with an annual growth rate of 2.40%. Ashanti Region has the highest population of 4,725,046. Greater Accra Region, the country's capital since 1877 is the next with a population of about 3,909,764.

The Health System

Health services and functions in Ghana have been decentralised. Budget Management Centres (BMCs) have been created to promote financial decentralisation to and within districts and to improve both access to health services and community involvement in planning and delivery of services. Management Committees have been established in almost all peripheral health facilities. At the base of the health system, the MOH through its agency the Ghana Health Service (GHS), runs a system of "close to client" health services based on a strategy dubbed Community-based Health Planning and Services (CHPS). There are also health centres manned by auxiliary and professional health staff. The CHPS centres and health centres are meant to be the points of first contact for the sick. Complicated cases are referred to district hospitals initially, then to regional, teaching and specialized hospitals as the complexity of the treatment required increases.

Health service delivery in Ghana follows a three-tier arrangement: primary, secondary and tertiary levels. Correspondingly, there are three levels of management in the Ghanaian health sector: central or national headquarters; regional; and district. In 1996, The Ghana Health Service and Teaching Hospitals Act (ACT 525), 1996 was passed to separate health policy formulation from operational management of health service delivery.

Act 525, 1996, makes the MoH responsible for policy formulation, resource mobilization and allocation within the health sector, and monitoring and evaluation of overall sector performances. The Ghana Health Service (GHS) was created with the responsibility to manage the provision of primary, secondary and some specialist health care to the people of Ghana. The GHS operates under a Council appointed by the President on advice of the Council of State, the presidential advisory body. The GHS operates under a Council appointed by the President on advice of the Council of State, the presidential advisory body. The Teaching (National) Hospitals function as semi autonomous health institutions with responsibility for tertiary level health care under a Board appointed by the President.

The mission of the Ministry of Health is to "work in collaboration with all partners in the health sector to ensure good health and vitality and equitable access to quality health care services for all living anywhere in Ghana". Together with other stakeholders, the MoH sets and clarifies its priority policy objectives which are captured in the Medium Term Health Strategy (MTHS) documents and subsequently the 5-Year Programmes of Work (5YPOW). These 2 documents define packages of cost-effective interventions to be delivered in an integrated manner through the district health system within clearly defined periods.

In Ghana, significant improvement in health status has been achieved through increased access to cost-effective interventions including expansion of access to immunizations, essential medicines, and essential

obstetrics care over and above general improvements in socio-economic determinants of health.

Data on health workforce

There are about 52,258 individuals currently formally working in the health sector in public, CHAG, private, Islamic Missions, quasi-government and other organizations in Ghana.
The MOH employs 42,299 staff in GHS, teaching hospitals, CHAG, and health training institutions, regulatory bodies and headquarters. This number represents about 81.5% of the total health sector workforce. Non-clinical support staff, including administrators, accountants, drivers and technicians; and clinical support staff including health aides and ward assistants constitute about 38% of the total workforce officially employed.

Apart from the total workforce in formal employment, about 21,791people countrywide are registered as engaged in traditional medicine, while 367 persons are registered traditional birth attendants (TBAs). This indicates that about 69,000 people are known to be involved in health care delivery country-wide.

Distribution of health workforce

Distribution of health workers is skewed in favour of the more affluent regions, most of which are in the southern half of the country. The highly skilled professionals like medical doctors and specialized personnel (nurses, pharmacists, allied health professionals, etc) are concentrated in Greater Accra region, as well as in Korle Bu and Komfo Anokye Teaching Hospitals.

The two teaching hospitals (Korle Bu and Komfo Anokye) employ more than 45% of the country's doctors while less than 15% are present in the district hospitals. The southern sector of the country where social amenities are concentrated, attract most of the trained health staff, thus reducing further the possibilities of enhancing service delivery in the rural areas where more than 65% of the population live. The quality of health care delivery at this level is compromised by low staff competencies at maternal and child health management, poor life saving skills of midwives, poor record keeping on ANC clients and non follow-up of post- natal care clients.

Majority of the highly skilled health staff are in the public sector. The private self-financing sector however, employs 10% of Ghana's health workforce, mostly in the urban areas. The private sector has a large number of health facilities, yet they appear to have a proportionately smaller number of staff than the public sector.

Health workforce production

Although training of health professionals has been a shared responsibility between the Ministries of Health and Education, there has not been clearly defined roles and collaboration. There is no comprehensive training policy to clarify roles and address issues.

The Ministry of Health runs different training programmes in the country to prepare personnel for the provision of quality health care to the people living in Ghana. During the last decade, the MOH expanded all existing health training institutions and set up new institutions and programs. Even though efforts were made to expand the training institutions; much more needs to be done in terms of infrastructure to meet increasing intake.

The decade saw the establishment of the Ghana College of Physicians and Surgeons, five general nursing schools. New programs have been introduced for direct entry into midwifery and health assistants (clinical) courses as well as diploma in community health nursing, and midwifery. The MOH established a total of 21 training institutions between 2001 and 2006. CHAG and the private sector together opened 7 new schools in general nursing and health assistants (clinical).

The policy of the MOH to increase the number of graduates together with strengthening capacities in most of the health training institutions has resulted in a 50% increase in admissions into health training institutions and 20% increase in all admissions into the universities since 2001. Despite these gains in recent years, the capacities of the health training institutions to train sufficient numbers to meet national requirements remains inadequate in terms of physical infrastructure, logistics, and teaching staff, as well as funding.

Health workforce utilisation

Recruitment into the Ministry of Health, its Agencies and CHAG institutions are to large extent decentralised with each Agency recruiting its staff on the basis of requirements as defined in their annual plans ,Candidates are recruited through any one, or a combination of the following approaches: verification of academic/professional qualifications; practical Examinations; interview' and or written examination

The Head of Civil Service is the recruiting authority for the Ministry of Health. For the various Agencies however, the recruiting authority is the respective Councils or Boards as the case may be.
Before any recruitment is done there is need to seek financial clearance from the Ministry of Finance.

The Ministry of Health however recruits all newly graduated critically needed professionals such as doctors, nurses, pharmacists, laboratory scientist and all health professionals trained in Ministry of Health institutions after internship, Through the inter-agency recruitment committee such new entrants are distributed among the Agencies based on quota arrangement and need.

Governance of HRH

The Human Resource for Health Development Directorate (HRHDD) is a directorate of the MOH with the mandate to formulate appropriate policies that will ensure adequate production of appropriate numbers and mix of HR personnel, equitable distribution of staff, adoption of appropriate retention strategies, and performance related reward systems that will make the MOH meet its vision of improving the wellbeing of the Ghanaian populace. The Directorate has a mission to involve all Agencies of the MOH, other stakeholders such as the academia, private sector, health partners, other MDAs (both within and outside the country) in the formulation, implementation, monitoring and evaluation of effective HRH policies that guide production, management and training of the health workforce.

There are Human Resources for Health Policies and Strategic Plans for the Health Sector. The most recent HRH Strategic Plan covers the period 2007 to 2011. There is a fit between the HRH Policies and Strategic Plans, and the overall health sector policies and plans. The HRH Policy was developed in direct response to the policy direction and goals of the health sector which also is linked with the Government of Ghana Poverty Reduction Strategy(GPRS). In recognising the synergistic relationship between wealth and health, the government's GPRS identifies health as an essential component of interventions needed for wealth creation. In response to the GPRS, the health sector has in turn highlighted the importance of developing the appropriate human resources in their right mix and numbers in order to be able to respond adequately to the health needs of the people of Ghana.

The HRH Policy and Plans also respond to the human capacity requirement of priority international agenda and goals such as the Millennium Development Goals and the Global Health Interventions for HIV/AIDS, Tuberculosis and Malaria Control. Types and numbers of cadres projected as required are based on the priority service interventions determined by the health sector.

Macro-economic indicators serve as a major factor in prioritising HRH interventions. Emphases in the current Human Resources Policies and Plans 2007-2011 emphasises the training of more middle level

cadres which are cheaper to produce and maintain. About 90% of recurrent expenditure in sector goes into payment of staff emolument.

There are human resources directorates in the MOH and at Agency levels. Currently the policy for recruitment, placement and promotion within the Agencies was adapted from an old policy from MOH. The directorates have training, planning and management units. There are human resources managers at the regional levels and at the teaching hospitals. There are also training coordinators responsible for in-service training at the regional levels and at the teaching hospitals. The MOH's Human Resources for Health Directorate takes overall responsibility for the health sector's human resources across the country.

Within the overall framework, the MOH's HRH development focuses: restructuring on the sector's personnel numbers, distribution and skill mix, developing and implementing continuous professional development programs, decentralizing health staff management and developing performance management systems as well as promoting collaboration between public and private sector providers.

MOH, GHS and BMC staff, and health workers outside the government sector benefits from capacity-building activities in management, public health, financial management, procurement, improved human resources management as well as increased resources for their activities.

Health Professionals are regulated by specific regulatory bodies established by law with clear mandates to accredit the respective training institutions that produce the relevant cadres according to laid down criteria. The criteria used for accrediting training institutions include but are not limited to: availability and quality of clinical and practical training sites. Each Agency responsible for ensuring that eligible members of their profession either trained locally or abroad are registered before they are allowed to practice in the country.

Each of the Professional Regulatory Agencies is headed by registrar who is responsible for the day to day administration of body. Each body also has a Governing Council whose members are appointed by the President of the country for a fixed term. The Governing Council has an oversight responsibility for the operations of their specific regulatory body.

The regulatory agencies have the authority to discipline their erring professionals.
There are three main professional regulatory bodies in the country. These are
• Medical & Dental Council
• Pharmacy Council
• Nursing & Midwifery Council

A new bill for regulating allied health professionals is currently under consideration at Parliament, the law making house in the country. When pass into law, the Allied Health professionals Regulatory Council will be responsible registering and regulating the following professionals and their practices:

- Laboratory Scientists
- Nutritionists
- Radiographers
- Optometrists
- Community Health Officers

Introduction

This document on the Human Resources for Health Profile for Ghana is the product of the collaboration between the Ministry of Health of Ghana and its service delivery and Regulatory Agencies, and the African Health Workforce Observatory which is hosted at the World Health Organisation Regional office for Africa in Congo Brazzaville.

The initiative aims to provide a comprehensive picture of the health workforce situation in Ghana. It seeks to strengthen the human resources information system in the country through the establishment of baselines for evidence based decision making and policy development at both country and Africa Regional levels.

Purpose

The HRH profile:

- Provides a comprehensive picture of the Health Workforce situation;
- Presents the HRH policies and management situation to help in monitoring the HRH stock and trends;
- Provides basis for communication with and between policy-makers and stakeholders;
- Strengthens the HRH information system by establishing evidence for baselines and trends; and
- Facilitates information sharing and cross-country comparisons

Methodology

The profile is structured in conformity with a template prepared by the Secretariat of the African Health Workforce Observatory through consultations. The use of a common template thus facilitates cross-country comparisons between countries and over time.

Summary

The greatest challenge encountered in the preparation of the country profile relates to absence of a comprehensive and accurate data base on the health workforce, particularly pertaining to numbers, distribution, historical trends, and attrition. Data had to be gleaned from multiple sources in order to complete the document.

Scope of the HRH profile

The Human Resources for Health Profile for Ghana begins with a summary of the history, geography, demography, and economic situation of the country. It follows with a description of the health care situation in the country, health care financing and health information systems. Further, a comprehensive picture of the Health Workforce situation in the country, including HRH stock and trends, HRH production including pre-service and post basic training processes, and HRH utilization are presented.

1. Country context

1.1 Geography and demography

On 1st July 1960, Ghana became a Republic after gaining independence from the British on 6th March, 1957. Ghana has a total land area of 239,000 sq km. It shares common boundaries with La Cote D'Ivoire on the West, Togo on the East, Burkina Faso on the North and Gulf of Guinea on the south.

It has ten decentralized regions and 170 districts. Vital to the process of decentralization is the devolution of power to regional, district, local and unit levels across the country. The districts are administered by Assemblies of directly elected and government appointed members.

Provisional results of the 2010 population census show that, Ghana has a population of **24,233,431**, with an annual growth rate of 2.40%. Ashanti Region has the highest population of 4,725,046. Greater Accra Region, the country's capital since 1877 is the next with a population of about 3,909,764. Accra is one of the most densely populated and fast growing metropolis in Africa with an annual growth rate 3.36% (GSS 2000 census - projections).

Table 1.1 Percent Population Distribution by Age Group and year
(last available year and 10 year earlier if possible)

Age Group	1980	1990	1995	2000
0–14 years	45	45	43	44
15–64 years	50.6	50.4	52.4	51.2
65+ years	4.4	4.6	4.6	4.8
Total	100.0%	100.0%	100.0%	100.0%
Total population	-	-	-	18,912,079

Source: GSS 2000 Census

Table 1.2 Population distribution by Sex

Year	Total	Male	Female	Male/Female (%)	Growth rate (%)
2008	22,900,927	11,343,581	11,557,346	49.53	2.17
2009	23,416,518	11,600,326	11,816,192	49.54	2.20
2010	*24,233,431	11,801,661	12,421,770	48.70	2.40
2011	24,492,823	12,138,643	12,354,180	49.56	2.26

**Based on provisional results of the 2010 Population Census*
Source: GSS, 2011

1.2 Economic context.

Ghana like many other developing countries has drawn up a comprehensive development policy framework document called Ghana Poverty Reduction Strategy (GPRS). This framework is for sustainable economic growth and accelerated poverty reduction. The GPRS has identified programmes that seek to realize the following;

1. Ensuring sound economic management for accelerated growth,
2. Increasing production and promoting sustainable livelihoods,
3. Enhancing direct support for human development and the provision of basic service,
4. Intensifying the provision of special programmes in support of the vulnerable and the excluded,
5. Ensuring good governance and increased capacity of the public sector,
6. Promoting the active involvement of private sector as the main engine of growth and partner in nation building. With these strategies and other global initiatives Ghana is running a GDP (Gross Domestic Product) growth rate of 5.2%. Agriculture is the backbone of Ghana's economy accounting for about 40% of the country's gross domestic product, employing 60-70 percent of the workforce, and providing more than 55 percent of the foreign exchange earnings.

Table 1.3 Economic indicators

Indicators	Year				Source
	2006	2007	2008	2009	
GDP	-	6.5	8.4	4.7	GSS, 2010
National Debt as % of GDP	15.5	16	15.9	16.5	GSS, 2010
Economic Aid as % of GDP	-	-	-	11.7	NationaMaster.com
% of Budget Spent on health as % of GDP	-	-	-	5.1	World Health Statistics, 2009
Income per capita (in PPP)	-	6.1	6.84	2.48	World Economic Outlook, 2009
%of population living below poverty line	-	-	-	28.50%	NationMaster.com
Proportion of population with malnutrition	-	-	-	13.80%	GPRS Progress report: 2006-09
Unemployment rate	-	-	-	3.60%	GLSS, 2008
Inflation rate	10.9	10.7	16.5	19.3	GSS, 2010

1.3 Political context

Ghana has maintained a stable political environment for some time now, Ghana's system of government is a multiparty constitutional democracy founded on elections by open and free universal adult suffrage. All Ghanaians above 18 years of age are eligible to vote into office an executive president for a maximum of two four year terms.

A 230 member parliament is also elected for unlimited four-year terms. The main arms of Government are the executive, legislature and judiciary each of which is independent of the other. Ghana is a nation governed by the rule of law with a strong inclination towards freedom of expression..

1.4 Health status

Most instances of morbidity and mortality in Ghana result from poor environmental sanitation and are largely preventable. The three major causes of morbidity and mortality are malaria, acute respiratory tract infections and diarrheal diseases. Life expectancy at birth was estimated at around 45 years in 1957, improved to 55 years in the early 1980s and to 60 years in 2007. Although infant mortality rate declined from 81 to 61 per 1000 live births between 1988 and 1998, the current rate of 50 per 1000 live births (2008) is above the desired level. Moreover, the aggregate rates mask enormous gender, socio-economic and geographic differences. During the same period, mortality rates for children under five years declined from 154 to 80 per 1,000 live births, much lower than that of many neighbouring countries, which range between 150 and 250 per 1,000 for the same period. Anaemia and malaria account for up to 40 per cent of

reported deaths of children under 15 years. Estimates of national maternal mortality rates vary from 214 to 740 per 100,000 live births. Mortality levels are highest in the northern belt and amongst women with lower education. The leading causes of maternal deaths are haemorrhage, hypertensive disease in pregnancy, abortions, sickle cell disease, genital tract infections, anaemia and obstructed labour. Poverty, high fertility rates, early childbearing and unwanted teenage pregnancies also contribute to the unacceptably high maternal deaths. Stroke and hypertension are the predominant causes of death reported for both sexes after the age of 45 years.

Poverty related diseases such as severe malnutrition, premature births, birth injury, gastroenteritis and tuberculosis collectively accounted for 57 per cent of the total burden of disease in Ghana as measured by the healthy days of life lost through illness, disability and death. HIV/AIDS and cardiovascular diseases have emerged as major health issues. With a sero-prevalence rate of 3% among the adult population, it is estimated that over 500,000 persons, including about 40,000 children are infected, with 125 persons developing HIV/AIDS every day. Ghana experiences sporadic epidemics of cholera, cerebrospinal meningitis, yellow fever and rabies. Cases of cerebral spinal meningitis occur in non-epidemic periods with higher case fatality rates. The major non-communicable diseases of public health concern are cardiovascular diseases, hypertension, diabetes mellitus, cancers, asthma and sickle cell disease. Data on the burden of these diseases are limited. However, reported cases of diabetes and hypertension are on the increase. There are large regional differences in health promoting factors, which are generally worse in the northern and central regions and among rural residents. The challenge of the Government of Ghana is to reduce inequalities of health outcomes by reducing geographical disparities of access to quality basic health services and enhancing efficiency in district service delivery, with an emphasis on poor and underserved regions.

Ghanaians have a life expectancy of 60 years (2007. World Bank). Available data shows that morbidity pattern or prevalence of diseases has remained fairly constant over the years. The top ten causes of out-patient morbidity in 2000 were;

- Malaria
- Upper respiratory track infection
- Diarrhoea diseases
- Skin diseases
- Accidents
- Pregnancy related complications
- Eye infections
- Intestinal worms
- Hypertension
- Anaemia

Major Health Indices and Intervention Programmes include:

1. Maternal Mortality Rates (MMR)

MMR ranges from a predicted ratio of 214 (WHO 1999) to about 586 (Hill 2001) per 100,000 live births, with considerable differences between the regions. There are safe motherhood interventions such as training of midwives and rural doctors in essential emergency obstetric care. There is also intense education in reproductive health and family planning in communities.

2. Child Morbidity & Mortality

A lot of progress has been made in reducing under- five mortality from 155 in 1983-1987; 111 per 1,000 births in 1999-2003; and 80 in 2004-2008. There has been step-up training in integrated management of childhood illnesses (IMCI) for nurses, midwives, medical assistants and doctors. The expanded programme on immunization against the six childhood killer diseases has also been intensified over the years. Measles immunization coverage for children 12-23 months for instance stands at 95%(2007).

3. Communicable and Non-Communicable Diseases

There are healthier life threats emanating from HIV/AIDS, Tuberculosis, non-communicable diseases like hypertension, obesity and diabetes and accidents. However, there are specific intervention programmes for controlling: HIV/AIDS & STI; TB; NCB. Interventions are in place for handling accident & emergencies.

There are also intervention programmes for controlling neglected diseases such as: Trachoma; Filariasis; Leshmaniasis; Schistosomiasis & other helminthes; and Buruli ulcer.

4. The roll back malaria programme, and other programmes for the prevention and management of diarrhea diseases, acute respiratory infections, and for guinea worm eradication are achieving positive results.

Table 1.4 Main causes of morbidity and mortality

Main Causes of Morbidity

No	DISEASE	Male		Female		Total	
		Number	%	Number	%	Number	%
1	Malaria	2,661,457	45.3	3,635,394	43.0	6,296,851	43.9
2	ARI(Acute Respiratory Infections)	530,078	9.0	683,113	8.1	1,213,191	8.5
3	Skin Diseases & Ulcers	279,008	4.7	330,604	3.9	609,612	4.3
4	Diarrhoea Diseases	237,352	4.0	286,074	3.4	523,426	3.7
5	Hypertension	175,444	3.0	328,026	3.9	503,470	3.5
6	Rheumatism and Joint	161,313	2.7	263,479	3.1	424,792	3.0
7	Acute Eye infection	123,829	2.1	156,402	1.8	280,231	2.0
8	Intestinal worms	115,093	2.0	151,498	1.8	266,591	1.9
9	Pregnancy and Related	-	-	216,081	2.6	216,081	1.5
10	Anaemia	86,133	1.5	119,003	1.4	205,136	1.4
11	Others	1,507,782	25.7	2,286,660	27.0	3,794,442	26.5
	Total	**5,877,489**	**100.0**	**8,456,334**	**100.0**	**14,333,823**	**100.0**

***Source and Year**: Centre for Health Information Management (CHIM)-GHS; 2009*

Main Causes of Mortality

	Diagnosis	Male		Female		Total	
		Number	%	Number	%	Number	%
1	Malaria	1,409	19.56	1,212	19.87	2,641	19.70
2	Hypertension	695	9.65	744	12.20	1,449	10.81
3	Anaemia	504	7.00	450	7.38	961	7.17
4	Intestinal Worm	163	2.26	151	2.48	316	2.36
5	Acute Respiratory Infections	144	2.00	77	1.26	223	1.66
6	Diarrhoea Diseases	45	0.62	29	0.48	75	0.56
7	Skin Diseases and Ulcers	34	0.47	39	0.64	73	0.55
8	Pregnancy and Related Causes	-	-	57	0.93	57	0.43
9	Acute Eye Infection	2	0.03	-	-	2	0.02
10	Rheumatism and Joint	-	-	1	0.02	1	0.01
11	Others	4,207	58.41	3,340	54.75	7,605	56.74
	Total	**7,203**	**100.00**	**6,100**	**100.00**	**13,403**	**100.00**

***Source and Year**: Centre for Health Information Management (CHIM)-GHS; 2009*

Table 1.5 Health indicators

Indicators	Both sex	Male	Female	Source and year
Life Expectancy	60.55	59.36	61.78	Ghana Demographic Profile, 2009
Crude Mortality Rate	9.4 per 1,000	-	-	GDHS, 2008; Facts and Figures – MOH, 2009
Under 5 Mortality rate	80 per 1,000	-	-	GDHS, 2008
Maternal Mortality Rate	170 per 1,000	-	-	GDHS, 2008
HIV/AIDS Prevalence rate	1.85%	-	-	GDHS, 2008
% with access to safe water	57.49%	-	-	Report GPRS II, 2006-2009.
% with access to sanitation	10.00%	-	-	GPRS II, 2006-2009; World Health Statistics, 2009

2. Country health system

2.1 Governance

The National Development Policy hinges on the nations vision to attain a middle-income status by year 2015. This vision is supported by three pillars namely: good governance; promotion of the private sector; and human capital development.

In pursuance of its policy, the Government of Ghana has embarked on a decentralization process which focuses on political, administrative and fiscal management of public-private partnerships in service delivery and economic development. The ultimate goal of Government is to move service delivery from the national to the district level. Accordingly, health services and functions in Ghana have been decentralised. Budget Management Centers (BMCs) have been created to promote financial decentralisation to and within districts and to improve both access to health services and community involvement in planning and delivery of services. Management Committees have been established in almost all peripheral health facilities. At the base of the health system, the MOH through its agency the Ghana Health Service (GHS), runs a system of "close to client" health services based on a strategy dubbed Community-based Health Planning and Services (CHPS). The CHPS centres are mainly staffed by community health nurses who have been given additional training in emergency obstetric care. There are also health centers manned by auxiliary and professional health staff. The CHPS centres and health centres are meant to be the points of first contact for the sick. Complicated cases are referred to district hospitals initially, then to regional, teaching and specialized hospitals as the complexity of the treatment required increases.

Administratively Ghana has 10 regions, with 170 District Assemblies, 1,306 Urban, Zonal and Town/Area Councils, and 16,000 Unit Committees. Financial and political powers have been substantially devolved. Structurally the formal health sector mimics this arrangement. Health service delivery in Ghana follows a three-tier system: primary, secondary and tertiary levels. Correspondingly, there are three levels of management in the Ghanaian health sector: central or national headquarters; regional; and district. In 1996, The Ghana Health Service and Teaching Hospitals Act (ACT 525), 1996 was passed to separate health policy formulation from operational management of health service delivery.

Act 525,1996 makes the MoH responsible for policy formulation, resource mobilization and allocation within the health sector, and monitoring and evaluation of overall sector performances. The Ghana Health Service (GHS) was created with the responsibility to manage the provision of primary, secondary and some specialist health care to the people of Ghana. The Teaching (National) Hospitals function as semi autonomous health institutions with responsibility for tertiary level health care under a Board appointed by the President.

The GHS operates under a Council appointed by the President on advice of the Council of State, the presidential advisory body. The Ghana Health Service Council comprises representatives from all major stakeholders, including professional associations. The President also appoints a Director-General who is the Chief Executive Officer of the Service. Health services in each of the 10 regions are ran under a Regional Health Directorate led by the Regional Director of Health Services. The Regional Health Directorates are considered as outposts of the Ghana Health Service, Headquarters.

At the district level, a District Health Management Team (DHMT) has been established in every district. The team comprises the heads of the service delivery units in the district hospitals. They are responsible for the supervision of all health services at the district level as well as the implementation of plans and policies. Act 525 (1996) makes provision for the establishment of health committees made up of all major stakeholders at the regional and district levels. The health committees are charged with the responsibility to oversee health services in their assigned geographical areas.

The MOH is responsible for improving the health status and reducing the inequalities in health outcomes of all people living in the country through the development and promotion of proactive policies aimed at providing quality and affordable health service through its agencies.

The MOH's mission is to "work in collaboration with all partners in the health sector to ensure good health and vitality and equitable access to quality health care services for all living anywhere in Ghana". The realization of this goal entails developing and sustaining an enabling policy, a conducive institutional environment for the health sector and promoting effective collaboration with other ministries, departments and agencies (MDAs), the private sector and NGOs. Together with other stakeholders, the MoH sets and clarifies its priority policy objectives which are captured in the Medium Term Health Strategy (MTHS) documents and subsequently the 5-Year Programmes of Work (5YPOW). These 2 documents define packages of cost-effective interventions to be delivered in an integrated manner through the district health system within clearly defined periods.

Collaboration

The institutional responsibilities and relationships in the health sector are guided by the Civil Service Act 327; the Ghana Health Service and Teaching Hospitals Act 525, 1996; the National Health Insurance Act 650, 2003; and the Ministry of Health Organisational Manual 1998. Other relevant responsibilities and relationships are defined in the Government of Ghana Aid Policy; the MoU on Earmarked Funds; the sector Budget Support (SBS) Framework Memorandum; and the Terms of Reference for the Health, HIV & AIDS Sector Group. The Ministry enters into agreement on other bilateral relationships with sector partners as deemed relevant.

The key health sector partners include:

- The Ministry of Health
- The Ghana Health Service
- Teaching Hospitals and Specialised Institutions
- Regulatory Bodies – the Medical and Dental Council; Nursing and Midwifery Council; Pharmacy Council; Food and Drugs Board; Private Hospitals and Maternity Homes Board; Traditional Medicine Practice Council. Work is currently ongoing for the establishment of a Council for regulating Laboratory and other Allied Health Services practices.
- The National Insurance Authority/District Mutual Health Insurance Scheme;
- Other Public Sector Implementing Agencies – Quasi-Government Institutions, including the Military, the Police and Port Health institutions;
- Christian Health Association of Ghana (CHAG)
- Non-Government Providers – Private sector and NGOs, including Traditional Providers
- The Ministry of Finance and Economic Planning, and other MDAs; the Parliamentary Select Committee on Health; and the National Development Planning Commission
- Metropolitan, Municipal and District Assemblies;
- Development Partners
- Civil Society
- Ghana AIDS Commission, and
- Any other bodies or stakeholders as identified by the Ministry of Health from time to time.

The Ministry of Health provides overall leadership and direction to the health sector; coordinates implementation of the sector Medium Term Development Plans(SMTDP) to ensure achievement of sector objectives; and facilitates engagement with health sector partners at all levels. The Ministry facilitates quality policy and technical dialogue with health sector partners and stakeholders through the following structures:

I. The Inter-Agency Leadership Committee(IALC)
II. The Sector Working Group (SWG)

III. Inter-Agency Coordinating Committees (ICCS)
IV. Business Meetings
V. Annual Health Summits
VI. Decentralised Level Dialogue

The Inter-Agency Leadership Committee
The primary purpose of the IALC is to institutionalize a key leadership structure across MoH and its Agencies. The Committee fosters health sector harmony through collaboratively determining priorities, discussing issues, sharing strategic ideas, examining results to date, shaping policy, and strengthening overall strategic direction. Committee members work together as health leaders and partner Agencies of the MoH to contribute to, and meet health sector goals and outcomes as laid out in the health policy, Programmes of Work and Complementary Aide Memoire.

The IALC convenes four times a year for ongoing governance planning, strategic decision making, and performance oversight, and to discuss current pressing issues. Committee members develop a shared agenda and periodically evaluate the agenda structure to ensure that there is emphasis on cross-cutting issues that can best be addressed through collaboration of health sector leadership.

Sector Working Group
Health is influenced by many factors outside the direct control of the MoH. Progress in achieving health sector objectives depends on how effectively the Ministry engages with its partners. The Sector Working Group provides the forum to achieve effective engagement with all health sector partners. The objectives of the Sector Working Group meetings are to:

- Conduct a coordinated, coherent and quality policy dialogue among health sector stakeholders
- Provide input to the formulation of sector policies, strategies and programmes and to ensure coherence with the national development plan
- Participate actively in decision making on the direction of policies and strategies concerning health
- Monitor implementation of sector programmes and commitments made by different stakeholders to the realization of the objectives of the health policy and strategic framework
- Monitor resource allocation and utilization, and integration of external assistance into the overall sector financing plan
- Improve the harmonization and alignment of Donor Partners towards Government budget priorities, systems and procedures,
- Share information and views and if necessary, agree on sector operational issues

Sector Working Group Meetings are designed and convened by the Policy, Planning, Monitoring and Evaluation Directorate of the MoH in consultation with sector partners including the Donor Partner Lead. Meetings are attended by all key sector partners at senior management and technical level. Outputs from meetings are collated and fed into IALC meetings.

Inter-Agency Coordinating Committees
The ICCs provide platform for discussing of technical issues on specific themes/diseases. To ensure their effectiveness:

i. MoH agrees with stakeholders on which ICCs will be in operation at any point in time – the aim is to ensure that groups cover all relevant themes and/or diseases while sustaining a manageable number of groups
ii. Sector Agencies and partners engaged in or interested in a particular theme/disease participate in that group
iii. The structures for meetings – the Chair; frequency; format; location; planned outputs are agreed by participants
iv. Outputs from ICC meetings are fed into monthly Sector Working Group meetings.

By working with other sectors the MOH makes efforts to deal comprehensively with the determinants of health. In particular, important determinants like water and sanitation, food security, and girl child education that fall outside the traditional boundaries of responsibility of the health sector.

Government recognises the private sector as the engine of growth, and therefore collaborates effectively with private health care providers including Non-Governmental Organisations (NGOs) in the delivery of health services. MoH has set up a Private sector Desk under the PPME Directorate and developed a Private Health Sector Policy with broad policy objectives to facilitate participation of the private sector in health service provision and to establish a framework for partnership and collaboration between the private and public sectors.

Government pays the salaries of about 70% of staff of the Christian Health Association of Ghana (CHAG), and also provides some logistical support to their facilities.

Private provision of health care in Ghana is quite substantial, and CHAG institutions alone are estimated to provide health care to about 40% of the population. CHAG is required to operate within the framework of government policies and directives. Whilst maintaining its autonomy, CHAG and its member institutions collaborate effectively with the MoH on policy and resource mobilisation issues and with the GHS on health service delivery issues. Government is now emphasizing strongly the importance of involving the private sector more in integrated service delivery and is committed to increasing its role in curative service to 65% in the long term. The MOH is working towards collaboration with the private sector by building on the experience gained with providing support to the CHAG institutions. Specifically, the MOH aims to use incentives that will encourage both private for profit and not for profit providers to provide comprehensive package of health services and to attract them to areas without government health services.

Efforts are being made to integrate traditional medicine into the national health system, improve regulation of the practice and ensure the efficacy and safety of traditional medicine. A law has been passed that integrates traditional medicine into the health care delivery system. Ongoing initiatives are targeted at developing institutions and building institutional capacity with the aim of assuring safety, efficacy and quality of the services.

2.2 Service provision

In Ghana, significant improvement in health status has been achieved through increased access to cost-effective interventions including expansion of access to immunizations, essential medicines, and essential obstetrics care over and above general improvements in socio-economic determinants of health.

Evolution of Health Care Delivery in Ghana
Health care delivery in Ghana has evolved from a purely traditional system through to an allopathic system to current arrangement in which various options for integrating traditional medicine into the national health system are being pursued. A related development is also the move from a system (mainly allopathic) driven by public sector ownership and provision to a current pluralistic arrangement involving public and private allopathic providers as well as traditional practitioners.

Policy and Strategic Intentions in Health Service Delivery
Service delivery in Ghana is based on the principles of Primary Health Care (PHC), Strengthening District Health Systems (SDHS), integration and collaboration within the public sector, between the public and private providers and between the allopathic and traditional practitioners.

Primary Health Care (PHC)
Service provision is based on the principles of primary health care. Such principles include equity, emphasis on prevention, use of appropriate technology, community participation and intersectoral collaboration.

Issues of prevention and the need to use appropriate and cost-effective technology to deal with health and disease problems influence the definition of packages of interventions.

Integration of Service Delivery
Historically, the implementation of PHC had been driven by individual interventions that were delivered vertically. Such vertical programmes were usually donor driven, had dedicated funds, own planning and reporting systems and in some cases had specialised staff e.g. leprosy control officers. Though some of the interventions were deemed cost effective, they were generally found to be inefficient and detrimental to provision of comprehensive package of services. Integrating the health services has presented a major shift from the vertical approach to service delivery that characterised the inception of primary health care. Strategically, an incremental approach involving integrating vertical programmes into service delivery arrangements has been adopted. This has been supported by reforming management systems to support integrated service delivery. Specifically integration involved a definition of a package of interventions to be delivered at each level of the health delivery system and redesigning (reforming) the essential support systems like planning, budgeting, financing, reporting and human resources among other to support integrated service delivery.

There are however programmes targeted at endemic diseases in affected locations. There are enhanced efforts to reduce the endemicity of targeted diseases or elimination/ eradication in the case of epidemics.

Arrangements for Health Services Delivery and Package of Interventions

Health service delivery is organized into a three tier system i.e. district, regional and headquarters with the district health system being the lowest level. The district health system is equated to the primary level.

The primary level includes a network of health services delivery arrangements starting with community based service providers, health centres at sub-district level and district hospitals. Arrangements also exist for outreach services to be provided into communities, schools and workplace. The following are the levels of health service providers in the health system.

Community Level Providers – The Village Health Workers (VHWs), Village Health Committees(VHCs), Water and Sanitation (Watsan) Committees are usually community volunteers responsible for the provision of non-personal public health services like surveillance, community mobilisation, environmental sanitation and health education. They are usually functional and effective in rural areas and peri-urban areas but less so in urban areas. The absence of community structures and social cohesion in urban areas makes such providers less effective.

The provision of personal public health service like immunizations, growth monitoring and Vitamin A supplements distribution is the responsibility of the Community Health Nurse (CHN) in both rural and urban areas. Some CHNs are based in health centres and organize outreaches to provide services into communities. However, in the CHPS programme, Community Health Officers, usually made up of Community Health Nurses are stationed in hard to reach communities to deliver ‘close to client’ services mainly through home visits. Other public health services like sale of food and iodated salt are through the markets.

In most deprived rural communities, licensed chemical sellers (pharmacy shop in urban areas) and traditional healers are the predominant curative care providers at the community level. Several attempts in

the past to support village health workers to provide clinical services have been abandoned on account of poor supervision and malpractice from the VHWs.

For maternity services, the TBA is the focal person for deliveries in rural communities. Non-prescriptive family planning devices are obtained from Community-Based Distribution (CBD) Agents, chemical shops and CHNs either during outreaches or from their CHPS compounds.

Providers at the Sub-district Level – The health centre provides ambulatory clinical, public health service and maternity services. Private clinics and hospitals on the other hand provide clinical services and antenatal care with a few conducting some deliveries. Maternity homes provide complete package of maternity services and limited clinical services and the MCH clinics provide the personal public health services and family planning devices. Pharmacy shops provide both family planning devices and essential drugs. In recent times, there is an emergence of private laboratories particularly in urban areas.

District Level Providers – The district hospital is the apex of the service delivery in the district health system. They provide outpatient and in-patient clinical and maternity services and limited surgical e.g. herniorrhaphy and caesarean section and vasectomy.

Regional and National Level Providers – Regional Hospitals serve as secondary level referral facilities. The Teaching or National Hospitals have been set up to provide tertiary care. In reality however, regional and national level facilities provide primary, secondary and tertiary care.

2.3 Health care financing

Health care financing is at the heart of health sector governance. It involves a process by which funds are mobilized from primary (households and firms) and secondary sources (Government and donors) These funds are accumulated in fund pools (health fund and National Health Insurance Fund) and are used to purchase services and products that promote, maintain and restore health. Currently, the main sources of funding of health services are:

- direct out of pocket payments
- premiums from NHIS
- tax revenues including special levies such as the National Health Insurance Levies (NHIL) located through the national budget
- grants from development partners
- financial credits

The Global Fund for Malaria, Tuberculosis, HIV and AIDS, managed in Ghana by the Ministry of Health also supplements resources to the health sector and supports activities in the health sector Program of Work.

Though the estimated per capita expenditure on health services has been rising, from US$6.9 in 1997 to US$23 in 2006, it is still below the World Bank recommended US$30-40, which is required to deliver the minimum package of health services. Table 2.1 below depicts trends and distribution of health care expenditures and financing from 1996 - 2001

Table 2.1 Health Care Expenditure and Financing (1996-2001) (In Billion Cedis)

Source of Financing	Year					
	1996	1997	1998	1999	2000	*2001(3 quarters)*
MOH Budgetary provision	125.5	139.5	195.0	233.2	356.3	***282.2***
Internally Generated Fund (User Fees)	9.1	27.7	33.0	47.6	72.2	***86.9***
Donors	62.2	56.7	55.2	89.1	183.8	***126.4***
Total	295.8	325.5	360.2	397.7	644.0	***495.5***
Indicators						
% MOH recurrent/GOG recurrent (narrow)	7.0	8.4	8.7	9.5	11.4	***n.a.***
% MOH capital/GOG capital						
% MOH total/GOG total	4.9	5.2	6.2	5.9	7.5	***n.a.***
% Recurrent/MOH total	49.6	56.0	71.7	84.0	83.0	***n.a.***
% IGF/MOH total	9.2	8.5	9.2	11.4	11.2	***n.a.***
% Domestic MOH total/GDP	1.3	1.2	1.3	1.4	1.6	***n.a.***
MOH total per capita ($ US) (excl. foreign financing)	4.62	4.18	4.93	4.82	4.29	***n.a.***
MOH total per capita ($ US) (incl. foreign financing)	10.16	8.14	7.81	6.83	6.44	***n.a.***

Sources: Mick Foster et al. 2000, MOH Financial Statement 2000, MOH Financial Report 30/9-01

Note: Only three quarters of expenditures is covered for 2001. The decrease in $ per capita expenditure was due to the collapse of the exchange rate.

However, simple projections based on financial data from the first three quarters of 2001 suggest that both health expenditure, as a percentage of the total national budget, and MOH recurrent expenditure percentages had decreased in 2001. This is also likely to explain the low expenditures on investments. Between 1999 and 2000, the health spending per capita decreased partly due to the collapse of the exchange rate. During this period, the Cedi exchange rate depreciated by over 100%. The real growth in health care expenditures in cedi terms exceeded the population growth rate.

Policy measures being implemented by the health sector include:

- Development of a comprehensive strategy for resource mobilisation from all sources of funding, both domestic and international
- Pursuing equity in health financing with special emphases on
  - Risk pooling
  - Targeting resources to services for the poor, vulnerable groups, and public health interventions
  - Reducing catastrophic costs of care
- Review annually the criteria for resource allocation and purchasing mechanisms, taking into account national priorities and different sources of funds
- Implementing systems and programmes for harmonization, alignment and effectiveness of aid in the health sector
- Ensuring financial sustainability of the National Health Insurance Fund
- Provision of increasing financial decentralization and autonomy, with opportunities for health facilities in the public sector to be self-financing
- Strengthening incentives and sanctions systems for reducing wastage and improving transparency, accountability and efficiency in the use of public resources
- Advocacy for increased financing in health promotion, water and sanitation, including waste management.

2.4 Health information system

Ghana has a health information system that captures, processes, stores and transmits data from the health facility to the national levels. Trained health information officers are located in health facilities to provide technical support for the collation, storage, analysis and transmission of data to the higher levels. They also provide information to facility managers to facilitate evidence-based decision-making.

There are also trained health information officers at district and regional health directorates who collate health data from facilities and service delivery points within their catchment areas, analyse, and interpret the resultant information for use by their respective managers. They also transmit data to the Centre for Health Information Management (CHIM) at the MoH Headquarters. CHIM collates data from all health service providers in the country. The Centre processes the data and provides information depicting health outcomes and interventions across the country. It also has the responsibility for designing and relevant tools and guidelines to facilitate data collection at all levels.

Key challenges confronting health information management in the health sector include:

- Weak human resource and institutional capacity for information management
- Gaps, duplication and waste among parallel health information systems
- Lack of timely reporting and feedback
- Unstructured investments and deployment of information and communication technology
- Poor quality data
- Inadequate use of information for decision making.

Efforts are however being made to rectify the challenges.

3. Health Workers Situation

3.1 Health workers stock and trends

Present numbers of Health Staff

Approximately 52,258 individuals are currently formally working in the health sector in public, CHAG, private, Islamic Missions, quasi-government and other organizations.

The MOH employs 42,299 staff in GHS, teaching hospitals, CHAG, and health training institutions, regulatory bodies and headquarters. This number represents about 81.5% of the total health sector workforce.

Non-clinical support staff includes administrators, accountants, drivers and technical officers. Clinical support staff includes health aides and ward assistants. These health workers represent approximately 38% of the total workforce officially employed. It is clear from the table 3.1 below that compared to clinical health care providers; the number of support staff is very high.

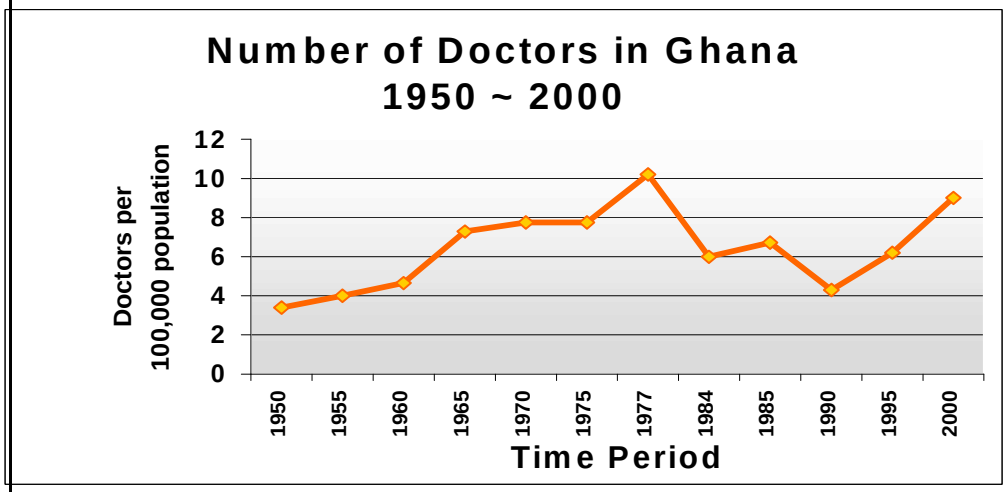
Apart from the total workforce in formal employment, about 21,791people countrywide are registered as engaged in traditional medicine, while 367 persons are registered traditional birth attendants (TBAs). This indicates that about 69,000 people are involved in health care delivery. Given that most small communities have recognized traditional health practitioners, it is highly probable that there are many more traditional health practitioners than have been captured above. The traditional medicine sector is estimated to employ about 200,000 (Census Report, TAMPD, 2003). This is a considerable human resource for health care that needs to be tapped.

Table 3.1 Health Worker/Population ratios at National Level

Occupational Categories/Cadres	Year	
	December 2010	
	Number	HW/1000 Pop
Generalist Medical Practitioners	1,945	0,08
Specialist Medical Practitioners	695	0,03
Medical Assistants	712	0,03
Nursing Professionals	8,938	0,37
Nursing Associate Professional	8,197	0,34
Midwifery Professionals	4,929	0,21
Dentist	55	0,00
Dental Assistants and Therapists	102	0,00
Pharmacists	1,629	0,06
Pharmaceutical Technicians and Assistants	1,253	0,05
Environmental and Occupational Health & Hygiene Workers	60	0,00
Physiotherapist and Physiotherapy Assistant	100	0,00
Optometrists and Opticians	41	0,00
Medical Imaging and therapeutic equipment operators	256	0,01
Medical and Pathology Laboratory Technicians	923	0,04
Medical and dental prosthetic technicians	13	0,00
*Community Health Workers	1,103	0,05
Health Management Workers/Skilled Administrative Staff	467	0,02
Other Health Support Staff	24,260	1,01
Total	**55,678**	**2,32**

**Community Health Workers does not include Village Health Workers and Community Volunteers. It includes Community Health Officers who have been formally trained leading to the award of Diplomas in Community Health (majoring in Disease Control or Nutrition)*
Adapted from: MOH Integrated Personnel Payroll Database, January 2010

Figure3 Trend data from 1960 ~ 2000



***Source**: data from : WHO Statistics 1960 ~ 2003 World Bank Development Indicator Database*

3.2 Distribution of health workers by category/cadre

Distribution of workers by category, and by gender (table 3.2), age (table 3.3), region/province (table 3.4), urban/rural (table 3.5), public-private for profit - faith based organization (table 3.6).

3.2.1 Gender distribution by health occupation/cadre

The total number of women working in the MOH (Teaching Hospitals, Health Training Institutions, GHS and CHAG) is approximately 48,772,which represents 59% of the workforce. It is evident that while the nursing and midwifery professions are female dominated, the medical, allied and other clinical professions are male dominated.

Table 3.2 Gender distribution by health occupation/cadre

Occupational Categories/Cadres	Grand-Total	Private	Public				
		2009	December 2010				
		Total	Total	Male	Female	% Male	% Female
Generalist Medical Practioners	1,945	405	1,540	1,108	432	71.95	28.05
Specialist Medical Practioners	695	187	508	401	107	78.94	21.06
Medical Assistants (*)	712	102	610	354	256	58.03	41.97
Nursing Professionals	8,938	576	8,362	1,924	6,438	23.01	76.99
Nursing Associate Professional	8,197	27	8,170	958	7,212	11.73	88.27
Midwifery Professionals	4,929	1,149	3,780	-	3,780	-	100.00
Dentist	55	10	45	31	14	68.89	31.11
Dental Assistants and Therapists	102	4	98	25	73	25.51	74.49
Pharmacists	532	51	481	304	177	63.20	36.80
Pharmaceutical Technicians and Assistants	1,253	79	1,174	797	377	67.89	32.11
Enviromental and Occupational Health & Hygiene Workers	60	-	60	49	11	81.67	18.33
Physiotherapist and Physiothery Assistant	100	2	98	48	50	48.98	51.02
Optometrists and Opticians	41	9	32	25	7	78.13	21.88
Medical Imagining and therapeutic equipment	256	17	239	166	73	69.46	30.54

operators							
Medical and Pathology Laboratory Technicians	923	168	755	606	149	80.26	19.74
Medical and dental prosthetic technicians	13	-	13	10	3	76.92	23.08
Community Health Workers	-	-	-	-	-	#####	-
Health Management Workers/Skilled Administrative Staff	467	-	467	343	124	73.45	26.55
Other Health Support Staff	24,260	9	24,251	12,543	11,708	51.72	48.28
Trainees	25,279	-	25,279	7,498	17,781	29.66	70.34
Total	**78,757**	**2,795**	**75,962**	**27,190**	**48,772**	35.79	64.21

NOTE : The Private Health Facilities Figures are not disaggregated by sex.
Source: The Public HR Data is from Controller and Accountant General Department –
December 2010 Payroll Data and the Private Health Facilities HR Data is from Private Maternity and Hospital Board.
Quasi-Government Facilities (e.g Military, Police etc) HR Information is not available.

3.2.2 Age distribution by occupation/cadre

The largest section of the workforce, 37.6% falls within 40-50 age group. People in the age range of 18-39 years form 25.5% of the total workforce and includes those who are likely to migrate to more developed countries for higher incomes (Dovlo, D. Y., 1999). It is also clear from the age distribution that the staff closest to the retirement age (60years for civil servants) are mostly medical assistants, enrolled nurses, and midwives, and these constitute about 34% of the entire workforce.

Table 3.3 Workers by age group and cadre – 2006

Health occupational categories	TOTAL	≤30 Yrs	31-40	41-50	≥51
Physicians generalists	100%	44%	30%	26%	1%
Physicians specialists	100%	5%	12%	53%	30%
Nurses	100%	41%	27%	30%	1%
Midwives	100%	2%	25%	70%	3%
Dentists	100%	18%	30%	45%	7%
Pharmacists	100%	33%	47%	18%	2%
Laboratory workers	100%	51%	25%	23%	1%
Environment & public health workers	100%	45%	30%	21%	4%
Health management and support workers	100%	13%	21%	19%	47%
Other health workers	100%	50%	31%	18%	1%
TOTAL	**100%**	**21%**	**24%**	**26%**	**30%**

Source and year: Health Sector Policy and Plans 2007-2011. September 2007

3.2.3 Regional distribution by occupation/cadre

The distribution pattern of health workers is skewed in favour of the more affluent regions, most of which are in the southern half of the country. The highly skilled professionals like medical doctors and specialized personnel (nurses, pharmacists, allied health professionals, etc) are concentrated in Greater Accra region, as well as in Korle Bu and Komfo Anokye Teaching Hospitals.

The two teaching hospitals (Korle Bu and Komfo Anokye) employ more than 45% of the country's doctors while less than 15% are present in the district hospitals. The southern sector of the country where social amenities are concentrated, attract most of the trained health staff, thus reducing further the possibilities of enhancing service delivery in the rural areas where more than 65% of the population live. The quality of health care delivery at this level is compromised by low staff competencies at maternal and child health management, poor life saving skills of midwives, poor record keeping on ANC clients and non follow-up of post- natal care clients.

Table 3.4 Regional/District/province distribution of workers - 2009

Occupational Category/Cadre	Regions						
		National HQs		Ashanti		Brong Ahafo	
	Total	No.	%	No.	%	No.	%
Dental Assistant and Therapist	98	-	-	16	16.3	3	3.1
Dentists	57	-	-	10	17.5	3	5.3
Environmental and Public Health Workers	1,521	21	1.4	213	14.0	243	16.0
Health Management and Support Workers	520	60	11.5	113	21.7	38	7.3
Laboratory Workers	980	60	6.1	166	16.9	73	7.4
Midwives	4,929	-	-	912	18.5	440	8.9
Nurses	17,846	38	0.2	2,75	15.4	1,344	7.5
Optometrist and Optician	41	-	-	6	14.6	3	7.3
Other Health Workers	23,359	625	2.7	4,275	18.3	2,309	9.9
Pharmaceutical Technicians and Assistants	478	-	-	89	18.6	47	9.8
Pharmacists	532	22	4.1	126	23.7	35	6.6
Physicians Generalists	1,945	10	0.5	514	26.4	131	6.7
Physicians Specialists	695	34	4.9	185	26.6	24	3.5
Total	**53,001**	**870**	**1.6**	**9,375**	**17.7**	**4,693**	**8.9**

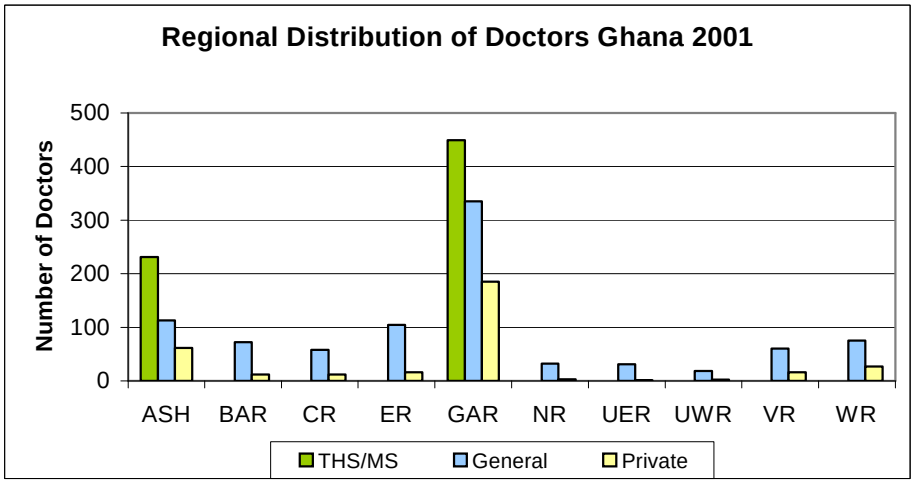
Occupational Category/Cadre	Regions					
	Eastern		Central		Greater Accra	
	No.	%	No.	%	No.	%
Dental Assistant and Therapist	11	11.2	8	8.2	34	34.7
Dentists	4	7.0	4	7.0	26	45.6
Environmental and Public Health Workers	182	12.0	138	9.1	120	7.9
Health Management and Support Workers	43	8.3	26	5.0	101	19.4
Laboratory Workers	104	10.6	52	5.3	290	29.6
Midwives	600	12.2	326	6.6	1,186	24.1
Nurses	2,065	11.6	1,457	8.2	4,209	23.6
Optometrist and Optician	9	22.0	2	4.9	16	39.0
Other Health Workers	2,345	10.0	2,249	9.6	3,53	15.1
Pharmaceutical Technicians and Assistants	67	14.0	35	7.3	108	22.6
Pharmacists	43	8.1	17	3.2	180	33.8
Physicians Generalists	146	7.5	74	3.8	803	41.3
Physicians Specialists	38	5.5	26	3.7	304	43.7
Total	**5,657**	**10.7**	**4,414**	**8.3**	**10,907**	**20.6**

Occupational Category/Cadre	Regions					
	Northern		Upper East		Upper West	
	No.	%	No.	%	No.	%
Dental Assistant and Therapist	6	6.1	3	3.1	1	1.0
Dentists	1	1.8	-	-	1	1.8
Environmental and Public Health Workers	160	10.5	79	5.2	106	7.0
Health Management and Support Workers	47	9.0	17	3.3	15	2.9
Laboratory Workers	53	5.4	38	3.9	24	2.4
Midwives	348	7.1	203	4.1	145	2.9
Nurses	1,303	7.3	1,001	5.6	611	3.4
Optometrist and Optician	1	2.4	-	-	1	2.4
Other Health Workers	1,761	7.5	979	4.2	753	3.2
Pharmaceutical Technicians and Assistants	19	4.0	12	2.5	8	1.7
Pharmacists	20	3.8	16	3.0	11	2.1
Physicians Generalists	60	3.1	31	1.6	11	0.6
Physicians Specialists	22	3.2	10	1.4	2	0.3
Total	3,801	7.2	2,389	4.5	1,689	3.2

Occupational Category/Cadre	Regions			
	Volta		Western	
	No.	%	No.	%
Dental Assistant and Therapist	8	8.2	8	8.2
Dentists	1	1.8	7	12.3
Environmental and Public Health Workers	123	8.1	136	8.9
Health Management and Support Workers	33	6.3	27	5.2
Laboratory Workers	55	5.6	65	6.6
Midwives	389	7.9	380	7.7
Nurses	1,584	8.9	1,484	8.3
Optometrist and Optician	1	2.4	2	4.9
Other Health Workers	2,737	11.7	1,796	7.7
Pharmaceutical Technicians and Assistants	62	13.0	31	6.5
Pharmacists	23	4.3	39	7.3
Physicians Generalists	70	3.6	95	4.9
Physicians Specialists	21	3.0	29	4.2
Total	5,107	9.6	4,099	7.7

Note: All the figures include that of the Private Health Facilities, Trainee figure is not includes in the total

Figure4 Regional/District/province distribution of workers



Source: *data from Ghana Ministry of Health. (2002). Internal Report on Human Resources.*

3.2.4 Urban/rural distribution by occupation/cadre

Over 70% of highly trained health professionals such as General Medical Practitioners, Nursing Professionals, Pharmacists, and Dentists are located in urban areas. This implies that health service delivery in the rural areas is left in the hands of semi-skilled and in some instances unskilled health workers.

Table 3.5 Urban/Rural distribution of workers 2009

Occupational Category/Cadre	Total	Urban	Rural	HW/1000 Pop. in Urban	HW/1000 Pop. in Rural
		%	%		
Generalist Medical Practitioners	1,945	70	30	0.13	0.04
Specialist Medical Practitioners	695	100	-	0.07	-
Medical Assistants (*)	712	30	70	0.02	0.04
Nursing Professionals	8,938	70	30	0.60	0.20
Nursing Associate Professional	8,197	30	70	0.23	0.43
Midwifery Professionals	4,929	40	60	0.19	0.22
Dentist	55	95	5	0.00	0.00
Dental Assistants and Therapists	102	95	5	0.01	0.00
Pharmacists	532	70	30	0.04	0.01
Pharmaceutical Technicians and Assistants	1,253	60	40	0.07	0.04
Environmental and Occupational Health & Hygiene Workers	600	20	80	0.01	0.04
Physiotherapist and Physiotherapy Assistant	100	100	-	0.01	-
Optometrists and Opticians	41	80	20	0.00	0.00
Medical Imaging and therapeutic equipment operators	256	60	40	0.01	0.01
Medical and Pathology Laboratory Technicians	923	70	30	0.06	0.02
Medical and dental prosthetic technicians	13	85	15	0.00	0.00
Health Management Workers/Skilled Administrative Staff	467	95	5	0.04	0.00
Other Health Support Staff	24,26	40	60	0.93	1.08
Trainees	25,279	80	20	1.93	0.38
TOTAL	**78,757**	**67.89**	**32.11**	**4.34**	**2.47**

Adapted from the Integrated Personnel Payroll Database (IPPD 2010) and data from the Private Hospitals and Maternity Homes Board

3.2.5 Distribution by occupation/cadre

Public-Private

Majority of the highly skilled health staff are in the public sector. The private self-financing sector however, employs 10% of Ghana's health workforce, mostly in the urban areas. The private sector has a large number of health facilities, yet they appear to have a proportionately smaller number of staff than the public sector. Most of the data gathered on the private sector was through a census conducted with support of DANIDA in 2001. A sampling of the private practitioners in Accra (SPMDP, 2001) showed their average age to be 60years.This presents a crisis on the horizon for the private health sector's human resources.

Public-Mission

Mission hospital and clinic staff are mostly semi-skilled, with auxiliary and ward assistants representing over 50% of employees. Mission facilities are predominantly located in semi-rural areas.

Table 3.7 Public/Private for profit/Faith based organization/private not for profit distribution of health workers

No	Occupational Category/Cadre	Public Sector	Private Sector	Faith Based Organisation	Total	
		%	%	%	No.	%
1	Generalist Medical Practitioners	71.5	20.8	7.7	1,945	100
2	Specialist Medical Practitioners	68.5	26.9	4.6	695	100
3	Medical Assistants	70.6	14.3	15	712	100
4	Nursing Professionals	79.5	6.4	14.1	8,938	100
5	Nursing Associate Professional	94.4	0.3	5.2	8,197	100
6	Midwifery Professionals	67	23.3	9.7	4,929	100
9	Dentist	76.4	18.2	5.5	55	100
10	Dental Assistants and Therapists	88.2	3.9	7.8	102	100
11	Pharmacists	84.8	9.6	5.6	532	100
12	Pharmaceutical Technicians and Assistants	72.1	6.3	21.6	1,253	100
13	Environmental and Occupational Health & Hygiene Workers	93.3	-	6.7	60	100
14	Physiotherapist and Physiotherapy Assistant	79	2	19	100	100
15	Optometrists and Opticians	56.1	22	22	41	100
16	Medical Imagining and therapeutic equipment operators	80.9	6.6	12.5	256	100
17	Medical and Pathology Laboratory Technicians	68.3	18.2	13.5	923	100
18	Medical and dental prosthetic technicians	53.8	-	46.2	13	100
19	Community Health Workers	81	0	18.9	23,783	100
20	Health Management Workers/Skilled Administrative Staff	76.13	9.94	13.93	53,001	100
21	Other Health Support Staff	81	0	18.9	23,783	100
Total/Averages		76.13	9.94	13.93	53,001	100

Calculated from data available from the IPPD 2010 and the Private Hospitals and Maternity Homes Board.

4. HRH Production

The Ministry of Health runs different training programmes in the country to prepare personnel for the provision of quality health care to the people living in Ghana.

These are listed in table 3.8 below:

Table 3.8 List of Health Training Institution Managed under Ministry of Health

NURSING TRAINING COLLEGES	MIDWIFERY TRAINING SCHOOLS
NTC KORLE-BU	MTS KORLE-BU
NTC BAWKU	MTS BEREKUM
NTC BOLGATANGA	MTS CAPE COAST
NTC KUMASI	MTS SEKONDI
NTC NKAWKAW	MTS KUMASI
NTC TAMALE	MTS BOLGATANGA
NTC JIRAPA	MTS MAMPONG
NTC AGOGO	MTS KOFORIDUA
NTC, SDA-KWADASO	MTS JIRAPA
NTC, ANKAFUL	MTS ATIBIE
NTC KOFORIDUA	MTS OFFINSO
NTC, PANTANG	MTS HOHOE
NTC, SUNYANI	MTS TARKWA
NTC HO	MTS TAMALE
NTC BEREKUM	MTS PANTANG
NTC CAPE COAST	MTS TEPA
NTC SEKONDI	MTS TWIFO PRASO

COMMUNITY HEALTH NURSING SCHOOL	ENVIRONMENTAL HEALTH SCHOOLS
CHNTS TANOSO	SOH TAMALE
CHNTS AKIM ODA	SOH HO
CHNTS, ESIAMA	SOH KORLE-BU, ACCRA
CHNTS HO	**COLLEGE OF HEALTH KINTAMPO**
CHNTS JIRAPA	
CHNTS NAVRONGO	COMMUNITY HEALTH (Field Technician)
CHNTS WINNEBA	COMMUNITY HEALTH (NUTRITION OPTION)
CHNTS FOMENA	COMMUNITY HEALTH (DISEASE CONTROL)
CHNTS TAMALE	HEALTH INFORMATION MANAGEMENT
COMMUNITY MEDICINE & HEALTH (DMA)	
CHNTS WINNEBA	MEDICAL LAB. TECHNOLOGY
CHNTS AKIM ODA	REGISTERED DENTAL SURGICAL ASSISTANT
CHNTS NAVRONGO	
AUXILLIARY NURSING SCHOOLS	**POST BASIC TRAINING PROGRAMMES**
HATS ASANKRAGUA	COMMUNITY MEDICINE & HEALTH (Post Basic Medical Assistants) – KINTAMPO
HATS ASANTA	COMMUNITY MENTAL HEALTH, KINTAMPO
HATS ATIBIE (FEMALE)	COMMUNITY ORAL HEALTH & MEDICINE – KINTAMPO
HATS ZUARUNGU	CRITICAL CARE NURSING, KORLE-BU
HATS DAMANGO	POST BASIC MIDWIFERY ATIBIE
HATS DUNKWA ON OFFIN	POST BASIC MIDWIFERY BOLGA
HATS KETA	POST BASIC MIDWIFERY DORMAA
HATS KOKOFU	POST BASIC MIDWIFERY GOASO
HATS KPEMBE	POST BASIC MIDWIFERY JIRAPA
HATS LAWRA	POST BASIC MIDWIFERY MAMPONG
HATS MAMPONG ASH (FEMALE)	POST BASIC MIDWIFERY NANDOM
HATS NALERIGU	POST BASIC MIDWIFERY PRAMSO
HATS SEFWI WIAWSO	ENT NURSING, KUMASI
HATS SUNYANI	MEDICAL ASSISTANT PSYCHIATRY - KINTAMPO
HATS TEPA	NURSE ANAESTHESIOLOGY, KUMASI
HATS TESHIE	NURSE ANAESTHESIOLOGY, RIDGE ACCRA
HATS WA	OPHTHALMIC NURSING, KORLE-BU
HATS YENDI	PERI-OPERATIVE NURSING, KORLE-BU
ALLIED HEALTH SCHOOL	PUBLIC HEALTH NURSING, KORLE-BU
OPTICAL TECHNICIAN	
PHYSIOTHERAPY ASSISTANT	
DENTAL TECHNOLOGY	

BASIC PROGRAMMES:

These programmes turn out skilled health professionals who practice in various fields in the health sector. The programmes are mainly for those applying with their Senior Secondary / Senior High School examination results with an aggregate score of 24 or better and require no previous knowledge in any health related field. However, previous experience in health (such as Health Extension

Workers, NIDs volunteering, Ward Assisting, etc) may give the applicant an edge during the interview and selection process.

Basic programmes are run for periods ranging from 3 to 4 years, and successful completion leads to the award of a **Diploma** or **Advanced Diploma** depending on the type of programme pursued.

1. REGISTERED GENERAL NURSING

This programme prepares the individual to give general nursing care in the hospital and in the community. It is a six-semester (three year) programme. At present there are fifteen general nurses training colleges being run by the Ministry of Health, including mission schools in the following locations: There is an additional one general nursing school being run by the National Military Hospital (37 Military Hospital).

Mission
Jirapa, Agogo, Nkawkaw, Bawku, Berekum and SDA-Kwadaso

Military
37 Military Hospitals

Government (MOH)
Cape Coast, Sekondi, Tamale, Koforidua, Kumasi, Ho, Bolgatanga, Korle-Bu and Sunyani.

2. BASIC REGISTERED MENTAL NURSING (RMN, DIPLOMA)
This programme prepares individuals in basic nursing with special option in Mental Health and Psychiatric Nursing. It is a six-semester (three year) programme which admits individuals from senior secondary schools. The schools are located at Pantang, and Ankaful.

3. Midwifery
There are three types of programmes:
a. Two-year post basic midwifery
b. Three-year direct entry midwifery

a. Two-year post basic midwifery
This programme is a certificate course for the Enrolled General, Mental and Community Health Nurses. At present there are post basic midwifery training schools in the following locations:
Jirapa and Atibie

b. Three-year Diploma in Midwifery
This is a six-semester (three-year) programme which admits individuals from the senior secondary school (SSS). The basic requirements are the same as those of the basic general nursing programme (SRN/Diploma).

The schools are located at Sekondi, Korle Bu, Kumasi, Cape Coast and Berekum, Bolgatanga, Mampong – Ashanti and Hohoe.

4. Diploma in Community Health Nursing
This is a six-semester programme which was started in 2005 to train individuals in community Health Nursing at the diploma level. The programme is offered at Winneba in the central region and Akim Oda in the Eastern region.

5. Diploma in Environmental Health –Korle Bu

This is a six-semester programme which is geared towards managing the environment and educating the community on proper sanitation and food hygiene.

POST BASIC PROGRAMMES:
These are programmes which build upon the Basic programmes by adding further knowledge and/or encouraging focus on a particular area of study. Some Post Basic Programmes lead to specialization in certain fields of Health such as Public Health, Ophthalmic, Anaesthesia, etc, whilst the others give general knowledge in patient management and care, e.g Medical Assistant.

Applicants to Post Basic programmes usually require some years of experience in a relevant Basic area to qualify to pursue the programme.

These programmes range from 12 to 18 months and successful completion leads to the award of an **Advanced Diploma** or **BSc**, depending on the programme pursued.

Applicants to Post Basic programmes should be **nominated** by their employing Agency and will be required to return to their Agency on successful completion for placement.

6. PUBLIC HEALTH NURSING, KORLE BU
This is a two-semester post basic nursing programme that trains nurses to assist families in the supervision and care of their children against poor nutrition, childhood diseases and home accidents; educate and assist the general public to become aware of their health and environment and the interrelations between these.

7. OPHTHALMIC NURSING, KORLE BU
This is a one year programme aimed at training nurses for additional and specialized competencies to enable them detect early and manage effectively eye conditions within their capabilities, and refer those beyond them to the appropriate hospitals. It is an international programme accredited by WHO, and hence has students coming from other countries. It is located in Korle-Bu.

8. CRITICAL CARE NURSING
This is a one-year (2-semester) programme which has started in 1997 to train nursing personnel in the care of critically ill patients who require constant expert care beyond basic general care given in health institutions.

9. PERI-OPERATIVE NURSING
This is a one-year (2-semester) programme which was started in 1997 to train nursing personnel in the management of patients before, during and after surgery. The programme is being run at Korle-Bu.

AUXILIARY PROGRAMMES:
These programmes are designed to churn out non-professionals who mainly work under the supervision of health professionals. The programmes are mainly for those who are applying with their Senior Secondary / Senior High School examination results with relatively lower grades than required for the professional programmes and require no previous knowledge in any health related field. However, previous experience in health (such as Health Extension Workers, NIDs volunteering, Ward Assisting, etc) may give the applicant an edge during the interview and selection process.

Auxiliary programmes are run for 2 years, and successful completion leads to the award of a **Certificate**, depending on the type of programme pursued.

10. CERTIFICATE IN ENVIRONMENTAL HEALTH

This is a four-semester programme which is geared towards developing appropriate human resources for ensuring proper environmental sanitation and educating the community on good living habits as well as food hygiene. Products from this training usually work under the supervision of Environmental Health Officers/Public Health Officers.

11. ENROLLED COMMUNITY HEALTH NURSING

This programme trains a category of nursing personnel who assist and work under the supervision of the Public Health Nurse within the community. It is a 4-semester programme covering a period of two years. At present there are Enrolled Community Health Nurses Training Schools in the following locations:

- Akim Oda, Eastern Region
- Ho, Volta Region
- Tamale, Northern Region
- Winneba, Central Region
- Tanoso, Brong Ahafo Region
- Navrongo, Upper-East Region
- Jirapa, Upper West Region
- Essiama, Western Region
- Fomena in Ashanti Region

12. CERTIFICATE IN CLINICAL HEALTH CARE (Health Assistants)

AUXILLIARY NURSING SCHOOLS	LOCATION (REGION)
HATS ASANKRAGUA	Western
HATS ASANTA	Western
HATS ATIBIE (FEMALE)	Eastern
HATS ZUARUNGU	Upper East
HATS DAMANGO	Northern
HATS DUNKWA ON OFFIN	Central
HATS KETA	Volta
HATS KOKOFU	Ashanti
HATS KPEMBE	Northern
HATS LAWRA	Upper West
HATS MAMPONG ASH (FEMALE)	Ashanti
HATS NALERIGU	Northern
HATS SEFWI WIAWSO	Western
HATS SUNYANI	Borg Ahafo
HATS TEPA	Ashanti
HATS TESHIE	Greater Accra
HATS WA	Upper West
HATS YENDI	Northern

KINTAMPO SCHOOLS COMPLEX

This comprises these programmes:

1. Diploma in Health Information
2. Diploma in Community Health
3. Certificate in Community Health

4. Diploma in Community Medicine –(Direct MA)
5. Community Oral Health - Post-basic
6. Diploma in Medical Laboratory Technology
7. Diploma in Oral Health
8. Community Medicine –Post Basic

TRAINING OF NEW MIDDLE LEVEL CADRE FOR THE HEALTH SECTOR

Priority policy intervention

The development of the Midlevel Health care cadre has been identified as the priority policy intervention to focus on within the short to medium term. It is known that the production of middle level cadre will ensure adequate skill mix, reduce the wage bill of the Health sector and ensure higher productivity.

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a) Operational definition of middle level cadre:

A middle level cadre is the person trained to support the highly trained health professional and can hold the fort in the absence of the professional.

- That cadre needs supervision from the professional

a) Operational definition of a professional:

Those who have been trained through standardized programmes and have been certified by a professional regulatory body. They must have:

- Basic entry requirements.
- Being through a period of training.

b) Role of Professional groups

- All professional groups without regulatory bodies should institute a regulatory body.
- Professional bodies that are being assisted by middle level cadre should give proper recognition to the category of middle level cadre.

Examples of these cadres are as follows:

1. Medical/Physician Assistants
2. Medical/Physician Assistant Psychiatrist
3. Nurse Anaesthetists
4. Clinical Assistants
5. Community Health Nurses
6. Allied Health Care Assistants
7. Environmental Health Assistants

4.1 Pre-service education

Table 4.1 Number of Training Institutions by type of ownership

Type of training institution	Type of ownership			Total
	Public	Private not for profit, FBOs	Private for Profit	
Medicine	4	-	-	**4**
Dentistry	1	-	-	**1**
Pharmacy	2	-	1	**3**
Nursing and Midwifery	29	4	12	**45**
Health Sciences	2	-	-	**2**
Community Health Nursing Training School	11	-	-	**11**
Health Assistant Training School	20	-	7	**27**
Post Basic [1]	6	-	-	**6**
Allied Health Schools [2]	11	-	-	**11**
Public Health & Environmental	3	-	1	**4**
Total	89	4	21	114

1. Ophthalmic Nursing School, Critical Care, Ear Nose & Throat (ENT), Public Health School, Peri Operative & Anaesthesia

2. Oyoko Optical Technical Training, Medical Laboratory, Disease Control (CH), COHO (Post Diploma), Medical Assistants (Post Diploma), Medical Assistant (Diploma), Field Technician, Health Information (Technical Officer), Technical Officer (Oral), Nutrition, Physiotherapy Assistants School.

***Source**: Ministry of Health, Human Resource for Health Development (HRHD)*

Intake into health Training Institutions

The Ministry embarked on a policy of increasing intake into health training Institutions. In this regard, through a collaborative effort with the capital investment unit of the Ministry, most health training Institutions were expanded to accommodate the additional numbers. Also, the schools were provided with immediate needs in terms of furniture and teaching aides to cater for the additional numbers. New graduate tutors from the Universities were posted to the schools to improve on the tutor-student ratios in the training institutions.

An over all increase of 25% over that of 2005 as indicated in the table below was achieved by Ministry of Health Training Institutions.

Table 4.2 Number of entrants by year

Category	2004	2005	2006	Difference over 2005
General Nursing & Mental	1,200	2,174	2220	46
Midwifery	140	317	685	368
Community Health Nursing	635	1525	1720	195
Laboratory	40	100	100	-
X-Ray	25	25	25	-
Community Health Off	95	122	145	23
Environmental Health Off	48	58	70	12
Environmental Health Ass	150	240	250	10
Medical Assistants (Post Basic)	35	47	105	58

Field Technicians	120	100	100	-
Health Assistants (clinical)	-	-	460	460
Total	2488	4708	5880	1177

Table 4.3 Private health training Institutions

Category	2004	2005	2006	Difference over 2005
Laboratory Technology	30	30	30	-
General Nursing	90	90	100	10
Health Assistants (clinical)	-	-	100	100

Table 4.4 Health Programmes in Universities

Cadre	Number of entrants				Number of graduates
	2003	2004	2005	2006	2003
Physicians	-	207	214	260	-
Nurses	1019	1450	2003	2069	1013
Midwives	-	140	317	385	
Pharmacists	-	120	110	110	-
Laboratory workers	-	40	100	100	100

Table 4.5 Trend of Intake into, and Outputs from Health Training Institutions

Cadre	Number of entrants				Number of graduates			
	Year 2006	Year 2007	Year 2008	Year 2009	Year 2006	Year 2007	Year 2008	Year 2009
Physicians	280	420	435	480	214	216	220	230
Nurses	2135	2279	2245	2260	903	1183	1045	1535
Midwives	378	551	613	625	132	120	124	313
Dentists	-	-	-	-	-	-	-	-
Pharmacists	138	211	149	198	120	148	111	-
Laboratory workers	56	54	60		18	9	10	

Training of Health Professionals

The 2007-20011 Human Resource for Health Policies and Strategies for the Health Sector gives direction on the pre-service training, but does not adequately provide guidelines for the training institutions. Although training of health professionals has been a shared responsibility between the Ministries of Health and Education, there has not been clearly defined roles and collaboration. There is no comprehensive training policy to clarify roles and address issues.

However, the MOH has taken steps to streamline certain critical pre-service training areas. One such measure has been the extension of house-job from one year to two years for medical and dental officers. The first year takes place in teaching hospitals and the second year in accredited regional and district health facilities. This policy aims at addressing the issue with skilled competencies and redistribution of staff.

During the last decade, the MOH expanded all existing health training institutions and set up new institutions and programs. Even though efforts were made to expand the training institutions; much more needs to be done in terms of infrastructure to meet increasing intake.

The decade saw the establishment of the Ghana College of Physicians and Surgeons, five general nursing schools. New programs have been introduced for direct entry into midwifery and health assistants (clinical) courses as well as a diploma in community health nursing. The MOH established a total of 21 training institutions between 2001 and 2006. CHAG and the private sector together opened 7 new schools in general nursing and health assistants (clinical).

The policy of the MOH to increase the number of graduates together with strengthening capacities in most of the health training institutions has resulted in a 50% increase in admissions into health training institutions and 20% increase in all admissions into the universities since 2001. Despite these gains in recent years, the capacities of the health training institutions to train sufficient numbers to meet national requirements remains inadequate in terms of physical infrastructure, logistics, and teaching staff, as well as funding.

Tutor: Student ratios
Most training institutions have high student-tutor ratios and this affects the quality of teaching and learning. The tutor student ratios varied from institution to institution but the mean was 1:21, compared to the recommended 1:15 from the Nurses and Midwives Council.

Pressures to increase student intake without parallel recruitment of staff has led to academic staff vacancies in medical schools. Delays by the MoH in following through on appointments are also major reason for delays in recruitment of additional tutors in some of the other schools, especially Schools of Health Sciences, Community Health and Health Assistants Training Schools. A freeze on employment by the government is a contributing factor to the poor tutor-student ratios. There are also concerns that absence of special incentives and other benefits for tutors in training institutions make teaching unattractive to health professionals.

There are also inadequate teaching aids and anatomical models in the institutions.
To improve tuition quality in the schools, the HRHD received books, skeletons and other dummies from ICM and UNFPA, so that they meet their accreditation criteria of the National Accreditation Board.

Accreditation
The MOH has initiated a process for accrediting its pre-service training institutions with the National Accreditation Board since 2003. The process is ongoing.

4.2 In-service and continuing education

Medical postgraduate training in Ghana is coordinated by the Ghana National Postgraduate College. Candidates have the option of taking the examinations of the West African Postgraduate Medical College. The Ghana National Postgraduate Medical College has two main divisions namely, College of Physicians and College of Surgeons. Each constituent College is further divided into faculties such as: Internal

Medicine, Public Health, Pathology Anaesthesia; Surgery, Obstetrics and Gynaecology and Pathology. The length of study is at least four years post medical or dental degree, and after internship.

Duration of postgraduate medical training in Ghana is a minimum of four years. The programme is in 3 parts: Primary, Part and Part II finals. The primary examinations cover review of the basic medical course taken during the first degree. Part I is taken two years after passing the primary. It covers courses relevant to the specialty being undertaken. The examination consists of written and oral examination, clinical and practical tests and presentation of cases in workbooks. The Part II final is based mainly on dissertation, and examination in all aspects of the specialty being pursued.

Most popular specialties are Obstetrics and Gynaecology, Internal Medicine and Surgery. Anaesthesia, Pathology and Cardiology do not seem attractive.

Staff Training and Development

There are training opportunities for both tutors in training institutions and staff in the practice areas. The In-service Training Policy requires that every health staff have access to at least one in-service training that is relevant to that person's functions once every three years. However, owing to resource constraints, coverage of training is relatively low. The IST Policy is not linked to Pre-service training. A vibrant Training Information System (TIS) established by the MoH and the GHS has been left to collapse. Data are neither updated nor used to monitor compliance with the IST policy.

The GHS and the teaching hospitals have developed in-service training policies, which have been in place for several years. The policies spell out the training needs, frequency of training and areas of training with respective curricula and credit points for career progression. Private institutions are expected to adopt the training policies of the GHS. Various regulatory bodies have continuing professional education programs for their professional staff to enable them renew their licenses to continue to practice.

In 1997 HRDD published an In-Service Training Policy. In fulfilment of this policy, a fairly robust In-Service Training program was developed with the assistance of JICA. The program was initiated because previous efforts by the MOH to provide IST to staff had not had optimum results due to several factors including ad hoc organization, pressures from vertical programmes, inequity, restriction to certain cadres etc.
The in-service training has been independent of pre-service training. The system was designed to assess training needs at all levels based on service priorities, make training plans and follow the plans to ensure consistency and equity.
Each region built up a database of resource persons whom they called on as and when their expertise was needed to facilitate at these training programs.

Courses were designed internally and staff were sent on other courses with the view of conforming to standards. The In-Service training policy required that all health staff throughout the country benefitted from In-Service Training at least once every three years. The In-Service Training unit had coordinated activities at all levels. All training experiences of every health worker was documented in their individual logbooks, at the district level, regionally and nationally. These then were used to write Annual In-Service Training reports to update the training database and to correct any identified anomalies. However several lapses in the system of information flow had rendered the training information system largely out of date. Funding of in-service training was from annual budgetary allocations to the agencies and institutions. Development partners, including USAID, JICA, Population Council, Quality Health Partners, World Health Organization and DANIDA; provided both technical and financial support for in-service training.

The implementation of the SIST using the 1997 IST policy was identified to be faced with major challenges namely:

- Weak management and institutional structures

- Lack of management support
- Difficulty in coordinating the training activities between and within levels
- Inequity in access for different cadres
- Poor standardization of training in the GHS
- Lack of logistics
- Inadequate funding of planned training programmes

Professional regulatory bodies including the Medical and Dental Council, Pharmacy Council, and the Nursing and Midwifery Council require their members to show evidence of participating in relevant continuing professional development programmes before their members are re-registered.

4.3 Health workforce requirements

Table 4.5 Projections for health workforce requirements for the coming years

Cadre and five	2006	2007	2008	2009	2010	2011
Medical Officers	3,732	3,732	3,732	3,732	3,732	3,732
General Nurses	19,181	19,181	19,181	19181	19181	19181
Midwives	8,205	8,205	8205	8,205	8,205	8,205
Pharmacists	2,726	2,625	2,625	2,625	2,625	2,625
Medical Assistants	1,242	1,242	1,242	1,242	1,242	1,242
Laboratory Workers	1,062	1,062	1,062	1,062	1,062	1,062
Community Health Nurses	12,934	12,934	12,934	12,934	12,934	12,934
X-ray Technologists	1,062	1,062	1,062	1,062	1,062	1,062
Health Assistants	7,176	7,176	7,176	7,176	7,176	7,176

Source: Human Resources Strategic Plan for the Health Sector, 2007.

5. HRH Utilization

5.1 Recruitment

Recruitment is defined as the hiring of a person by an appointing authority to fill a vacant position. Recruitment into the Ministry of Health, its Agencies and CHAG institutions are to large extent decentralised. Each Agency recruits its staff on the basis of requirements as defined in their annual plans,

Approaches to Recruitment
Candidates are recruited through any one, or a combination of the following approaches:

Verification of academic/professional qualifications
Practical Examinations
Interview
Written Examination

The Head of Civil Service is the recruiting authority for the Ministry of Health. For the various Agencies however, the recruiting authority is the respective Councils or Boards as the case may be.

Before any recruitment is done there is need to seek financial clearance from the Ministry of Finance.

The Ministry of Health however recruits all newly graduated critically needed professionals such as doctors, nurses, pharmacists, laboratory scientist and all health professionals trained in Ministry of Health institutions after internship, Through the inter-agency recruitment committee such new entrants are distributed among the Agencies based on quota arrangement and need.

5.2 Deployment and distribution mechanisms

The MOH has established an Inter-Agency Committee to oversee the distribution of newly graduated health professionals based on recruitment plans and available staff. The MOHs Human Resources Directorate coordinates the work of the committee. Agency – specific recruitment needs are submitted to the committee and, based on the number of professionals available the committee distributes to the Agencies. In 1996 the MOH developed staffing norms for the entire sector. This has been used by the GHS, CHAG, and the teaching hospitals. Attempts are being made to review the norms to make it workload-based.

Distribution of Health Personnel

As shown in a study carried out by the World Bank in January 2001, the distribution of health facilities, personnel, and financial resources clearly favors the more affluent regions, urban areas and public spending is not pro-poor. In the past years, inequalities in health have attained more attention from the Government. In the 1997-2001 Program of Work, the major focus was on how to redirect the health budget from tertiary to primary services. In addition, criteria were developed to ensure fair allocation among regions and the different levels of the health services within regions. However, allocation is still not based on any proxy for the volume of services delivered and the definition of a new formulae for resource allocation is needed.

The targets set for human resources for health are to increase the percentage of health professionals with short-term placements to the north and to deprived areas to 35%; to have a 40% change in inter-regional and inter-district distribution of key staff in favour of deprived regions and districts, and to have a 40% change in intra-district rural/urban distribution in favour of rural areas. If this is achieved, the distribution of wage allocations between levels should also change over the period. Furthermore, 40% of new facilities will be developed in the three northern regions and Central Region.

No budgetary targets have, however, been set for the regional allocations of neither the personnel emolument budget nor the investment budget.

NB: 1) The GPRS strategies to bridge equity gaps in access to quality health and nutrition services include improved resource allocation to target poor areas and groups, as well as health worker redistribution to deprived areas. The targets relate to a broader definition of health expenditures that include police and military health services as well as environmental health and sanitation under the Ministry of Local Government and the District Assemblies' Common Fund.

2) In order to monitor resource allocations to primary health care (PHC), the proportion of PHC elements of work in each MDA has been assessed to arrive at a weighting formula for expenditures. According to the formula used for 2001, 71% of the broad health expenditures was spent on PHC (Budget Statement 2002).

Allocation by regions:

The three northern regions and Central region have been identified as the poorest regions in the country. On that score the four regions have been prioritised for increases in resource allocations. The target outlined in the Final Draft GPRS is to allocate 39% of recurrent expenditures to the three northern and Central regions (which accounts for 26.7% of total population of Ghana by 2004 as compared to 32% in 2000. The target has since not been achieved.

Internal imbalance in the distribution of the health staff is also of major concern. There is a marked disparity between the best and the worst-served regions. The Korle Bu Teaching Hospital alone employs more than 25% of the country's doctors, while only 7% are present in the three northern regions combined. The above human resource issues are attributable to an over-centralization of the recruitment process, a low remuneration package, and a weak and indiscriminate incentive package which fails to attract staff to the underserved areas of the country.

5.3 The work environment

The health sector faces a serious problem of high attrition among medical workers (doctors, nurses and other health workers) due to emigration..The health sector is grossly understaffed. Government sources suggest that there are more Ghanaian doctors working abroad than in Ghana. The good quality of theses cadres combined with far higher salaries abroad provides an unfair competition. Anecdotal evidence indicates that 40% of graduating medical students leave the country and in 1999 nurses equivalent to the Registered Nurse output was lost from the register (Health of the Nation 2001). Both newly qualified health professionals and senior staff leave to work abroad.

This is not a new phenomenon. A 1999 study showed that out of a cohort of 489 doctors graduating between 1985 and 1994, 298 (61%) left the country. In 1999 alone, a loss of about 350 nurses was reported and anecdotal evidence suggests that at least 40% of all graduating medical students left the country. Due to the low level of emoluments paid in Ghana and the attractiveness of international labor markets Government has been considering pragmatic interventions that can help retain at least the critical mass of health professionals required to deliver a package of basic services. However, it is unlikely that human resource issues can be addressed effectively without significantly increasing the wage bill.
The following factors account for the high level of attrition:

- retirement,
- dismissals,
- vacation of posts,
- resignation,
- termination of appointment and deaths.

Government sharply increased the salaries of health workers across board in 2006. There are indications that migration of health workers out of the country has reduced considerably following the salary increases in 2006. The reversed migration is also attributed to the vehicle hire purchase scheme introduced by the government for health workers, and the establishment of post basic diploma programmes and postgraduate specialisation programmes for nurses and doctors respectively.

However, the increase in salaries has resulted in a strain on the health sector budget. Currently over 90% of the sector’s recurrent budget goes into salaries and other staff emoluments. This poses a major challenge in terms of sustainability, as the health sector wage bill will need to be contained within an affordable sector budget.

5.4 Employment of health workers in the private sector

The private sector employs about 10% of the professional health workers in Ghana. Though the Private Hospitals and Maternity Homes Board prescribes the standards and mix of health professionals required to operate a private health facility, these are not strictly adhered to. Private facilities are not able to compete in the open labour market in recruiting the required health professionals. The situation was worsened by the sharp increases in remunerations of public sector workers.

It is however known that many health professionals employed full time in the public sector also spend part of their times working in private facilities for extra income.

6. Governance for HRH

The Human Resource for Health Development Directorate (HRHDD) is a directorate of the MOH with the mandate to formulate appropriate policies that will ensure adequate production of appropriate numbers and mix of HR personnel, equitable distribution of staff, adoption of appropriate retention strategies, and performance related reward systems that will make the MOH meet its vision of improving the wellbeing of the Ghanaian populace.

The Directorate has a mission to involve all Agencies of the MOH, other stakeholders such as the academia, private sector, health partners, other MDAs (both within and outside the country) in the formulation, implementation, monitoring and evaluation of effective HRH policies that guide production, management and training of the health workforce.

The main functions of HRHDD are:

- HRH policy and strategy initiation and formulation
- HRH planning and distribution of newly trained health professionals among the Agencies
- Coordination of pre-service training coordination
- Staff training and development (including management of fellowships)
- Management of rewards and compensation
- HRH monitoring and evaluation

The Agencies of the MOH also are assigned the following functions:

- Contributing to HRH policy formulation
- HRH policy implementation
- HRH operational guidelines initiation and formulation
- HRH intra-agency planning, recruitment and deployment
- In-service training coordination & other staff development issues
- HRH management issues within agencies
- Staff performance management within agencies

The first ever HRH Policies and Principles document for the health sector in Ghana was published in 1997. The document has regularly been revised and has been guiding the determination of priority interventions for development of HRH strategic plans in the health sector.

The development of the HRH policy involved various levels and stages of consultations with stakeholders, at the national, regional and facility levels. Such meetings provided opportunities to elicit inputs from various professional groupings, civil society organisation, community opinion leaders, and academia. Ideas harnessed from the various stakeholders were synthesised and developed into the draft policy document. At series consensus building meetings the documents were presented back to stakeholders for their concurrence before it was accepted as a policy on Human Resources for Health for the Health Sector, representing the collective will and aspirations of stakeholders of the sector.

6.1 HRH policies and plans

There are Human Resources for Health Policies and Strategic Plans for the Health Sector. The most recent HRH Strategic Plan covers the period 2007 to 2011. There is a strategic fit between the HRH Policies and Strategic Plans, and the overall health sector policies and plans. The HRH Policy was developed in direct response to the policy direction and goals of the health sector which also is linked with the Government of Ghana Poverty Reduction Strategy(GPRS). In recognising the synergistic relationship between wealth and health, the government's GPRS identifies health as an essential component of interventions needed for wealth creation. In response to the GPRS, the health sector has in turn highlighted the importance of

developing the appropriate human resources in their right mix and numbers in order to be able to respond adequately to the health needs of the people of Ghana.

The HRH Policy and Plans also respond to the human capacity requirement of priority international agenda and goals such as the Millennium Development Goals and the Global Health Interventions for HIV/AIDS, Tuberculosis and Malaria Control. Types and numbers of cadres projected as required are based on the priority service interventions determined by the health sector.

Macro-economic indicators serve as a major factor in prioritising HRH interventions. Emphases in the current Human Resources Policies and Plans 2007-2011 emphasises the training of more middle level cadres which are cheaper to produce and maintain. About 90% of recurrent expenditure in sector goes into payment of staff emolument.

6.2 Policy development, planning and managing for HRH

The MOH, the GHS and all the agencies in health have national policy and guideline functions, whilst other key HRM activities are in the remits of regional and district health directorates.

The Ghana Health Service and teaching Hospitals Act 1996 (Act 525, 1996) makes the Ministry of Heath responsible for policy formulation, in addition to other clearly defined functions. The Human Resources for Health Development Division of the MOH facilitates the development of the national HRH Policies and Plans. The HRHDD uses the bottom-up approach in the development of relevant policies. The process involves meetings of representatives of the various agencies including the GHS, the Teaching Hospitals, the faith based and private facilities, as well as representatives of regulatory bodies such as the Medical and Dental Council, Nursing and Midwifery Council, Pharmacy Council, Professional associations are also represented in the policy development meetings.

The policies are developed in response to the general health policy directions and priorities of the Government of Ghana, as articulated by the MOH. The policies are however shaped by inputs from the various agencies and stakeholder groups based on their experiences and realities of implementing health interventions. The HRH Strategic Plans are further developed by a technical working group put together by the Minister of Health.

The HRH technical working group designs and conduct a situational analysis of human resources management and development systems, procedures and processes across the MoH, its implementing agencies, faith-based institutions and the private health care institutions. The situational analysis provides a basis for determining existing staffing availability, their distribution and mix it also sheds light on staffing deficiencies, patterns of utilisation, and trends of production and attrition. The technical working group uses the information harnessed in projecting requirements for the future, appraising the various options for production, and prioritising management interventions that would promote effective utilisations of the workforce over a defined period of time. Consensus building meetings are held with various segments of stakeholder groups to elicit their inputs into the Draft HRH Strategic Plan. The finalised HRH policy and strategic plan document are assented to by the Minister of Health before implementation..

Operational HRH Plans are prepared by individual Agencies and statutory bodies and are submitted to the MOH for collation and review annually.

GHS has also developed a number of policies and guidelines including those on recruitment, postings, promotions, in-service training and development based on the general HRH policies of the health sector. There is also the “Conditions of Service for staff of GHS” and Schemes of Service. These documents outline the recruitment and career prospects, rewards and pathways for progression of health staff.

In the GHS, policies and guidelines are communicated through weekly directors' and programme managers' meetings at headquarters and the formal meetings with regional and district level managers. There used to be regular publication of an HR bulletin that was widely circulated and used as a medium for eliciting inputs of staff into decisions on HR and also for disseminating policies and other information on staff management. Even though the Bulletin was highly subscribed its publication was discontinued. .

Human Resource Management Situation

There are human resources directorates in the MOH and at Agency levels. Currently the policy for recruitment, placement and promotion within the Agencies was adapted from an old policy from MOH.

The directorates have training, planning and management units. There are human resources managers at the regional levels and at the teaching hospitals. There are also training coordinators responsible for in-service training at the regional levels and at the teaching hospitals. The MOH's Human Resources for Health Directorate takes overall responsibility for the health sector's human resources across the country.

The main functions of this Directorate are:

- HRH policy and strategy initiation and formulation;
- HRH planning and distribution of new health professionals among the agencies;
- To coordinate pre-service training and link up relevant universities and health facilities for internships;
- HRH development and staff training functions and coordinate health sector fellowships schemes;
- HRH monitoring and evaluation; and
- To be responsible for other HRH functions that are cross-cutting and likely to generate conflict and mistrust among executing agencies.

Human resource functions in the agencies include:

- HRH policy implementation;
- Initiation and formulation of HRH operational guidelines;
- HRH intra-agency planning recruitment and deployment;
- in-service training and to present HRH career progression issues;
- HRH management issues;
- performance evaluation;
- management of fellowship; and
- to contribute to policy initiation, formulation and review.

HRH Development:

Within the overall framework, the MOH's HRH development focuses: restructuring on the sector's personnel numbers, distribution and skill mix, developing and implementing continuous professional development programs, decentralizing health staff management and developing performance management systems as well as promoting collaboration between public and private sector providers.

MOH, GHS and BMC staff, and health workers outside the government sector benefits from capacity-building activities in management, public health, financial management, procurement, improved human resources management as well as increased resources for their activities.

6.3 Professional Regulation

Health Professionals are regulated by specific regulatory bodies established by law with clear mandates to accredit the respective training institutions that produce the relevant cadres according to laid down criteria. The criteria used for accrediting training institutions include but are not limited to: availability and quality of clinical and practical training sites. Each Agency responsible for ensuring that eligible members of their profession either trained locally or abroad are registered before they are allowed to practice in the country.

Each of the Professional Regulatory Agencies is headed by registrar who is responsible for the day to day administration of body. Each body also has a Governing Council whose members are appointed by the President of the country for a fixed term. The Governing Council has an oversight responsibility for the operations of their specific regulatory body.

The regulatory agencies have the authority to discipline their erring professionals.

There are three main professional regulatory bodies in the country. These are
• Medical & Dental Council
• Pharmacy Council
• Nursing & Midwifery Council

A new bill for regulating allied health professionals is currently under consideration at Parliament, the law making house in the country. When pass into law, the Allied Health professionals Regulatory Council will be responsible registering and regulating the following professionals and their practices:

- Laboratory Scientists
- Nutritionists
- Radiographers
- Optometrists
- Community Health Officers

In the meantime however, an Interim Allied Health Professionals Regulatory body has been established to regulate the proliferation of private laboratory, physiotherapy and alternative medicine practitioners. The Interim body is made up of representatives of major Allied Health professional group.

Regulation of professional practices has generally not been the best. The Pharmacy Council has offices in seven out of the 10 regions; the Nursing and Midwifery Council has four offices, the Medical and Dental Council has only one office.

With the exception of the Pharmacy practice, regulation of professionals generally has not been impressive and very little monitoring is done due to logistics constraints.

6.4 HRH information

A study conducted by Quality Health Partners in 2004 indicated that the HRDD/GHS personnel filing system had been re-organized and efforts were being made to extend the re-organization to the regions. Eastern Region had improved on their filing arrangements. The Figures 2.1 and 2.1 below depict the status of HR information management across regions.

The Integrated Personnel Payroll Database (IPPD) is the Government of Ghana's central human resource information system for the civil service. All MOH, Teaching Hospitals and GHS employees are included in this system. Also about 70% of employees of the Christian Health Association of Ghana (CHAG) who are on government payroll are also captured on the IPPD. However, the functionality of the system is currently focused on distributing staff payroll rather than providing data for human resource management. Nonetheless, several key data fields are included in the IPPD that can and are being used for HRMS, e.g., HR staff in Eastern Region conducted a pilot of an MS Access database made up of imported tables from the IPPD that they then used to generate useful reports.

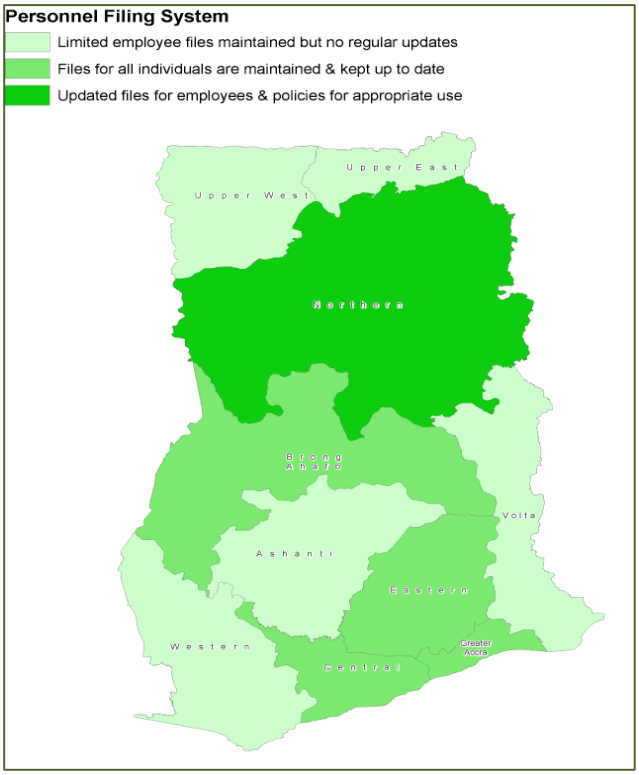
GHS developed a viable training information system (TIS) with support of JICA. However, the system has been abandoned. The TIS was linked to the country's human resources information system -- IPPD data were imported into the TIS so that the base data on personnel were always available. As staff attended training, those in-service training experiences were added to the existing records of training beneficiaries from the IPPD.

At national level, the HRDD/GHS has been using the data from the HRIS to be able to address the following questions:

- *How many will retire within a specified period?* Based on retirees expected in a year, the HRDD/GHS is able to project savings and justify new hires with that data.
- *What is the total amount spent on payroll? How many will be up for promotion and what will be the cost?* These aid budgeting.

Regional and district level HR personnel also use the data on the current deployment of staff by facility for management of service delivery, and to comply with HR policies and guidelines on staff performance appraisals, promotions, transfers, and retirement. Having an updated HR database would enhance the ability to pull records out for personnel actions at regional and district levels, and for these same levels to update the database with their actions for view at all other levels (Adapted from Quality Health Partners HR Systems Report, 2005).

Figure1 Personnel Filing System

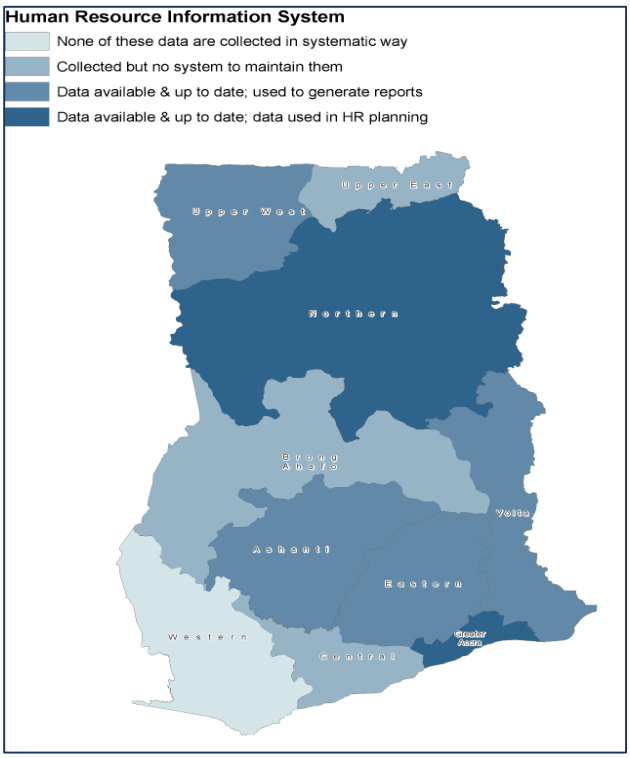


National - GHS

The paper system for HR data in the GHS is housed in the HR Development Records Unit.
The HRDD/GHS has access to HRIS data from the IPPD by contacting the MOH IPPD Officer. The IPPD Officer can export a text file from the IPPD containing key fields, including:

Name
Unique staff ID number
Grade
Post
Profession
Date of birth
Age
Date of 1st appointment
Date of last promotion
Level at which employed
Health facility

Figure2 Status of HRIS in the Regions



The HRDD/GHS IT staff import the IPPD data file into SPSS or MS Access in order to run reports and create ad hoc tables to answer specific HR data questions.

The HR data processes need to be revamped and HR data roles clarified. The goal of HRDD is to create an internally independent HRIS from the IPPD as data comes from district and regional levels to the central level. The accurate data should come from GHS and not the IPPD. Now, people must track down the

most accurate and current HR data by phone and on paper when needed, as the IPPD is not up-to-date. The paper and electronic files would ideally be the same, constituting a mixed media interfaced system, so that one can check the accuracy of each component of system with its counterpart.

Regional Level
All regions have individual files for all staff in the region with very few having computerized regional HR database. HRIS is stand-alone in each region and not linked online to the IPPD, and the Regional HR manager is responsible for updating personnel records.

Districts and facilities are expected to send in paper staff returns listing all personnel in post to the regional health office on a quarterly basis. Often, regions will type this into Excel or a simple MS Access database to provide their HR managers a view of current staffing.

There are plans to incorporate HRIS into the District Health Information Systems(DHIMS) currently being ran as an integrated and comprehensive health information management system for the health sector in Ghana.

The Health workforce observatory, an initiative to engage all stakeholders in HR information sharing on health workforce planning and production is also in operation. The observatory website (ghanahrhobservatory.org) has been activated and currently advertises all the accredited health Training Institutions in the country.

Advisory committee meetings of the Health Workforce Observatory are held frequently.

6.5 HRH research

There are very few uncoordinated HRH- specific research programmes being carried out in the country. Some few researches carried out in recent times include: Human Resources for Health Productivity Study(the World Bank, 2007); Health Worker Migration Study (Mensah K, 2001); Health Labour Market Study (World bank 2009).

Though there is local capacity for determining HRH priorities and conducting relevant researches, funding poses a major challenge. Research findings are seldom used to improve the HRH systems and processes.

6.6 Stakeholders in HRH

The following are the national and international stakeholders in HRH and their respective roles

Table 5 National and International Stakeholders and their Roles in HRH

STAKEHOLDERS IN HRH	ROLES
Ministry of Health	HRH Policy Formulation, Strategic Planning, Recruitment, Resource Mobilisation and allocation, Deployment, Utilisation, Pre-Service Training, Postgraduate/Basic Training, Monitoring and Evaluation
Ghana Heath Service	Planning, Recruitment, Deployment, IST, Performance Management, Monitoring and Evaluation
Teaching Hospitals	Planning, Recruitment, Deployment, IST, Performance Management, Monitoring and Evaluation
Universities and other Health Training Institutions	Training, Research, certification and conferment of degrees
Postgraduate Colleges (National and West Africa)	Training and Research
Christian Health Association	Training, Recruitment, Deployment, IST, Performance Management
Association of Private Hospitals and Maternity Homes	Recruitment, Performance Management
Professional Regulatory Bodies	Accrediting Training Institutions, setting standards for practice, Monitoring practitioners, examination, licensing and registration
National Development Planning Commission	Setting the National Development and HR Agenda
Parliamentary Select Committee on Health	Review of relevant legislation on HRH and laying before parliament for passage into law
Parliament	Passage of relevant bills on HRH into law. Approval of health sector budget including personnel emoluments
Professional Associations including: GMA, GRNA, PSG, HSWU, GRMA, AHSA,	Welfare of Members, Continuing professional Development of Members, Salary Negotiations
National Accreditation Board	Inspection and accreditation of training institutions
Ministry of Education	Training and accreditation
Ministry of Finance	Release of financial clearance for recruitment of new entrants
Controller and Accountant-General	Payment of Salaries and other emoluments
Civil Service Commission	Recruitment Authorisation
Fair Wages and Salaries Commission	Determination of salary and other remuneration levels for all categories of health workers.
Public Service Commission	Participate in Recruitment Interviews
Ministry of Local Government and Rural Development	Recruitment of Environmental Health Officers
District Assemblies	Administrative oversight of health workers in Districts
Ministry of Defence	Pre-service and postgraduate Training, Recruitment, performance management
Police Service	Recruitment, Performance Management
• World Health Organisation • W.H.O. AFRO (African Region)	Determining global HRH priorities, training, technical support

• World Health Organisation Ghana • West African Health Organisation	
• Department for International Development • CIDA • USAID • • DANIDAICM • JICA • DGIS	Training, Technical Assistance, Recruitment, performance management, Training Infrastructural development
• UNICEF • UNDP • UNFPA • World Bank	Training, research
Non-governmental organizations in health	Training
The Cabinet	Approval of relevant bills for passage by parliament
The Presidency	Appointment of Governing Council Members for the Professional Regulatory Boards

Annex 1: Health workforce status

Skill level	Total	Total women	Urban	Rural	Public	Private
Generalist medical practitioners	1945	545	1362	538	1400	545
Specialist medical practitioners	695	146	695	0	480	215
Nursing professionals	8938	6882	6256	2682	7150	1788
Nursing associate professionals	8197	7213	2459	5738	7705	492
Midwifery professionals	4929	4929	1972	2957	3302	1627
Midwifery associate professionals	-		-	-	-	-
Paramedical practitioners	-		-	-	-	-
Dentists	55	17	52	3	42	10
Dental assistants and therapists	102	75	97	5	90	12
Pharmacists	532	197	372	160	452	80
Pharmaceutical technicians and assistants	1253	401	752	501	902	354
Environmental and occupational health & hygiene workers	600	108	200	400	560	40
Physiotherapists and physiotherapy assistants	100	51	100	0	79	21
Optometrists and opticians	41	9	33	8	23	18
Medical imaging and therapeutic equipment operators	256	79	154	102	207	49
Medical and pathology laboratory technicians	923	185	646	277	628	295
Medical and dental prosthetic technicians	13	2	11	2	7	6
Community health workers	1052	421	210	842	842	110
Medical assistants	712	299	214	508	506	206
Traditional and complementary medicine practitioners	-	-	-	-		
Other health service providers	23783	11416	9513	14269	19264	4519
Health care assistants and other personal care workers in health services	4925	3448	1970	2954	2955	170
Other science professionals and technicians	-	-	-	-	-	-
Health service managers	467	126	444	23	355	113
Medical records and health information technicians	371	148	148	223	297	74
Other health management and support workers	-	-	-	-	-	-

Annex 2: Definitions of health workforce data

Health Workforce: Aggregated Data

In the aggregated data, the health workforce is grouped into the following 10 categories:

Physicians
Includes generalists and specialists.

Nurses
Includes professional nurses, auxiliary nurses, enrolled nurses and other nurses, such as dental nurses and primary care nurses.

Midwives
Includes professional midwives, auxiliary midwives and enrolled midwives. Traditional birth attendants, who are counted as community health workers, appear elsewhere.

Dentists
Includes dentists, dental assistants and dental technicians

Pharmacists
Includes pharmacists, pharmaceutical assistants and pharmaceutical technicians

Laboratory workers
Includes laboratory scientists, laboratory assistants, laboratory technicians and radiographers.

Environment & public health workers
Includes environmental and public health officers, sanitarians, hygienists, environmental and public health technicians, district health officers, malaria technicians, meat inspectors, public health supervisors and similar professions.

Community health workers
Includes traditional medicine practitioners, faith healers, assistant/community health education workers, community health officers, family health workers, lady health visitors, health extension package workers, community midwives, institution-based personal care workers and traditional birth attendants.

Other health workers
Includes a large number of occupations such as dieticians and nutritionists, medical assistants, occupational therapists, operators of medical and dentistry equipment, optometrists and opticians, physiotherapists, podiatrists, prosthetic/orthetic engineers, psychologists, respiratory therapists, speech pathologists, medical trainees and interns.

Health management and support workers
Includes general managers, statisticians, lawyers, accountants, medical secretaries, gardeners, computer technicians, ambulance staff, cleaning staff, building and engineering staff, skilled administrative staff and general support staff.

Annex 3: Health workforce classification mapping

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Generalist medical practitioners	**2211**	**Generalist medical practitioners** (physicians) apply the principles and procedures of modern medicine in preventing, diagnosing, caring for and treating illness, disease and injury in humans and the maintenance of general health. They may supervise the implementation of care and treatment plans by other health care providers, and conduct medical education and research activities. They do not limit their practice to certain disease categories or methods of treatment, and may assume responsibility for the provision of continuing and comprehensive medical care.	Medical doctor (general), General practitioner, Family medical practitioner, Primary health care physician, District medical doctor-therapeutist, Resident medical officer specialising in general practice	Specialist physician-2212, Paediatrician-2212, Surgeon-2212, Psychiatrist-2212, Traditional medicine practitioner-2230, Paramedical practitioner-2240	Occupations included in this category require completion of a university-level degree in basic medical education plus postgraduate clinical training or equivalent for competent performance. Medical trainees who are non-university graduates should not be included here. Medical interns who have completed their university education in basic medical education and are undertaking postgraduate clinical training are included here. Although in some countries 'general practice' and 'family medicine' may be considered as medical specialisations, these occupations should always be classified here.
Specialist medical practitioners	**2212**	**Specialist medical practitioners** (physicians) apply the principles and procedures of modern medicine in preventing, diagnosing, caring for and treating illness, disease and injury in humans using specialised testing, diagnostic, medical, surgical, physical and psychological techniques. They may supervise the implementation of care and treatment plans by other health care providers. They specialise in certain disease categories, types of patient or	Specialist physician (internal medicine), Surgeon, Anaesthetist, Cardiologist, Emergency medicine specialist, Ophthalmologist, Obstetrician, Gynaecologist, Paediatrician, Pathologist, Preventive medicine specialist, Psychiatrist, Radiologist, Resident	General medical practitioner-2211, Dental practitioner-2261, Dental surgeon-2261, Physiotherapist-2264, Psychologist-2634	Occupations included in this category require completion of a university-level degree in basic medical education plus postgraduate clinical training in a medical specialisation (except general practice) or equivalent. Medical trainees who are non-university graduates should not be included here. Resident medical officers training as specialist practitioners (except general practice) are included here. Although in some countries 'stomatology' may be considered as a medical

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
		methods of treatment, and may conduct medical education and research activities in their chosen areas of specialisation.	medical officer in specialist training		specialisation, stomatologists should be included under 'Dentists'-2261.
Nursing professionals	**2221**	**Nursing professionals** plan, manage, provide and evaluate nursing care services for persons in need of such care due to effects of illness, injury, or other physical or mental impairment, or potential risks for health. They work autonomously or in teams with medical doctors and other health workers. They may supervise the implementation of nursing care plans, and conduct nursing education activities.	Professional nurse, Specialist nurse, Nurse practitioner, Clinical nurse, General nurse-midwife, Public health nurse, Nurse anesthetist	Professional midwife-2222, Associate professional nurse-3221, Associate professional midwife-3222, Paramedical practitioner-2240	Occupations included in this category normally require completion of tertiary-level education in theoretical and practical nursing. Nursing professionals who spend the majority of their working time in maternal and newborn health care services should be included under 'Midwifery professionals'-2222.
Nursing associate professionals	**3221**	**Nursing associate professionals** provide basic nursing care for people who are in need of such care due to effects of ageing, illness, injury, or other physical or mental impairment. They implement care, treatment and referral plans established by medical, nursing and other health professionals.	Associate professional nurse, Assistant nurse; Licensed practical nurse, Enrolled nurse	Professional nurse-2221, Specialist nurse-2221, Associate professional midwife-3222, Community nurse attendant-3253, Nursing aide (hospital or clinic)-5321, Nursing aide (home)-5322	Occupations included in this category normally require formal training in nursing services. Associate professional nurses who spend the majority of their working time in maternal and newborn health care services should be included under 'Associate professional midwives'-2223.
Midwifery professionals	**2222**	**Midwifery professionals** plan, manage, provide and evaluate midwifery care services before, during and after pregnancy and childbirth. They provide delivery care for reducing health risks to women and newborns, working autonomously or in teams with other health care providers.	Professional midwife	Nursing aide-5321, Associate professional nurse-3231, Associate professional midwife-3232	Occupations included in this category normally require completion of tertiary-level education in theoretical and practical midwifery.

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Midwifery associate professionals	**3222**	**Midwifery associate professionals** provide basic health care and advise before, during and after pregnancy and childbirth. They implement care, treatment and referral plans to reduce health risks to women and newborns as established by medical, midwifery and other health professionals.	Associate professional midwife, Assistant midwife	Professional midwife-2222, Associate professional nurse-3221, Midwifery attendant-5321	Occupations included in this category normally require formal training in midwifery services. Midwifery attendants with little or no formal training should be included under 'Health care assistants'-5321.
Paramedical practitioners	**2240**	**Paramedical practitioners** (advanced practice clinicians) provide advisory, diagnostic, curative and preventive medical services in a variety of settings. They work autonomously or with limited supervision of medical doctors, and apply advanced clinical procedures for treating and preventing diseases, injuries, and other physical or mental impairments common to specific communities.	Clinical officer, Surgical technician, Physician assistant, Primary care paramedic, Advanced care paramedic, Feldsher	Emergency paramedic-3258, Medical assistant-3256, General medical practitioner-2211, Surgeon-2212	Occupations included in this category normally require completion of tertiary-level training in theoretical and practical medical services. Workers providing services limited to emergency treatment and ambulance practice should be included under 'Ambulance workers'-3258.
Dentists	**2261**	**Dentists** apply the principles and procedures of modern dentistry in diagnosing, treating and preventing diseases, injuries and abnormalities of the teeth, mouth, jaws and associated tissues. They use a broad range of specialised diagnostic, surgical and other techniques to promote and restore oral health.	Dentist, Dental practitioner, Dental surgeon, Oral and maxillofacial surgeon, Endodontist, Orthodontist, Paedodontist, Periodontist, Prosthodontist, Stomatologist	Dental prosthetic technician-3214, Dental assistant-3251, Dental hygienist-3251	Occupations included in this category normally require completion of university-level training in theoretical and practical dentistry or related field. Although in some countries ‘stomatology’ and 'dental, oral and maxillofacial surgery' may be considered as medical specialisations, occupations in these fields should always be classified here.

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Dental assistants and therapists	**3251**	**Dental assistants and therapists** provide basic dental care services for the prevention and treatment of diseases and disorders of the teeth and mouth, as per care plans and procedures established by a dentist or other oral health professional.	Dental assistant, Dental hygienist, Dental therapist	Dental aide-5329, Dental mechanic-3214, Dental prosthetist-3214, Dental technician-3214, Dentist-2261	Occupations included in this category normally require formal training in dental hygiene, dental-assisting or related field.
Pharmacists	**2262**	**Pharmacists** store, preserve, compound, test and dispense medicinal products. They counsel on the proper use and adverse effects of drugs and medicines following prescriptions issued by medical doctors and other health professionals. They contribute to researching, preparing, prescribing and monitoring medicinal therapies for optimising human health.	Hospital pharmacist, Industrial pharmacist, Retail pharmacist, Dispensing chemist	Pharmacologist-2131, Pharmaceutical technician-3213	Occupations included in this category normally require completion of university-level training in theoretical and practical pharmacy, pharmaceutical chemistry or a related field. Pharmacologists and related professionals who study living organisms are not included here (classified under Life science professionals).
Pharmaceutical technicians and assistants	**3213**	**Pharmaceutical technicians and assistants** perform routine tasks associated with preparing and dispensing medicinal products under the supervision of a pharmacist or other health professional.	Pharmaceutical technician, Pharmacy assistant	Pharmacist-2262, Pharmacy aide-5329, Pharmacology technician-3141	Occupations included in this category normally require basic medical and pharmaceutical knowledge obtained through formal training. Pharmacology technicians and related associate professionals who work with living organisms are not included here (classified under Life science technicians).

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Environmental and occupational health & hygiene workers	**2263, 3257**	**Environmental and occupational health & hygiene workers** plan, assess and investigate the implementation of programs and regulations to monitor and control environmental factors that can potentially affect human health, to ensure safe and healthy working conditions, and to ensure the safety of processes for the production of goods and services.	Environmental health officer, Occupational health and safety adviser, Occupational health and safety inspector, Occupational hygienist, Radiation protection adviser, Sanitarian, Health inspector, Food sanitation and safety inspector	Specialist medical practitioner (public health)-2212, Specialist nurse (public health)-2221, Occupational therapist-2269, Environmental protection professional-2133	Occupations included in this category normally require formal training in environmental public health, occupational health and safety, sanitary sciences, or a related field. Environmental protection workers who study and assess the effects on the environment of human activity are not included here (classified under Life science professionals).
Physiotherapists and physiotherapy assistants	**2264, 3255**	**Physiotherapists and physiotherapy assistants** provide physical therapeutic treatments to patients in circumstances where functional movement is threatened by injury, disease or impairment. They may apply movement, ultrasound, heating, laser and other techniques.	Physiotherapist, Paediatric physical therapist, Orthopaedic physical therapist, Physiotherapist assistant, Physical rehabilitation technician, Massage therapist, Electrotherapist, Acupressure therapist, Shiatsu therapist, Hydrotherapist	Occupational therapist-2269, Osteopath-3259, Chiropractor-3259, Podiatrist-2269	Occupations included in this category normally require formal training in physical rehabilitation therapy or a related field.
Optometrists and opticians	**2267, 3254**	**Optometrists and opticians** provide primary eye health and vision care services. Optometrists and ophthalmic opticians provide diagnosis management and treatment services for disorders of the eyes and visual system. Dispensing opticians design, fit and dispense optical lenses for the correction of reduced visual acuity.	Optometrist, Optician, Orthoptist	Ophthalmologist-2212	Occupations included in this category normally require formal training in optometry, orthoptics, opticianry or a related field.

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Medical imaging and therapeutic equipment operators	**3211**	**Medical imaging and therapeutic equipment technicians** test and operate radiographic, ultrasound and other medical imaging equipment to produce images of body structures for the diagnosis and treatment of injury, disease and other impairments. They may administer radiation treatments to patients under the supervision of a radiologist or other health professional.	Medical imaging technician, Diagnostic medical radiographer, Medical radiation therapist, Magnetic resonance imaging technologist, Nuclear medicine technologist, Sonographer, Mammographer	Radiologist-2212	Occupations included in this category normally require formal training in medical technology, radiology, sonography, nuclear medical technology, or a related field.
Medical and pathology laboratory technicians	**3212**	**Medical and pathology laboratory technicians** perform clinical tests on specimens of bodily fluids and tissues in order to get information about the health of a patient or cause of death.	Medical laboratory technician, Medical laboratory assistant, Cytology technician, Blood bank technician, Pathology technician	Pathologist-2212	Occupations included in this category normally require formal training in biomedical science, medical technology, or a related field. Technicians conducting laboratory tests on specimens from animals are not included here (classified under Veterinary technicians).
Medical and dental prosthetic technicians	**3214**	**Medical and dental prosthetic technicians** design, fit, service and repair medical and dental devices and appliances following prescriptions or instructions established by a health professional. They may service a wide range of support instruments to correct physical medical or dental problems such as neck braces, orthopedic splints, artificial limbs, hearing aides, arch supports, dentures, and dental crowns and bridges.	Medical appliance technician, Prosthetist, Orthotist, Prosthetic technician, Orthotic technician, Dental technician, Denturist	Dental assistant-3251, Dispensing optician-3254	Occupations included in this category normally require basic medical, dental and anatomical knowledge obtained through formal training. Technicians who construct and repair precision medical and surgical instruments based on engineering knowledge alone are not included here (classified under Science and engineering associate professionals).

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Community health workers	**3253**	**Community health workers** provide health education, referral and followup, case management, and basic preventive health care and home visiting services to specific communities. They provide support and assistance to individuals and families in navigating the health and social services system.	Community health worker, Community health aide, Community health promoter, Village health worker	Nursing aide-5322, Home care aide-5322, Village healer-3230	Occupations included in this category normally require formal or informal training recognized by the health and social services authorities. Providers of routine personal care services, self-defined health care providers and traditional medicine practitioners are not included here.
Medical assistants	**3256**	**Medical assistants** perform basic clinical and administrative tasks to support patient care under the direct supervision of a medical practitioner or other health professional.	Medical assistant, Clinical assistant, Ophthalmic assistant	Clinical officer-2240, Physician assistant-2240, Dental assistant-3251, Physiotherapy assistant-3255, Medical prosthetic technician-3214, Medical imaging assistant-5321	Occupations included in this category normally require formal training in health services provision. Clinical care providers with advanced training and skills to provide independent medical diagnostic and treatment services should be classified under 'Paramedical practitioners'-2240.
Traditional and complementary medicine practitioners	**2230, 3230**	**Traditional and complementary medicine practitioners** apply procedures and practices based on the theories, beliefs and experiences indigenous to different cultures, used in the maintenance of health and in the prevention or treatment of physical and mental illnesses.	Acupuncturist, Ayurvedic practitioner, Unani practitioner, Chinese herbal medicine practitioner, Homeopath, Naturopath, Bonesetter, Herbalist, Witch doctor, Village healer, Scraping and cupping therapist	Acupressure therapist-3255, Shiatsu therapist-3255, Hydrotherapist-3255, Chiropractor-3259, Osteopath-3259	Occupations included in this category normally require knowledge and skills acquired from formal education, or informally through the traditions and practices of the communities where they originated. Faith healers who treat human ailments through spiritual therapies, without using herbal preparations or other physical interventions, are not included here. Occupations that rely on traditional forms of massage and the application of pressure, such as acupressure and shiatsu therapists, are classified in 'Physiotherapy technicians and assistants'-3255.

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Other health service providers		This category may include a wide range of occupations connected with health service provision.	Ambulance paramedic-3258, Emergency medical technician-3258, Dieticians and nutritionists-2265, Audiologists and speech therapists-2266, Podiatrist-2269, Occupational therapist-2269, Chiropractor-3259, Osteopath-3259, Psychologist-2634, Social workers and counsellors-2635		Occupations included in this category normally require formal training in a health or social service-related field.
Health care assistants and other personal care workers in health services	**5321, 5322, 5329**	**Personal care workers** perform routine patient care services as per care plans, practices and procedures established by a health professional.	Hospital orderly, Nursing aide, Patient care assistant, Dental aide, Midwifery attendant, Psychiatric aide, Medical imaging assistant, Home care aide, Pharmacy aide, Dental aide, Sterilization aide, Faith healer	Nurse (associate professional)-3221, Nurse (professional)-2221, Community health worker-3253	Occupations included in this category generally do not require extensive health care knowledge or training. Personal care workers may work in a variety of settings including private homes as well as health facilities (hospitals, medical and dental practice facilities, rehabilitation centres, and other types of residential facilities with or without on-site nursing care services).

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Other science professionals and technicians		This category may include a wide range of occupations connected with physical and life sciences research and applications to solve human health problems.	Pharmacologist-2131, Biologist-2131, Biotechnologist-2131, Cell geneticist-2131, Environmental protection professional-2133, Environmental research scientist-2133, Medical physicist-2111, Bacteriology technician-3141, Pharmacology technician-3141		Occupations included here normally require formal training in a physical or life science-related field.
Health service managers	**1342**	**Health service managers** plan, coordinate and supervise the provision of clinical, personal care and community health care services.	Health facility administrator, Medical nursing home administrator, Clinical manager, Director of nursing care, Hospital matron, Community care coordinator, Chief public health officer	Aged care service manager-1343, Senior government official-1112	The main tasks and duties for jobs in this occupational category include guiding and directing the activities of organizations, departments and other workers. Education and training requirements may vary depending on the position and national context — likely including some combination of formal education, on-the-job training and work experience.
Medical records and health information technicians	**3252**	**Medical records and health information technicians** assess, manage and implement health records processing, storage and retrieval systems in medical facilities and other health care settings to meet the legal, professional, ethical and administrative records-keeping requirements of health services delivery.	Medical records clerk, Medical records technician, Health information system technician, Health information clerk, Medical records analyst, Clinical coder, Disease registry technician	Medical secretary-3344, Data entry clerk-4132, Filing and copying clerk-4415	Occupations included in this category normally require knowledge of medical terminology, legal aspects of health information, health data standards, and computer- or paper-based data management as obtained through formal education and/or on-the-job training. Clerks who perform general secretarial or clerical duties are not included here (classified under Clerical support workers).

Occupation	Code	Definition	Notes		
			Examples of occupations included here	Excluded occupations - classified elsewhere	Additional comments
Other health management and support workers		This category may include a wide range of workers performing a variety of administrative, clerical, and other tasks and duties to support the provision of health services and functioning of health systems.	Health policy analyst-2422, Government licensing official-3354, Aged care service manager-1343, Staff training officer-2424, Medical secretary-3344, Computer technician-3513, Data entry clerk-4132, Filing and copying clerk-4415, Receptionist-4226, Building caretaker-5153, Cook-5120, Ambulance driver-8322		

Annex 4: Mapping education and training to the international standard classification

Field	Definition	Examples of education programmes included here
Medicine	The study of the principles and procedures used in preventing, diagnosing, caring for and treating illness, disease and injury in humans and the maintenance of general health.	**Basic medical education**: programmes for the training of medical doctors/physicians
		Paramedical programmes: training of paramedical practitioners/advanced practice clinicians (includes tertiary level programmes not leading directly to the award of a medical research qualification)
Nursing and midwifery	The study of providing health care for people who are in need of such care due to effects of illness, injury or impairment, or potential risks for health, and assisting physicians and other health professionals diagnose and treat patients.	**Basic nursing education**: programmes for the training of nursing professionals (tertiary level)
		Basic midwifery education: programmes for the training of midwifery professionals (tertiary level)
		Assistant nursing education: programmes for the training of nursing associate professionals
		Assistant midwifery education: programmes for the training of midwifery associate professionals
Dental studies	The study of diagnosing, treating and preventing diseases and abnormalities of the teeth and gums. It includes the study of designing, making and repairing dental prostheses and orthodontic appliances. It also includes the study of providing assistance to dentists.	**Dentistry**: programmes for the training of dentists (tertiary level)
		Dental care services: programmes for the training of dental assistants, dental therapists, dental prosthetic technicians and related occupations (e.g. dental-assisting, dental hygiene, dental nursing, dental laboratory technology)
Medical services (health sciences)	The study of physical disorders, treating diseases and maintaining the physical well-being of humans, using non-surgical procedures.	**Pharmacy**: programmes for the training of pharmacists (tertiary level)
		Physiotherapy: programmes for the training of physiotherapists (tertiary level)
		Medical technology: programmes for the training of medical imaging and therapeutic equipment technicians (e.g. medical X-ray techniques, radiology, radiotherapy, sonography)
		Medical laboratory technology: programmes for the training of medical and pathology laboratory technicians
		Medical prosthetics: programmes for the training of medical prosthetic technicians
		Other programmes for the training of health professionals and associate professionals (e.g. emergency medical treatment, nutrition & dietetics, optometry, speech pathology)
Environmental, public and occupational health	The study of the relationships between living organisms and the environment that affect public health. Includes the study of recognizing, evaluating and controlling environmental factors associated with the workplace.	Programmes in services to the community dealing with items that affect public health (e.g. hygiene standards in food and water supply)
		Programmes in occupational health and safety (e.g. ergonomics, health and safety in the workplace, industrial hygiene)