GHANA HEALTH SERVICE

2016 ANNUAL REPORT

JUNE **2017**

FOREWORD

I am honoured and humbled to present the Ghana Health Service 2016 Annual Report as the newly appointed Director-General of an organisation that has for the last two decades maintained its commitment to expanding healthcare services across every region, every district and every community in Ghana. I would like to acknowledge my predecessor Dr Ebenezer Appiah-Denkyira, who is now retired from active duty for his work over the last few years. The Ghana Health Service through the drive and innovation of its staff and health partners continues to transform the face of the health sector in Ghana, pursing a wider population reach and surmounting many challenges that beset the provision of adequate and quality healthcare services in Ghana. It is my vision to lead the Ghana Health Service unto its next phase as the country embraces the new Sustainable Development Goals (SDGs). Together we will work to strengthen weak and poor performing areas, whilst consolidating and building on our gains made under the Millennium Development Goals (MDGs).

The Ghana Health Service (GHS) remains committed to providing quality and adequate health care services in every community throughout Ghana by expanding its community health planning and services (CHPS) to increase access to basic and essential health services at the community level. The service projected to increase the number of functional CHPS from 3,951 in 2015 to 6,000 at the end of 2016. However, we fell short of this target achieving 4,400 functional CHPS. The highest increases in CHPS expansion were in the Ashanti and Western regions, and we commend both regions. We still need to see improvement especially in the Northern and Volta regions if we have to reach more remote communities with essential services, and in the Greater Accra region to serve our urban slums and reduce spread of communicable diseases.

Out-patient (OPD) per capita has remained unchanged at 1% over 2014 to 2016, whereas over the same period total Out-patient (OPD) attendance has continued to decline. There was a 1% decrease in OPD attendance at our public health facilities compared to the previous year 2015, although we saw a much larger decrease of nearly 4% in 2015 compared to 2014. We also saw a percentage drop in insured patients from 83% in 2015 and 2014 to 82% in 2016. Although some have attributed this decline to delayed reimbursements from National Health Insurance, there is need for further review to address the gaps or challenges that persist, and to understand the population's changing preferences in seeking healthcare outside of the public health system.

Among the top priorities of the GHS in the health sector is to reduce the incidence of national maternal mortality by ensuring the continuum of healthcare services from conception until the end of the postnatal period. In 2016, we projected to improve the Midwives/ WIFA ratio equity from 1.9 in 2015 to 1.4 and the Doctor /Population ratio from 1:8943 to 1:7500. For the year under review we achieved a doctor population ratio of 1:8,300 and Midwife/WIFA equity ratio of 2.3. With ongoing efforts and community actions in place, we planned to reduce

Institutional Maternal Mortality Ratio (IMMR)from 142 in 2015 to 137. Instead we saw a spike in institutional maternal deaths up to 164; the two top causes remain haemorrhage (39%) and hypertensive disorders (35%), both of which can be managed by attentiveness and appropriate care. With our public health facilities accounting for 61% of all fatalities. GHS facility heads and health managers need to a more concerted approach to share ideas and best practices to ensure that women do not die needlessly when they come to seek skilled attendant care in our facilities.

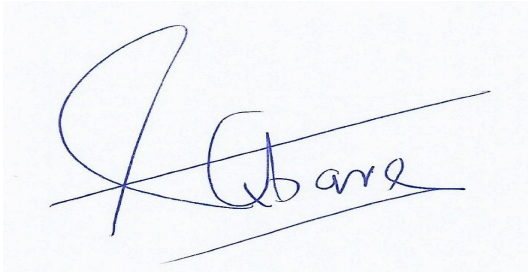
The GHS in the last few years has been operating with a very limited budget and very few resources to cover the health demands of an ever-increasing population and expanding public health system. We are intensifying our efforts in tackling both communicable and non-communicable diseases as well as new emerging diseases, yet we are plateauing in creating a modernized health system that would accommodate these new functions. Despite this, we can still do more to operate more efficiently, looking at ways in which we can reduce duplication and look more into integrating services and programs. We need to as staff of the GHS at every level give active consideration to the current pool of activities to determine if these are the most cost-efficient and whether the current line of activities match up our goals under the new Sustainable Development Goals.

Notwithstanding, both our accomplishments and setbacks in 2016 are our shared responsibility. I would like to acknowledge the hard work of all Ghana Health Service staff at every level of the health system. The GHS would not function without you.

Our development partners have continued to contribute immensely to strengthening our health delivery system, with financial and technical assistance, capacity building for supply-chain including ensuring the availability to routine vaccines in every health centre, and we say thank you. We have built a good partnership over the years and together chalked a good number of successes, but we need to build a more effective working relationship as partners. This includes our work with Ministry of Health and other ministries as well as other agencies, whether directly or indirectly involved in the business of health, and our private sector partners. We have that responsibility as the coordinating agency of healthcare services in Ghana, to ensure that government delivers on its mandate to support public health activities to promote equity and support community-level public health actions to achieve a healthier and wealthier nation.

As you read this 2016 Annual Report, I invite you to reflect upon areas where we delivered below the expectations of the public we pledge to serve. Our performance review system offers us the opportunity to examine ourselves, to retool and to develop more targeted approaches that will reduce the inefficiencies in our public health delivery system. We each need to be nimble and passionate about our call to service. Our call to service should both stimulate and empower us to become a sturdier Ghana Health Service.

Thank you.



DR. ANTHONY NSIAH ASARE
Director General
Ghana Health Service

EXECUTIVE SUMMARY

The Ghana Health Service (GHS) is the largest public sector agency under the Ministry of Health and responsible for ensuring that every Ghanaian has access to healthcare services when they need it. The GHS is mandated through its directorates and health facilities to provide preventive, promotive, rehabilitative and curative health services at all levels, to ensure continuous contact and a seamless referral system that enables continuity of health services to every person.

The 2016 Annual Report covers the third year of the implementation of activities under the Health Sector Medium-term Development Plan 2014-2017 and the 2016 Health Sector Programme of Work. The GHS remains committed to the expansion of the community health planning and services (CHPS). The national CHPS policy was disseminated in all ten regions with an accompanying implementation guide to ensure more uniformity in the CHPS rollout. The number of functional CHPS zones increased by 11%, from 3,951 in 2015 to 4,400 in 2016, although we fell short of achieving the 6,000 CHPS targeted. The highest increases in CHPS implementation were in the Ashanti and Western regions. Greater Accra region has been rolling out its urban CHPS, but this implementation remains slow.

Ghana Health Service, projected to reduce Institutional all-cause mortality rate from 19.6% in 2015 to 18% in 2016. We however fell short of making any progress as in 2016 the institutional neonatal mortality rate increased by 18%, from 5.34/1000 LB in 2015 to 6.28/1000 LB. The Upper West and Western regions were the only two regions that reduced their institutional neonatal mortality rates, achieving 11% and 14% reductions, respectively. These are serious shortcomings which point to the need for comprehensive root-cause analysis to correctly identify and adequately tackle the underlying causes of these high mortality rates, and not limiting attribution to the increase to improvements in data capture and completeness. The country achieved 94.6% national immunization coverage in 2016, using penta-3 coverage as proxy. The cure rate of malnourished children in the Community management of acute malnutrition (CMAM) programme decreased from 78% in 2015 to 70% in 2016. Under-five malaria case fatality in 2016 was 0.32 compared to 0.51in 2015.

Disease surveillance continues to improve across the country coupled with appropriate early treatment and response systems. The measles outbreak in the Pru district of the Brong-Ahafo region in 2016 reported six suspected cases with 4 confirmed positive for measles and no fatality. There was a national cholera outbreak that affected seven regions: Ashanti (15 cases), Brong-Ahafo (1 case), Central (749 cases), Eastern (4 cases), Greater Accra (8 cases), Volta (2 cases) and Western (8 cases). All cases were given appropriate treatment and there were no fatalities reported.

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ACRONYMNS AND ABBREVIATIONS

ACTs Artemisinin-based Combination Therapies
ACSM Advocacy, Communication and Social Mobilization
AEFI Adverse Events Following Immunization
AFRO African Regional Office of WHO
AMFm Affordable Medicines Facility for Malaria
ANC Antenatal Care
AusAID Australian Agency for International Development
BCC Behavior Change Communication
BMCs Budget Management Centers
CBAs Community-based Agents
CDR Case Detection Rate
CDTI Community-directed Treatment with Ivermectin
CFR Case Fatality Ratio/Rate
CHO Community Health Officer
CHPS Community-based Health Planning and Services
DANIDA Danish International Development Agency
DFID UK Department for International Development
DHIMS District Health Information Management Systems
DHMT District Health Management Teams
DHS Demographic Health Survey
DTS Dried Tube Specimens
EmONC Emergency Obstetrics and Neonatal Care
EMD Epidemic Meningococcal Disease
EPI Expanded Programme on Immunization
EQA External Quality Assessment
GAVI/HSS Global Alliance for vaccines and Immunization Health Systems Strengthening
GHS Ghana Health Service
GIS Geographical Information System
GMA Ghana Medical Association
GoG Government of Ghana
GWEP Guinea Worm Eradication Programme
HASS Health Administrative Support Services Division
HIA Health Impact Assessment
HMM Home Management of Malaria
HPV Human Papillomavirus
RDD Research Development Division
HRDD Human Resource and Development Division
HSMTDP Health Sector Medium-term Development Plan
HTC HIV Testing and Counseling Services
ICD Institutional Care Division
ICOH International Commission on Occupational Health
ICT Information Communication Technology
IDSR Integrated Disease Surveillance and Response
IE&C Information Education and Communication
IHR International Health Regulation
IGF Internally Generated Funds
IMCI Integrated Management of Childhood Illness
IPHU International Public Health Unit
IPTp Intermittent Preventive Treatment in pregnancy
IRS Indoor Residual Spraying
ITNs Insecticide-treated bed nets
JHU CCP Johns Hopkins University Centre for Communication Programs
KATH Komfo-Anokye Teaching Hospital
KBTH Korle-Bu Teaching Hospital
CoHS Kintampo College of Health Sciences and Wellness
LDP Leadership Development Program
LF Lymphatic Filariasis
LLINs Long-lasting insecticide treated bed nets
MAF MDG 5 Acceleration Framework
MDA Mass Drug Administration
MDAs Ministries Department and Agencies
MDBS Multi-Donor Budget Support
MDSC Multi-Disease Surveillance Centre
MICS Multiple Indicator Cluster Survey
MNT Maternal and Neonatal Tetanus
MSD Measles Second Dose
NACP National AIDS Control Programme
NCD Non-communicable Diseases
NFP National Focal Person
NGOs Non-Governmental Organizations
NHIA National Health Insurance Authority
NHIS National Health Insurance Scheme
NHRC Navrongo Health Research Centre
NIDs National Immunization Days
NMCCSP Nutrition and Malaria Control for Child Survival
NMCP National Malaria Control Programme
NPHRL National Public Health and Reference Laboratory
NSSCD Newborn Screening for Sickle Cell Disease
NTB National Tuberculosis Control Programme
NTDs Neglected Tropical Diseases
OHS Occupational Health and Safety
OHS Occupational health strategy
OPC Onchcocerciasis Control Programme for West Africa
OPD Out Patient Department
PCR Polymerase Chain Reaction
PMDT Programmatic Management of Drug Resistant TB
PMTCT Prevention of Mother to Child Transmission

POD Prevention of Disease
PoW Programme of Work
PPME/D Policy Planning Monitoring and Evaluation Division
QA Quality Assurance
RDTs Rapid Diagnostic Test kits
SBS Sector Budget Support
SCD Sickle Cell Disease
SCFG Sickle Cell Foundation of Ghana
SHEP Social Health Education Project
SOP Standard Operating Procedure
SP Sulphadoxine–Pyrimethamine
SSDM Stores, Supply and Drugs Management Division
SSTH Schistosomiasis and Soil-Transmitted Helminthes
STH Soil-transmitted Helminthes
TBCAP Tuberculosis Control Assistance Program
ToT Trainer of Trainers
TTH Tamale Teaching Hospital
U5 Under Five year olds
UNICEF United Nations Children's Fund
USAID United States Agency for International development
WHO World Health Organization
WIFA Women in the Fertile Age

CHAPTER ONE

1. ORGANIZATIONAL OVERVIEW

1.1. Role and Responsibilities

The Ghana Health Service (GHS) is the autonomous Executive Agency under the Ministry of Health that implements national policies with emphasis on expanding primary health care services at regional, district and sub-district levels under the guidance of its administrative offices. The Ghana Health Service is independent of Private, Mission health services, including Christian Health Association of Ghana, and the Teaching Hospitals.

1.2. Governance Structure and Functions

Administratively Ghana Health Service is organized at three (3) levels. The National, Regional and District. Functionally it is organized at five (5) levels National, Regional, District, Sub-district and Community. Leadership and Governance of the Ghana Health Service comprises a twelve (12)-member council established by the Act 525 that promote collaboration with the Ministry of Health, Teaching Hospitals and other agencies, as well as propose recommendations on health policies and programmes to the Minister for Health among others.

At the headquarters, the Office of the Director-General comprises the Director –General and the Deputy-Director General, supported by ten directorates; Policy Planning Monitoring and Evaluation (PPMED), Public Health (PHD), Finance (FD), Stores, Supply and Drugs Management (SSDM), Institutional Care (ICD), Family Health (FHD), Internal Audit IAD), Health Administration and Support Services (HASS). Health Research and Development (RDD) including the Dodowa, Kintampo and Navrongo Health Research Centres, and Human Resources and Development (HRD). There are 10 Regional Directorates led by Regional Directors of Health Services and supported by Regional Health Management Teams and Regional Health Committees. All 216 districts in Ghana have a District Directors of Health Services who is supported by a District Health Management Team, District Health Committee and sub-District Health Management Teams.

The GHS plays an essential role in rolling out key strategies outlined in the Medium-Term Health Strategy (MTHS), aimed at promoting greater equity and efficiency, and creating a more accessible and responsive health care system. GHS directly provides comprehensive health services at all levels, and indirectly by subcontracting other agencies as well as partnerships to:

1. Develop strategies and technical guidelines to implement national policies
2. Undertake management and administration of the health resources within the Service
3. Promote healthy mode of living and good health habits by people
4. Establish effective mechanism for disease surveillance, prevention and control
5. Determine charges for health services with the approval of the Minister of Health
6. Provide in-service training and continuing education, and
7. Perform other relevant functions that promote, protect and restore population health.

CHAPTER TWO

2. LEADERSHIP AND GOVERNANCE

2.1. Report from the Directors and Council Meeting

During the year under review, monthly Directors meetings were held at the Ghana Health Service Headquarters where major decisions were taken to support the implementation of key service policies and also provide technical direction for Regions. The Ghana Health Service Council also met nine times during the year to provide direction for the running for the service

2.2. Programme of Work

The 2016 Strategic plan is aligned to the Health Sector Medium Development plan (2014-2017) and the nine health systems strengthening (HSS) pillars of the Ouagadougou Declaration. In 2016, GHS developed health-financing strategies and reviewed its resource allocation strategies. The 2016 Health Sector programme of work were developed into operational guidelines for regions and districts. Updated planning and budgeting guidelines were circulated to the sub-districts, districts, regions and headquarters divisions.

2.3. Performance Appraisal

All GHS health managers signed a performance agreement and a set of deliverables per the annual programme of work. These were assessed at the half-year review and annual review process of the ensuing year. All health managers completed their 2015 annual appraisal in the first quarter of 2016.

2.4. Policy Reviews

Four national policies were reviewed and prepared into policy briefs. The new Mobile Handheld Devices Policy has been disseminated. There was operational research conducted to determine how well key health policies aligned with actual budget implementation under the programme of work.

2.5. Monitoring and Evaluation

(a) Regional and District Annual Performance Reviews for 2015 took place between February and March 2016.
(b) HQ teams of Directors, Deputy Directors and senior officers made integrated Supervisory visits to all ten regions in March 2016. Each team presented a report to the Senior Managers' Meeting in April 2016.
(c) Data verification exercises were held in the Greater Accra and Volta regions to support the National Malaria Control Programme (NMCP) and Vector Works to strengthen rollout of the Long-lasting insecticide-treated bed nets (LLINs) and improve documentation and data entry on LLIN inventory, distribution, education and care.
(d) A CHPS verification exercise was held in the Eastern region in May 2016 as part of the harmonization of the nationwide implementation of CHPS. This will help to strengthen the CHPS platform for community-level healthcare and facilitate proper resource allocation for functional CHPS zones.

2.6. Health Information

The Centre for Health Information Management (CHIM) has developed the MOH Health Information Exchange, new a Health Sector reporting portal. There are currently over 10,000 users on DHIMS2. We also continue to achieve 99% yearly power redundancy and access to DHIMS2.
A third edition of the Standard Operating Procedures (SOP) on Health Information has been completed and ready for dissemination to all health facilities. Eighty-six (86) facilities comprising CHPS, Health Centres and Hospitals, and 113 TB burden district hospitals in four districts in the Central Region are each equipped with a designated laptop and modem to support data entry and upload and reporting.
The District Health Information Management System 2 (DHIMS2) e-Tracker modules have been developed for TB, HIV AIDS ART and Maternal and Child Health services (MCH) including antenatal care, postnatal care, delivery and family planning.
The TB e-Tracker has been deployed in 86 facilities in four (4) districts to enable Community health officers and nurses (CHOs, CHNs) and midwives collect case-based individual client service data for child and maternal health services. Currently one hundred and thirteen (113) TB burden district hospitals use the e-tracker to collect data on TB screening for all eligible clients at OPD for TB testing. Clients are then enrolled for TB care and treatment and tracked to complete their direct observation treatment (DOTs).
The HIV/AIDS ART e-Tracker system will be deployed in all ART centres in 2017 to track clients and ensure treatment compliance.
Staff in the 86 facilities were trained on DHIMS2 and the MCH eTracker for delivery, ANC, PNC and family planning services. These facilities were in three Eni Foundation supported districts Elembele, Jommoro and Ahanta-west.

2.7. Research

(a) As part of strengthening Research Management and Ethics in 2016 153 protocols were reviewed and 176 were approved for implementation. The protocol guideline for National Ethics for Research was completed for

1. Assessment of the Feasibility and Acceptability of Introducing Chlorhexidine for Umbilical Cord Care into the Routine Health System in Ghana
2. Knowledge, Attitude and Practices of Community Drug Distributors (CDDs) in Lymphatic Filariasis hotspots in Ghana
3. Community Dynamics and the Decision to Seek Care: Findings from A Social Autopsy on Maternal and Neonatal Deaths and Near Misses in Northern Ghana
4. Valuing the Narrative; Sociocultural Factors that Contribute to Neonatal Mortality in The Kassena-Nankana Districts in Northern Ghana
5. Capacity and Gaps of Ghana Health System's Response to Child Abuse
6. Assessing the Impact of Ghana's Indoor Residual Spraying Policy in Four Districts of Ghana
7. Why Do Some Babies Die While Others Survive? Gaps in Care seeking And Other Predictors Identified Through The preventing Maternal and Neonatal Deaths in Rural Northern Ghana (PREMAND) Study
8. Assessing the Financial Burden of Tb On Tb Patients and Affected Households in Ghana
9. In-depth Antibiotic Access and Use (Abacus) Inception Study Community Level Antibiotic Access and Use in Low and Middle Income Countries
10. Mortality among Active Convulsive Epilepsy Cases in The Middle Belt of Ghana
11. 6legs to Health (6L2H) Study (Akokono)
12. Volunteering for Health Service: In Whose Interest?

13. Health Seeking Behaviour And Attitude of Persons with Diabetes and Hypertension in Central Ghana
14. Maternal, Neonatal, And Child Health Activities (Ensure Mothers and Babies Regular Access to Care - EMBRACE)
15. Adolescent Perception on Quality Health Care: An Exploratory Study in Southern Ghana
16. Predictors of Unsafe Sexual Behaviours Among Adolescent
17. Challenges and Successes in Delivering LPG As an Intervention to Reduce Household Air Pollution and Improve Child Health: Experience from The Ghana Randomized Air Pollution and Health Study (GRAPHS)

(b) Demographic Surveillance System (DSS) managed by the Dodowa, Navrongo and Kintampo Health Research Centers continued to collect data from communities to monitor new health threats, track population changes and assess policy interventions. Indicators monitored in 2016 were:

1. Nutritional status
2. Under-five mortality
3. Child vaccination
4. Maternal mortality
5. Supervised deliveries
6. Access to water
7. Education
8. Cause of death
9. Proportion with extreme poverty over time

(c) 2016 capacity building workshops for research in the public and private sectors comprised 3 Continuing Professional Development workshops (CPDs) on scientific writing operational research, ethical issues in health research and data management. Research capacity strengthening workshops were held for five regional health teams (RCF4FIVE) on service delivery and disease control using routine DHIMS data (DHIMS-2). The workshops were to equip the teams with relevant knowledge and skills to identify, prioritize and find solutions to address specific health problems through operational research in their various regions using the DHIMS 2 data. These workshops were conducted in collaboration with the PPME and WHO/TDR/RCS4FIVE.

2.8. Audit of Budget Management Centres (BMCs)

In 2016, there was a planned audit of 300 BMCs across the country. At the end of 2016 79% (238 facilities) were audited. The BMCs audited were Regional and District Health Directorates, Regional and District Hospitals, Polyclinics, Health Centres and selected CHPS compounds. Table 1.0 summary of BMC audits completed in 2016.

Table 1.0 Regional BMC Audit Coverage, 2016

Region	Planned audits	Actual facilities audited 2016 (%)	Actual facilities audited 2015
Ashanti	30	22 (76)	21
Eastern	21	15 (71)	15
Central	20	8 (40)	12
Brong Ahafo	50	43 (86)	41
Northern	25	20 (80)	19
Upper East	30	27 (90)	20
Upper West	22	14 (64)	13
Western	34	31 (91)	29
Volta	39	32 (82)	31
Greater Accra	29	26 (90)	24
Total	**300**	**238 (79)**	**225**

Table 2.0 Functional ARICs by Region, 2016

Region	Total # of ARICs	Total # of Functional ARICs (%)
Central	32	25 (78)
Ashanti	33	22 (67)
Eastern	42	16 (38)
Volta	39	21 (54)

Upper East	30	28 (93)	Greater Accra	29	2 (7)
Upper West	24	18 (75)	Brong-Ahafo	43	30 (70)
Western	37	34 (92)	**Total**	**345**	**216 (63)**
Northern	36	20 (56)			

(a) Audit Report Implementation Committees (ARIC) have been formed in all ten Regional Health Directorates. A total of 216 ARICs out of 345 expected were functional as at end of December 2016. Table 2.0 provides a summary by region. All the ten Regional Internal Audit Units were assessed in the areas of Annual Plan, Functional ARICs, Submission of reports and BMCs audit coverage. All the regions scored above average (6 out of 12).

(b) Observations from the 2016 audit

i. Revenue misappropriation at some BMCs and pilferage of medicines at some pharmacies
ii. Procurement without alternative quotation, Payment without award of Contract Letters, procurement from non-VAT registered suppliers at some BMCs
iii. Stores items were not routed through Stores leaving some items unaccounted for
iv. Expenditures showed Unretired payment vouchers, misapplication of funds, failure to obtain VAT Invoices, payment without pre-auditing, unauthorized payment- without memos, unpresented payment vouchers and unremitted taxes
v. Personnel and payroll showed unearned salaries and overdue staff advances
vi. Transport audits showed that fuel was not accounted for
vii. Funds transferred to the Regions without accompanying spread sheet specifying purpose of funds
viii. Late utilization of Programme funds at the Regions

CHAPTER THREE

3. FINANCE

3.1. Strategies for Improving health service financial performance

(a) Mobilize resources including Internally Generated Funds (IGF) for CHPS
(b) Develop guidelines on deprived area incentives
(c) Cost services and engage the NHIA to review tariffs
(d) Facilitate implementation of equipment revolving fund
(e) Strategic direction for financial validations
(f) Strengthen M&E including financial monitoring and supervision
(g) Structured in- service training
(h) Development and deployment of sage ACCPAC Software to Nine Regions
(i) Collaborate to develop plans and budget
(j) Deploy and train end-users on the resource tracking tool
(k) Deploy financial model of the LMIS Software in pilot to Regional medical stores (RMS)
(l) Strengthen capacity for operational research on key areas of public financial management
(m) Hold bi-annual senior finance managers review meeting
(n) Establish a league table and reward system for best performance.

Budget Committees in six regions were trained on the e-budget tool. The programme started in 2015 and continued in 2016. The Central region will be the last region to be trained.

3.2. Report on GHS Financial Status

Table 3.1 Funds Inflow for the period 2014 - 2016

Inflows	**2014 (Actual)** Ghana Cedi (Ghc)	**2015 (Actual)** Ghana Cedi (Ghc)	**2016** Ghana Cedi (Ghc)
GoG Goods and Services	2,214,262.85	-	-
GoG Employee Compensation	638,962,339.12	579,148,801.13	589,163,848.81
Programs	135,045,113.21	143,405,090.11	152,999,254.29
Sector budget support	2,322,438.00	2,248,016.39	13,728,564.00
Internal generated facilities	542,643,716.83	655,775,930.64	629,106,930.19
Total	1,321,187,870.01	1,380,577,838.27	1,384,998,597.29

Table 3.2 Funds Outflow for the period 2014 - 2016

Outflows	**2014 (Actual)** Ghana Cedi (Ghc)	**2015 (Actual)** Ghana Cedi (Ghc)	**2016 (Unaudited)** Ghana Cedi (Ghc)
GoG Goods and Services	2,214,262.85	-	-
GoG-Employee Compensation	638,962,339.12	579,148,801.13	589,163,848.81
Programs	124,437,879.51	138,628,806.22	148,448,544.5
Sector budget support	11,782,469.21	2,859,913.69	14,434,573.20
Internal general funds	511,497,871.20	631,394,917.22	629,235,477.8
Total	**1,288,894.89**	**1,352,032,438.26**	**1,381,282,444.34**

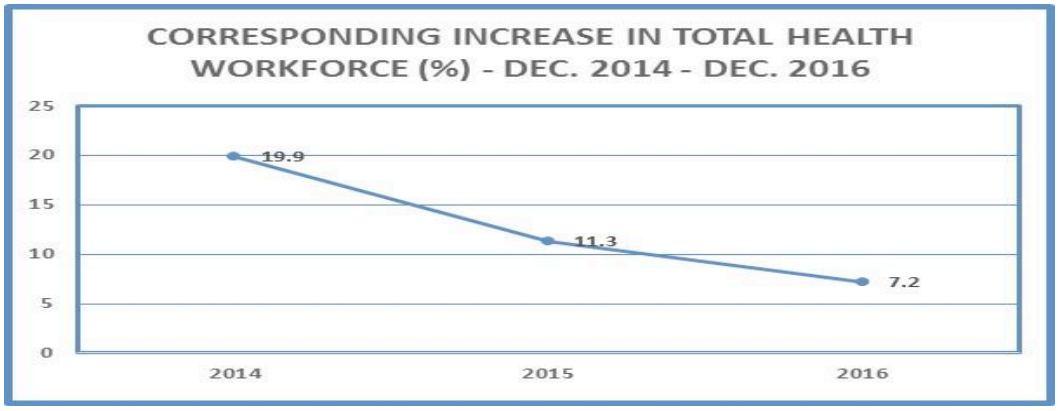
CHAPTER FOUR

4. HUMAN RESOURCES FOR HEALTH

4.1. Payroll

Data from Integrated Personnel and Payroll Database (IPPD) as of the end December 2016 show that the total number of 102,019 health work force on the MOH payroll; this is a 7.2% increase compared to the 11.3% increase in 2015. The annual increment of health workforce continues to decline from 2013 to 2016 as shown in Figure 1.0. The corresponding net salary of the health workforce is GH₵121,084,085.41, representing about 22.4% increase over 2015. This figure excludes trainees in the health training institutions.

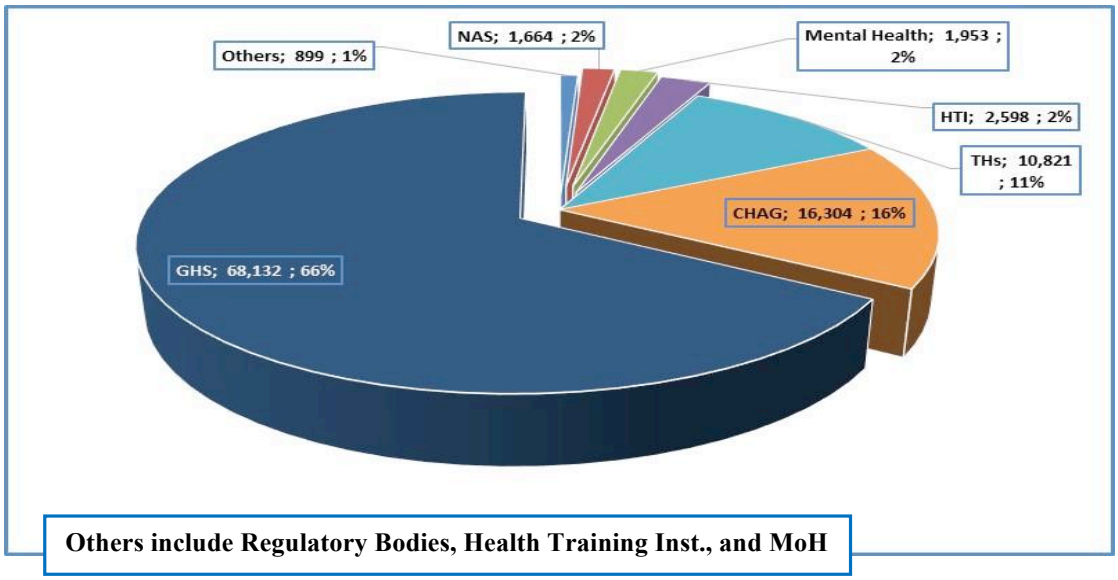
Figure 1 Health Workforce 2014 – 2016



4.2. Distribution of Health Workforce by Category and Agency

The GHS has a health workforce of **68,132** representing **66%** of the total Health Workforce. This is a 6.6% increase of **6.6%** over 2015. The CHAG has **16%** and the Teaching Hospitals, **11%**.

Figure 2 Distribution of health staff by Agencies, 2016

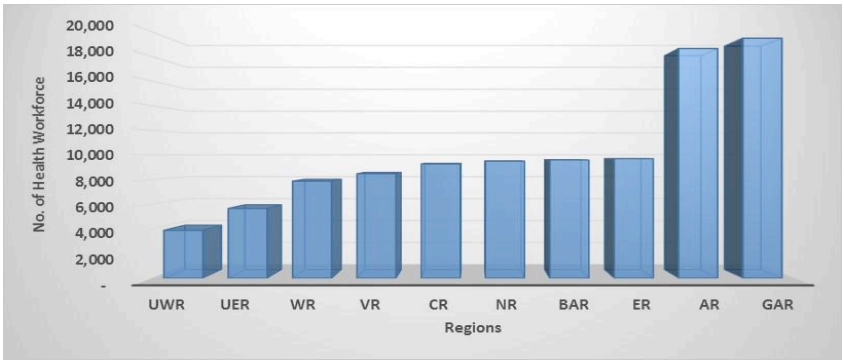


Others include Regulatory Bodies, Health Training Inst., and MoH

4.3. Regional Distribution of Health Staff

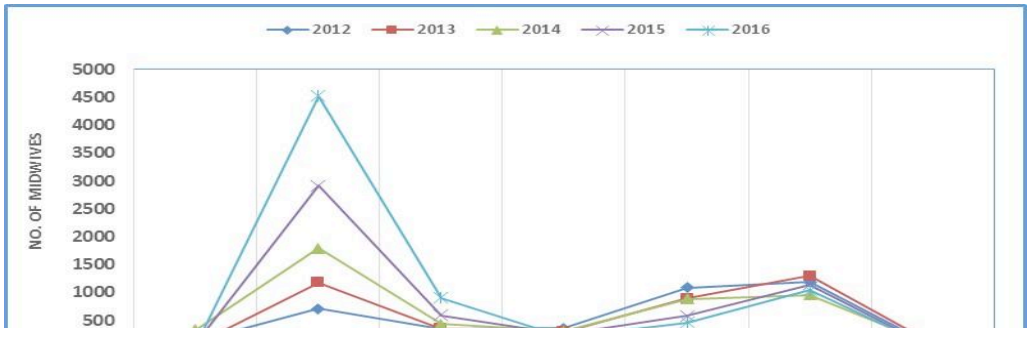
As at the end of December 2016, total human resource in all tens regions is 102,019 (excluding Health Trainees). Ashanti and Greater Accra regions have the highest proportions of the health workforce consisting of 18% and 19%, respectively, taking up 40% of the total health workforce. Eastern Region has the third highest (9.5%) and both Upper West and Upper East regions have the least. Disparities in distribution of health workforce between urban and rural settlements in the region still persist.

Figure 3 Regional Distribution of Health Workforce



The age distribution of the midwives on payroll consists of 15,626 (63.5%) below the 25-35-year age group, an improvement in the training of midwives over the past four years.

Figure 4 Distribution of midwives by Age interval by years



4.4. Human Resource Management Information System (HRMIS)

The Human Resource Management Information System (HRMIS) was launched in 2016 in collaboration with the PSC the "Go Live," with scheduled launches in each region in the coming year. Salaries are being populated into the system in some regions and at the Headquarters.

4.5. Human Resource (HR) Gap Analysis: Development of Recruitment and Distribution Plan

Ghana did not achieve its 2015 health-related Millennium Development Goals (MDGs) and to remedy some of its shortfalls, a number of activities are being implemented to promote Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs) These include the expansion of healthcare infrastructure, health insurance coverage and availability of equitably distributed Human Resources for Health (HRH), which has contributed to doubling the Essential Health Worker to population density (physicians, nurses and midwives) from 1.07 per 1,000 population in 2005 to 2.14 per 1,000 population in 2015 (WHO, 2016).

As part of efforts to address human resource shortages and maldistribution within the health sector, the Ministry of Health led the development of the Staffing Norms for healthcare facilities. The staffing norms are a set of planning tools based on the World Health Organization (WHO) recommended Workload Indicators of Staffing Needs (WISN) method that gives an indication of the cadre and number of health workers required in a given healthcare setting based on their workload.

With technical assistance from the World Bank through the MNCHP project, a facility-by-facility HRH gap analysis was undertaken in all hospitals, polyclinics, health centres and CHPS zones to develop a comprehensive database for planning staff recruitment and redistribution in 2017. This exercise was also to build capacity in the regions and districts to effectively use the staffing norms and related tools for HR planning and decision-making. The results of the gap analysis showed that:

(a) The nominal rolls submitted by some regions had not been validated.
(b) There is gross understaffing of some cadres in some facilities while other cadres are in excess. While this is the case for all regions and facilities, current overstaffing levels do not yet warrant inter-regional redistribution.
(c) There is a general decline in health service utilisation in health facilities affecting staffing requirements, although there is still a large unmet need for healthcare services.
(d) There is an aggregation of ageing staff in some urban facilities many of which are not practicing. This does not adequately reflect the staff strength.

4.6. Appointments and Promotions

An intensive orientation programme has been developed for newly appointed managers. In Kumasi 60 management appointees consisting of thirty-four (34) Medical Superintendents, three (3) Deputy Directors (Clinical Care), three (3) Deputy Directors (Public Health) and twenty (20) District Directors of Health Service from all 10 regions attended the orientation. A total of 2,772 serving

officers were promoted in 2016. This number excludes officers in the last two-degree exit grades, Deputy Director of Nursing and Midwifery Services and headquarters staff. With the last two-degree exit grades and Deputy Director Nursing and Midwifery Services, the Department required the approval of the Ghana Health Service Council and has been delayed following the dissolution of council with the change of government. A total of 2,783 candidates were recruited into the Service in 2016 and 785 were upgraded following successfully completion of approved programmes and receipt of endorsements from respective regions.

CHAPTER FIVE

5. HEALTH ADMINISTRATION

5.1. Data Management

As part of the effort to improve visibility and data management for administrative and support services at regional and facility levels, an Excel Software was deployed to facilitate data capture and analysis on utilities, transport, estate and equipment maintenance, asset register, mortuary, procurement and stores, catering, laundry, human resource. The health facilities' inventory was updated by type and ownership with validated geographic coordinates as part of the comprehensive health infrastructure data management system required for strategic health facility planning, monitoring and management. The Transport Policy has been revised and will be disseminated in the coming year.

5.2. Capacity development

Driving staff were trained in defensive driving, road act, filling logbooks. Radiographers were trained on using the Medex Z-Ray system.

5.3. Turn-Key Healthcare Projects

GHS supported the External Aid Coordination, the Capital Investment Management and various other Project Implementation Units of the MoH to plan, develop and implement both new and existing turnkey healthcare projects. Projects supported in 2016 were:

(a) University of Ghana Teaching Hospital Project at Legon, completed.
(b) The civil works component of the Bolgatanga Regional Hospital Rehabilitation Project Phase III was completed. The project will move to phase IV after medical equipment is installed.
(c) Tamale Teaching Hospital Rehabilitation Project Phase II started and is 35% complete.
(d) The Ridge Hospital Rehabilitation Project Phase I started in 2014 is complete and was handed over in November 2016. Plans for the Phase II have been initiated.
(e) A 500-bed Military Hospital started at Afari in the Ashanti region in 2014 is 75% complete.
(f) EUROGET Hospitals Project is constructing 2 regional and 6 district hospitals. The projects sites are Kumasi, Wa, Salaga, Tepa, Konongo, Nsokaw, Madina and Twifo Praso. Work at the Wa site is 80% complete. All projects are at roofing level except at Salaga.
(g) Construction of a 500-bed Teaching Hospital at KNUST
(h) A new Maritime Hospital at Tema was completed and handed over.
(i) ORIO Project is constructing 1 district hospital and 5 polyclinics in the Western at Sefwi Akontombra, Nsuaem, Mpohor, Bogoso, Elubo and Wassa Dunkwa.
(j) The Bekwai Hospital Project due for completion in 2013, is still suspended
(k) NMSI Project covers 6 new district hospitals in Sekondi, Garu, Kumawu, Fomena, Dodowa and Abetifi, and the rehabilitation of

the Takoradi hospital. The Dodowa site was completed and handed over. The Fomena and Kumawu projects are also complete, while Abetifi and Takoradi are in progress. Work on the Garu site was suspended, and the Sekondi site is under litigation.

The oversight responsibility of contracts under the regular GoG Budget covers:

(a) Upgrade and Rehabilitation of 38 TB Laboratories and 75 Sputum sheds nationwide.
(b) 1 TB Laboratory at Korle Bu was completed in 2016 increasing the total number to 36.
(c) 2 contracts in Ashanti region were cancelled because of delays in initiation, closing the contract on the TB lab project. The HASS division has initiated processes to terminate the contract for the fabrication and installation of Sputum Sheds.
(d) The Phase II Construction (first and second floors) of a 3-storey classroom block for Nurses and Health Assistants' Training School at Teshie for Ministry of Health has been completed.
(e) The Greater Accra Regional Health Directorate resumed work on the stalled new Regional Medical Stores project. The east-wing of the building is near completion.
(f) The construction of an Ebola/Infectious Diseases Treatment Centre at Tamale started in 2014 and now 94% as of the end of 2016. Work outstanding includes a septic tank and electricity.
(g) The construction of the Operating Theatre and Staff Accommodation at Anloga Health Centre reached 55% completion at the close of 2014. The Volta Regional Tender Committee reviewed the contract in 2016. The new contract sum is GH¢268,000.00.
(h) Work on the completion of 1 Semi Detached Quarters at Kpeve was abandoned by the contractor in 2014. All attempts to get them back to site failed. We once again advised the Volta Regional Health Directorate to determine the contract. This was yet to be done.
(i) Similarly, work on the completion of the Maternity Ward at Asamankese District Hospital was stalled due to the non-performance of the contractor.
(j) Three health projects in the Greater Accra Region under the Sowutuom- Pokuase Highway Project comprising the Accident & Emergency Centre at Amasaman Hospital, a clinic at Anyaa and a health centre at Ofankor remained uncompleted. According to the Department of Urban Roads, funds for the projects have run out. An attempt by them to hand over the uncompleted projects was rejected by the GHS. As stated last year, there were numerous defects in the construction. An itemized report of the defects was submitted to the Department of Urban Roads for their attention. A formal response is yet to be received.
(k) New projects on 16 Polyclinics (10 in Central, 5 in Greater Accra and 1 in Northern regions) and 5 District Hospitals (1 in Volta, 1 Eastern and 3 in Northern regions were initiated during the year under the VAMED Project.

5.4. Infrastructure Development

(a) Public-Private Partnership Project with Sanford International Clinic

A facility improvement and management agreement was signed between MoH and SANFORD in 2015 to increase access and improve quality of medical services. The GHS has initiated the transfer of 21 lower level facilities to SANFORD to manage on behalf of GHS, 14 of which have been rehabilitated by SANFORD: 10 in Central Region, 1 in Greater Accra Region and 3 in Western

Region. The Ga-East District Assembly has delayed granting approval for the transfer process at Dome, Greater Accra region for rehabilitation works to commence.

(b) Assessment and costing new infrastructure

An assessment and costing of the redesign and rehabilitation of Tema Mechanical Workshop were presented to the Chinese Embassy for funding assistance. Other projects covered by this assistance include a new hospital for Dansoman, a reassessment and update the GHS Learning Centre at Pantang and two new Learning Centres for Kumasi and Tamale, and housing estates for health workers in all regions. The Assessment Report would be submitted to the Director-General, GHS for review and approval. A procurement plan and register was submitted to the SSDM and the Public Procurement Authority in 2016.

(c) Quality Improvement of the Built Environment

Standard Designs and Specifications were developed for constructing health facilities as part of the effort to improve the quality of the built environment to enhance the quality of healthcare services. Activities included:

(a) New Walk-in Cold Room for EPI – designs and estimates were submitted to the Public Health Division for consideration and funding of the project
(b) Navrongo Health Assistants Training School – preliminary designs of the master plan/ layout of the school was completed and presented to the authorities for their review
(c) New CHPS Project for Upper East Region – designs and cost estimates sent to the Regional Health Directorate for the construction of CHPS Compounds in partnership with KOICA
(d) Nsawam District Hospital – designs were done for the construction of Infectious Diseases Clinic. The National Tuberculosis Programme was to fund the project
(e) Teshie Nurses & Midwives Training School – designs and estimates for the construction of hostels accepted and submitted to procurement authorities for approval
(f) Zua Community Health Centre – completed and submitted designs for the construction of the health centre in the East Mamprusi District, Northern Region

5.5. Fire Safety

To comply with the National Fire Safety Precaution Regulations, GHS in conjunction with the Greater Accra Regional Fire Service conducted a fire risk assessment at GHS Headquarters. The exercise identified fire hazards and correctives measures to reduce possible fire hazards and risks. Fire safety training was conducted for GHS headquarters staff to raise awareness and responsiveness. A total of 170 portable fire extinguishers and 2 hydrants on the GHS headquarters premises were serviced, replacing 135 extinguisher accessories and discarding 7 extinguishers.

5.6. Equipment

There was technical support for procurement, distribution, installation and acceptance testing of medical equipment for various projects:

(a) Completed Lifts: La General Hospital (1), Cape Coast Teaching Hospital (1) and Tetteh-Quarshie Memorial Hospital (4). At the KATH (7 out of 8 lifts) and KBTH (6 out of 7 lifts) were completed but not handed over.

(b) Belstar Project: 1st year post warranty maintenance carried out and 8 out of 9 trainings completed (26 engineers were trained). A pre-maintenance assessment was carried out.

(c) Bolster Project: The delivery beds shipped to Ghana but not yet cleared from the Port because of challenges with the tax exemption. A distribution list was sent to the regions. Outstanding installation at the end of 2016 are 3 X-Ray machines ENRH, Mankessim, Ajumako, Yendi.

(d) Greater Accra Regional Hospital: Completed equipment installation and acceptance testing. Acceptance documents were signed and staff trained. A mortuary and school of anaesthesia were handed over

(e) Euroget 8 Hospital Project: Approval of selected make and models of equipment, but surgical instruments are outstanding. A medical gases system was installed. A 1st shipment of hospital furniture was delivered.

(f) Medshare and Coca Cola Foundation: Program started in 2012 and 2016 marked the end of the support. Assessment was carried out. Each of the three hospitals (Keta, PML and Accra Psychiatry) received one 40ft container each of supplies and equipment. Axim hospital also received one 40ft container.

(g) UNF Sustainable Electrification Project: Proposal approved and funds secured from DFID
Final assessment and site selection was completed. Design and specification completed Stakeholders meeting held in Accra to agree on the implementation strategy. Tools for impact evaluation had been drafted.

(h) UNDP Project for Reducing UPOPs and elimination of Mercury containing devices from Healthcare Facilities: Implementation has started. New healthcare waste management policy drafted. Call for proposal from health care facilities to participate in the project was completed.

(i) Technical support for NACP Laboratory equipment: Assessment in done in 2014, technical support for the maintenance of NACP Laboratory Equipment initiated, with procurement of spare parts for the maintenance.

(j) Bolga Phase III Project: Tender document was prepared for the procurement of equipment but not effected. Monitoring pre-installation works for medical equipment installation in 10 Polyclinics Project in Central Region: Equipment list and specification were reviewed and some approved and others recommended for review. Other projects include 5 Polyclinics in Greater Accra and 5 hospitals project spread across the country

(k) Volta Regional Hospital: Equipment assessment was carried and report submitted to the Teaching Hospital implementation committee for

action. A total of 2,708 pieces of equipment were counted out of which 999 representing 36.9% were defective.

5.7. Transport

A boat survey was conducted in six regions to assess the river-worthiness of existing boats and transport needs of riverine communities. Findings revealed that most of the boats were weak and not river-worthy with majority requiring replacement. A minimum of 10 boats is required to improve access to riverine and island communities for service. Two ambulance boats were received and deployed to Kojokrom and Kete-Krachi to support service. A total of 26 used vehicles, were received from MAF, USAID and GAVI. The vehicles are allocated to specific programmes and projects.

Table 7 Transport Portfolio

Level	Dominant transport Types	Status of transport situation
Sub District (Including CHPS)	Bicycle, Motorbike, Boat	Over 70% of motorbikes available are over 6 years (Red zone) and will require a massive replacement to ensure geographic access and operational reliability. Most boats have been decommissioned and will require replacement and a number to be refurbished
District Health Directorate	Motorbike, Boat, Vehicle (Pickup)	River-worthiness of a number of boats poor; inadequate and aging vehicles; most District Health Directorates are without reliable vehicles. Most bikes need replacement
District Hospital	Vehicle (Pickup), Bus (Mini), Ambulance	Most District hospitals will require new vehicles, especially pickups to aid service delivery and other operations. Few have buses, with no ambulances due to National Ambulance Service (NAS) are phasing out to NAS. We are of the view that Facility based ambulance service (FBAS) will still be required at this level for patient referral to higher level of care
Regional Hospital	Vehicle (Pickup), Bus (Mini), Ambulance, Truck (Mini)	The state of fleet at this level is similar to that of district hospitals even though slightly better. It will however require fleet replacement and addition to support expanding operations such as the new Greater Accra regional hospital
Regional Health Directorate (RHD)	Vehicle (Saloon, Pickup, Station Wagon, Bus (Mini/Maxi), Truck (Mini/Maxi)	Saloons provided for Reg. Directors under hire purchase; RHDs will require station wagon to support monitoring to the lower levels and fleet replacement of old vehicles
Headquarters	Vehicle (Saloon, Pickup, Station Wagon, Bus (Mini/Maxi), Truck	Relatively good vehicles, there is however the need to rationalize the allocation of vehicles with internal intra and inter divisional reallocation and external reallocation to the regions where appropriate

Figure 5: Completed and On-going Projects

Figure 5.1: New Nsawkaw Hospital under Construction

Figure 5.2: New Upper West Regional Hospital at Wa

Figure 5.3: Newly completed CHPS Compound at Kunta, UWR

Figure 5.4: New Ga-East District Hospital at Kwabenya

Figure 5.6: JICA Completed CHPS Compound at Kande, UWR

Figure 5.7: New District Hospital at Fomena, AR

Table 8: Project Implementation 2012-2016

Year	# Planned GHS Projects	# New Projects	# Existing/ Ongoing Projects	# Active Project Sites	# Completed projects
2012	175	69	106	71	51
2013	189	39	136	61	24
2014	184	74	110	79	45
2015	207	28	179	116	78
2016	142	12	130	64	27

Stalled Projects

(a) GHS Learning Centre project (2012).

(b) Four-storey office block for Centre for Disease Control at Korle-Bu (60% complete, 2014). The client and contractor agreed to terminate the contract by mutual consent.

(c) Contractor has delayed fabrication and installation of 75 Sputum Sheds in some health facilities.

(d) Reconstruction of the Pediatric Emergency Unit procured by KBTH with assistance from EMD stalled due to funding constraints by the client.

(e) Four projects under Sector Budget Support funding:

i. Two-storey Administration and Pharmacy Block at Ejura Hospital
ii. Female and Children's ward at Asamankese Hospital
iii. One semi-detached quarters at Kpeve
iv. Theatre at Anloga Health Centre

(f) Eye Hospital for VRA; VRA Hospital expansion at Aboadze; Nursing Training School for VRA.

5.8. Supplies, Stores and Drug Management

(a) Scaling up the LMIS in Regional Medical Stores and pilot linking to 3 lower-level facilities forms part of effective and efficient inventory management of health commodities to report, requisition, issue and facilitate receipt of health products between the Regional Medical Stores (RMS) and Service Delivery Points. SSDM in collaboration with PPME initiated a simple Inventory Management Software (IMS) and deployed this to 8 RMS, excluding Ashanti and Central Regions.

(b) Scheduled delivery of Health Products to service delivery points (SDPs) is challenged but inadequate human resource (supply chain) to provide optimal health procurement and supply functions. In some instances, clinical workers double as commodity managers, affecting their ability to adequately cater for clients. Some staff make long commutes to access essential commodities for their facilities. Several facilities lack appropriate transportation resources to convey commodities in the right conditions and ensure that their potency and efficacy are maintained. An effective distribution system that will guarantee the delivery of health commodities from the central level to the regional level; and from the regional level to SDPs will allow the limited staff in SDPs to focus on their core job of providing health care

services to clients. The continuous flow of commodities will also reduce/eliminate stock out situations and ensure that clients have ready access to quality medicines and other health supplies.

Currently, every region undertakes Schedule Delivery System but none has achieved 100% coverage of all public facilities in their region. The USAID and Global Fund are supporting some regions to cover all facilities in the regions. The USAID is supporting the Eastern and Northern Regions, whilst the Global Fund is supporting the Greater Accra and Volta Regions for the full implementation of the Schedule Delivery.

(c) A Corporate GHS Procurement Plan, as part of the Public Procurement Amendment Act 914, all procurement plans had been received and submitted to the PPA for approval.

(d) A Framework Contracting Arrangement for focus essential health products has been developed by the MOH and GHS as part of supply chain reforms designed to improve efficiency in the health sector supply chain. This arrangement enables Regional Health Directorates and Teaching Hospitals to agree on a list of pharmaceuticals to be procured through a competitive tendering process, and enter contracts with established suppliers.

Pre-implementation activities included a series of engagements with the National Health Insurance Authority on what pharmaceutical products should be procured on pilot basis under the Framework Agreement guided by utilization data from the NHIA and challenges with delays in payment of claims to Health Facilities and its effect on the successful implementation of the Framework Agreement.

Other implementation activities covered Stakeholder Engagements to get their buy-in (Regional Teams, Pharmacist in the Public Health Sector and review and quantification of the focus List of Medicines, Preparation of Tender Documents, Stakeholders meetings for the review and finalization of Tender Documents and a Launch of Tender. Although, the Service planned to implement the activity by December 2016 this was not achievable due to some challenges such as delay in the consolidation of commodities as well as further stakeholder engagements.

(e) Monitoring and Supportive Supervision was conducted with support from the USAID- PSCM Project five (5) regions (Volta, Western, Northern, Upper East and Upper West regions were visited during the year under review. Forty (40) Regional Medical Stores, Regional Hospitals, Health Centres, CHPS) facilities were randomly selected and visited. Key activities were a review of logistics records (stock cards, LMIS, Warehouse Management System,) assessment stock status of tracer commodities, conducting physical inventory, assessment of storage condition, providing on-the-job training where appropriate, developing action plans in collaboration with facilities and entry and exit conferences with facility management. The Review and Standardization of LMIS Tools (Standard Operating Procedures (SOPs) and

Report, Requisition, Issue And Receipt Voucher (RRIRV). Several assessments were made on the use of the Report, Requisition, Issue and Receipt Voucher (RRIRV). The Assessments revealed that the document is not very user friendly due to its bulky nature and content. In view of this, the RRIRV and Standard Operating Procedures were reviewed in June 2016 to enhance their usability as well as improve reporting and data visibility at all levels of the system.

(f) Other activities undertaken were the assessment of warehousing conditions at the Regional Medical Stores: A GHS/MOH/Food and Drugs Authority collaboration to conduct a warehousing assessment of all Regional Medical Stores to ascertain compliance to current codes of the WHO GDP guidelines (WHO TRS 957, 2010, Annex 5) conducted in July 2016. Some parameters used for the Assessment included; availability of Insurance Cover for Premises and Commodities, organization and management, personnel, premises and facilities (appropriate conditions, monitoring and records) etc. At the end of the Assessment, Brong Ahafo region emerged the best, having satisfied most of the parameters used for the assessment.

Table 9: Ranking Assessment of Warehousing Conditions in Regional Medical Stores

Region	Percentage	Position
Brong Ahafo	72	1st
Eastern	30	2nd
Ashanti	23	3rd
Upper East	19	4th
Upper West	19	4th
Central	16	6th
Western	16	6th
Greater Accra	16	6th
Northern	14	9th
Volta	12	10th

(g) The Early Warning System, an SMS Data Reporting platform is operational in about 1000 facilities (including the Central Medical Stores, 10 Regional Medical Stores (RMSs), 4 Teaching Hospitals, 160 ART sites, Hospitals, Health Centres and CHPS). It is a useful tool for accessing near real-time logistics data visibility at the Last Mile. It helps to reduce the risk of stock outs of health commodities to engender decision-making. A review of the system was conducted in 2016 to ascertain its use. The major challenge identified with the system is the poor and low reporting rates at all levels of the Supply Chain. Also, the use of data for decision-making is not encouraging. At the end of the year, Regions were scored on their reporting as shown in the Table 10.

Table 10: Early Warning System Reporting Rates for Regions

Regions	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Avg.	Position
Brong Ahafo	89	89	50	50	59	70	70	61	59	64	61	61	65	1st

Ashanti	59	54	35	32	38	73	68	68	46	49	70	57	54	2nd
Upper East	50	53	25	22	28	53	31	34	19	94	100	100	51	3rd
Eastern	48	48	28	24	34	55	45	45	28	21	76	93	45	4th
Upper West	38	46	12	23	23	50	42	27	15	23	88	85	39	5th
Central	55	56	35	33	41	32	38	38	23	29	29	28	36	6th
Western	45	44	25	27	28	28	28	26	23	25	21	21	28	7th
Northern	42	37	26	26	24	24	25	25	22	19	29	28	27	8th
Greater Accra	36	32	19	18	20	25	18	19	17	16	16	17	21	9th
Volta	17	20	7	10	15	22	17	17	15	15	15	17	16	10th

(h) Tracer Medicine Availability in GHS facilities as at the year ending 2016 was 75.1%. A regional breakdown is shown in table 11.

Table 11: Tracer Medicine Availability

Region	Percentage Availability
Greater Accra	79.0%
Upper East	63.1%
Upper West	69.3%
Western Region	80.6%
Northern	64.1%
Eastern	93.0%
Brong Ahafo	87.0%
Central	73.4%
Volta	66.0%
Ashanti	75.0%
Average	**75.1%**

CHAPTER SIX

6. DISEASE SURVELLANCE AND CONTROL SERVICE

6.1. Disease Surveillance

(a) Acute Flaccid Paralysis (AFP) Surveillance

Polio is one of the acute flaccid paralyses. There are other causes of AFP such as Gaullian Barre Syndrome, Trauma. If all AFP cases are detected and investigated then polio will be detected when it occurs. Hence AFP surveillance is used as a proxy to polio surveillance. Polio is targeted for eradication by 2018. The polio eradication initiative uses (1) Routine immunization, (2) Supplementary immunization (NIDs), (3) AFP Surveillance, and (4) Targeted "mop-up" campaigns. In 2016, a total of 458 AFP cases were reported in all 10 regions. The national non-polio AFP rate was 3.42 per 100,000 children less than age 15 years. Stool adequacy was 83%. Twenty-nine (29) cases that were compatible with polio. Six (6) regions: Central, Eastern, Northern, Upper East, Upper West, Volta and Western have achieved the two golden indicators of AFP surveillance. Whilst Ashanti achieved only one indicator, Greater Accra region could not achieve any of the indicators. Lab results indicated that 383 were negative whilst non-polio entero-viruses were isolate from 72 AFP cases.

Table 12: AFP Surveillance Performance Indicators, Ghana, 2016

Region	Population Under 15 yrs	Expected AFP	Reported AFP	Compatible	Discarded	Annualized Non-Polio AFP Rate	% Timely Stools	% Stool Adequacy Stools
Ashanti	2,355,778	47	49	0	46	1.96	96	88
Brong Ahafo	1,112,500	22	97	8	86	7.82	92	71
Central	1,110,687	22	38	3	31	2.82	82	79
Eastern	1,252,795	25	30	1	29	2.32	93	93
Greater Accra	2,022,793	40	40	3	35	1.75	80	75
Northern	1,236,229	25	53	0	53	4.24	96	96
Upper East	472,161	9	25	2	22	4.89	92	84
Upper West	330,141	7	11	0	9	2.57	91	82
Volta	1,031,740	21	36	2	33	3.14	92	92
Western	1,123,830	22	79	10	68	6.18	90	82
Ghana	12,048,653	241	458	29	412	3.42	91	83

Table 13: Findings at Sixty Day Follow up, 2016

Region	Residual Paralysis	No Residual Paralysis	Lost to Follow up	Died	Not done	Total
Ashanti	8	20	1	0	20	49
Brong Ahafo	11	64	4	0	18	97
Central	1	1	0	0	36	38
Eastern	6	16	1	0	7	30
Greater Accra	3	19	2	0	16	40
Northern	12	41	0	0	0	53
Upper East	2	7	0	0	16	25
Upper West	0	1	0	0	10	11
Volta	1	6	0	1	28	36
Western	13	23	1	1	41	79
Ghana	57	198	9	2	192	458

Fifty-eight percent (58%) of AFP cases were followed up. Northern followed up all 53 cases whilst Central region could follow up for only 2 out of 38 AFP cases detected. Of the 266 AFP cases that were followed up, 57 had residual paralysis, 198 had no residual paralysis, 9 were lost to follow up and two died before follow up date.

Table 14: Vaccination Status of AFP cases 2016

OPV Doses Received	Number	Percentage
1	12	2.6%
2	14	3.1%
3	98	21.4%
4	237	51.7%
5	19	4.1%
Not Stated	78	17.0%
Total	458	100.0%

About 79% of cases had at least three doses of Oral polio vaccine (OPV). Vaccination status of 78 (17%) could not be verified. There were weekly updates on vaccine preventable diseases (VPDs) surveillance submitted to WHO Country office and other stakeholders. A Joint EPI-Surveillance review meeting was held in May 2016. AFP specimen collection kit and "Trouble-shooting AFP surveillance flip chart were distributed to regions to regions in May 2016.

The National Polio Expert Committee (NPEC) held 3 meetings in 2016 where AFP cases were classified into compatibles, discarded and Not an AFP. The National Polio Certification Committee (NCC) also held 3 meetings to discuss AFP surveillance performance indicators. The committee offered useful advice and made recommendations for improvement. The committee participated in African Regional Certification Commission (ARCC) meeting held in Accra in November 2016. The National Task Force on Containment of Wild Poliovirus (NTC) held had three meetings where the key findings on national lab survey verification were discussed. Global Action Plan (GAP III) Phase 1a and 1b reports have been submitted to WHO.

(b) Measles Surveillance

Measles Indicators show a total of 1, 218 suspected measles cases reported and 195 (90%) districts reported at least one suspected case. All suspected measles cases were investigated. There were 28 (2.3%) out of the 1, 218 suspected cases that were confirmed positive with 26 confirmed equivocal for Measles. There was one measles outbreak recorded in Pru district of Brong Ahafo region. All 6 suspected cases were recorded with 4 confirmed positive for measles. One case was negative for measles and the other one is pending laboratory results. These 6 cases were recorded in weeks 11, 15 and 24. The district did case search and no other cases were found. There was no measles death was recorded during this period. Nine regions exceeded the annual target, shown in Figure 5.

Figure 5. Percentage districts reporting at least one suspected measles case

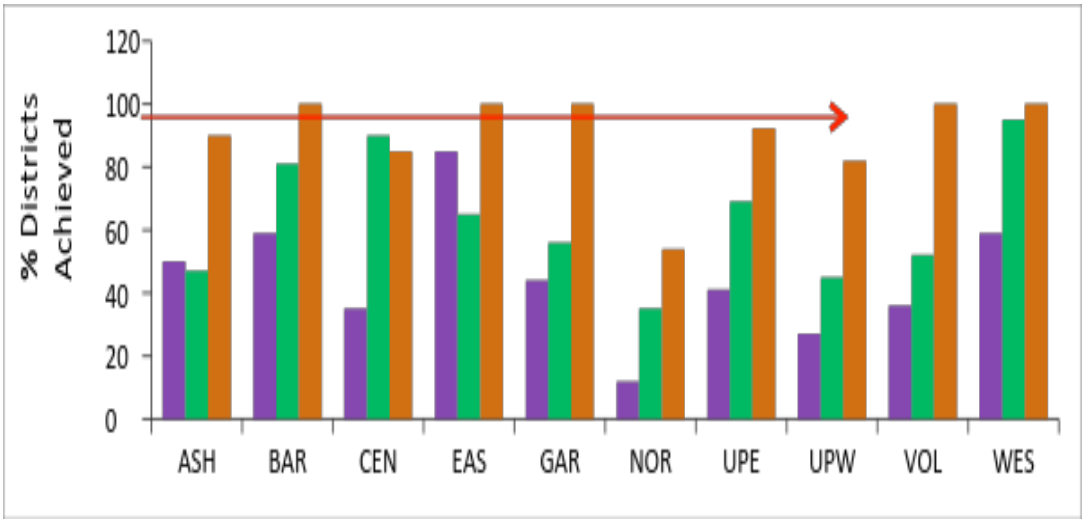


Table 16 shows the trend of districts that reported at least one suspected case of measles from 2014-2016. All regions except Northern achieved 80% coverage or higher.

Table 15: Measles Surveillance Performance Indicators by Regions, 2016

Regions	No. Of Districts	Districts Reporting At Least One	% Districts Reporting At Least	No. Of Cases Reported	No. Confirmed	% Confirmed	No. Rubella Confirmed
Ashanti	30	27	90	105	1	1.0	1
Brong-Ahafo	27	27	100	403	15	3.7	6
Central	20	17	85	66	1	1.5	0
Eastern	26	26	100	166	3	1.8	1
Greater Accra	16	16	100	90	2	2.2	2
Northern	26	14	54	25	0	0.0	0
Upper East	13	12	92	49	0	0.0	0
Upper West	11	9	82	24	0	0.0	0
Volta	25	25	100	137	5	3.6	0
Western	22	22	100	152	1	0.7	0
Total	216	195	90	1217	28	2.3	10

Table 16: Measles Silent Districts from 2014 to 2016

Region	**Districts**
Central	Komenda Edina Eguafo Abirem Twifo-Ati-Mokwa Upper Denkyira West
Upper East	Builsa North Builsa South
Greater Accra	Adenta
Northern	Bunkpurugu-Yunyoo East Gonja Kumbungu Mamprugu-Mognuri Nanumba North Tolon Saboba

Table 17: Age distribution of Confirmed Measles Cases, 2016

Age	**Number of Measles Cases**
Less than 9 months	0
9 to 11 months	4
1 to 4 yrs.	17
5 to 9 yrs.	5
10 to 14 yrs.	0

15 yrs. and above	2
Total	**28**

(c) Yellow Fever (YF) Surveillance

A total of 601 suspected cases were reported from 152 districts out of which 593 cases were negative. Eight (8) cases were probable, with 5 case confirmed. YF national percentage district reporting was 70.4% in 2016. Table 18 shows the regional performance indicators.

Table 18: Yellow Fever Surveillance performance indicators by regions, 2016

Region	Total no. of districts	No. of districts reporting	% District reporting	No. of susp. cases	No. Confirmed
Ashanti	30	19	63.3	45	0
Brong Ahafo	27	27	100	222	3
Central	20	10	50.0	31	0
Eastern	26	18	46.2	53	0
Greater Accra	16	6	37.5	21	0
Northern	26	16	61.5	43	0
Upper East	13	13	100	53	1
Upper West	11	3	27.3	3	0
Volta	25	22	88.0	64	1
Western	22	18	81.8	66	0
National	216	152	70.4	601	5

There were 8 probable cases reported from Central Tongu, Jaman South, Ekumfi and Kassena-Nankana East. Five (5) out of the 8 probable cases were confirmed. Three (3) of the confirmed cases were reported from Jaman South district in the Brong Ahafo region. The cases were reported between weeks 15 and 17. Although the outbreak has subsided in the district, some samples of fever with jaundice cases have been sent to the NPHRL and are yet to be tested. All the outbreaks were investigated by the regional and district teams and outbreak reports were submitted to the national level. All probable and confirmed cases are alive and doing well.

Table 19: Probable and Confirmed Yellow Fever Cases, 2016

Region	District	No. of probable cases	No. confirmed
Brong Ahafo	Jaman South	5	3
Central	Ekumfi	1	0
Upper East	Kassena-Nankana East	1	1
Volta	Central Tongu	1	1
National	**4 Districts**	**8**	**5**

(d) Cholera Surveillance

There was a Cholera outbreak in Accra Metropolis with the National Public Health and Reference Lab confirming one cholera case. Vibrio Cholerae O1 of the Ogawa sub-type was

isolated from stool specimen of a patient on 12/04/2016. The index case (the first confirmed cholera case in the region in 2016) was a 24-year-old man, a resident of Achimota community market area in Okaikwai Sub-Metropolis. Date of onset of diarrhoea and vomiting was 06/04/2016. Date case reported to 37 Military Hospital was 07/04/2016. Outbreak investigations were conducted and seven close contacts identified. Community Health Nurses were assigned to follow-up the cases daily for five (5) days (i.e. maximum incubation period for cholera) to assess whether they have diarrhoea using the contacts follow-up form. Those who developed diarrhoea would be sent to the health facility for treatment. Households were disinfected and educated on cholera prevention. The outbreak was contained immediately with no further spread. Training of health staff at 37 Military Hospital on the use of Cholera SOP as well as the use of Cholera Rapid Diagnostic Test (RDT) kit was conducted. There was a Cholera outbreak in the Cape Coast Metropolis in Central region. The index case was reported on 17 October 2016. Six other districts were affected. Control and preventive measures were delayed and that led to the spread of the disease. Seven hundred and forty-nine cases with no death were reported. Proper case management and WASH among other interventions led to the zero fatality in this particular outbreak.

Table 20: Reported Cholera cases by district, Central region, 2016

District	Cases	Deaths
Cape Coast	716	0
Abura-Asebu-Kwamankese	20	0
Mfantseman	6	0
Twifu-Hemang-Lower Denkyira	3	0
Asikuma-Odoben-Brakwa	1	0
Gomoa West	1	0
Awutu Senya East	2	0
Total	**749**	**0**

A total of 787 cholera cases with no death (Case fatality rate= zero) were reported in 2016. All regions except the 3 northern regions reported at least one cholera case in 2016.

Table 21: Reported Cholera cases by region, Ghana, 2016

Region	Cases	Deaths
Ashanti	15	0
Brong Ahafo	1	0
Central	749	0
Eastern	4	0
Greater Accra	8	0
Northern	0	0
Upper East	0	0
Upper West	0	0
Volta	2	0

Western	8	0
Ghana	**787**	**0**

As part of efforts to control and prevent Cholera outbreaks in Ghana, a **Second Edition Cholera Standard Operating Procedure (SOP)** was developed with the support of health partners and experts. Other interventions such as water, sanitation and hygiene (WASH) and the use of Oral Cholera Vaccine have been introduced into the SOPs. Health and Non-Health Staff were trained on the use of the SOPs in order to avert any cholera outbreaks.

A three-day training of trainers (TOT) workshop on **new Cholera SOPs** was organized for the staff from all ten regions: Deputy-Director (PH), Clinician from Regional Hospital, Regional Surveillance Officer, Regional Biomedical Scientist, Regional Health Promotion Officer, Regional Environmental Officer and Regional Water Quality Expert. The training covered:

- Enhanced Surveillance and laboratory diagnosis
- Effective Case management
- Risk Communication and Social mobilization
- Water, Sanitation and Hygiene (WASH), and
- Use of Oral Cholera Vaccine (OCV)

The Cape Coast municipality experienced an outbreak of Cholera. Other adjoining districts such as Abura-Asebu-Kwamankese, Asikuma-Odoben-Brakwa, Gomoa West, Mfantsiman, Komenda-Edina-Eguafo-Abirem and Assin South were affected. Over 600 persons were infected with the Vibrio cholera. Enhanced surveillance, case management and WASH interventions were all in place. In response to the outbreak, training sessions were organized for both staff and non-health staff. The following category of staff were trained: District Director of Health Services, Disease Control Officers, Public Health Nurse (PHN), Community Health Nurse (CHN), Lab Technician, Hospital Matron, Clinical Nurse, Environmental Officer, Biostatistics Officer, Water Expert, Health Promotion Officer, NADMO, Information Services Department, Veterinary Officers, SHEP Coordinator, Red Cross, NGO in Health and the media. In all 242 health and non-health staff were trained.

(e) Meningitis Surveillance

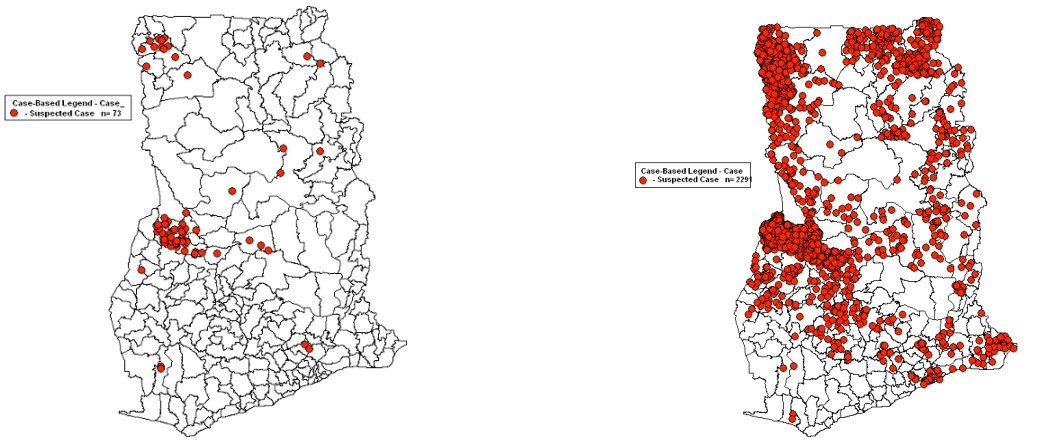
There was monitoring of weekly cases of meningitis by district by virtue of the weekly surveillance data submitted by the regions, and analysis of meningitis surveillance data by identifying epidemiological links and trends. Appropriate feedback was immediately provided, weekly or monthly.

An outbreak of meningitis occurred from end December 2015 to the end of March 2016. There was a surge in reported meningitis cases in all regions, with the highest in Brong Ahafo, Upper

West and Northern Regions. Pneumococcus and meningococcus were the causative organisms identified to be responsible for the outbreak. Outbreaks of pneumococcal infection are uncommon and are generally restricted to high risk individuals such as alcoholics, residents in shelters for the homeless, and people living in close groups including military camps, prisons, day care centres, and nursing homes. *Streptococcus. Pneumoniae* is responsible for 15–50% of all episodes of community-acquired pneumonia. According to WHO, in 2005 *Streptococcus. pneumoniae* killed about 1.6 million children every year worldwide with 0.7–1 million of them being under the age of five. The majority of these deaths were in developing countries.
On 2nd December 2015, a70 year old woman reported to the Brohani CHPS compound at Tain District with symptoms of headache, neck pains and fever and was treated for malaria. On 9th Dec 2015, her condition did not improve and she died. There was neither reported history of travel nor any public gathering in Brohani. Subsequently, her grandson, a 14-year-old boy was admitted at the Tain district hospital on 24th December 2015 with similar symptoms but died the same day. On 27th December, 2015 two other persons reported to the district hospital with symptoms of sudden onset of headache, fever and neck pain or stiffness but all died within hours after admission without adequate history, examination and laboratory investigation to ascertain the cause. On 29th December 2015, three cases reported to the Nsawkaw hospital with a triad of headache, neck stiffness and fever. CSF samples were taken from all three suspects and sent to Regional Hospital. Laboratory results indicated Streptococcus pneumoniae as the causative organism (presumptive with Pastorex test and culture confirmed).

On the 1st January 2016**,** the DDHS of Tain district reported to the DDPH of people reporting to the hospital with headache and fever after which they died shortly before or after the initial dose of medication (Ceftriaxone) The cases of meningitis spread from the Tain district to gradually involve all other regions. Retrospective review points to initial reports from Week 49 in 2015 and then following through to Week 13 in 2016. The spread of the outbreak across the country was very rapid. The increased awareness put up by the health sector together with the hype by the media led to increasing report to the health facilities. These were mainly suspected with some actually not fitting the case definition as seen in some parts of Brong Ahafo Region. The initial Streptococcus pneumoniae infection was now mixed with Neisseria meningitis particularly in the northern parts of the country.

Fig 6: Spread of the outbreak from Week 1 to end Week13



Week 1 Week 13

The Response to the outbreak was structured along Coordination, Surveillance, Case Management, Logistics and Social Mobilization and Risk Communication. These response activities were undertaken at the national, regional, district and community levels.

The national task force ensured that the response was done according to standard national guidelines. This was done by production and dissemination of standard guidelines for all the aspects of the response; guidelines for establishment of coordination structures at district level, guidelines for active search, case management, mass vaccination and community mobilization. Weekly review meetings to monitor progress of the response and subsequently dissemination of information on progress through press briefings and reports was done by both the national and district task forces.'

The district task force reports and minutes of meetings feed to the national task force agenda, which in turn would provide feedback on the strategic direction for the response at the field level. Officers at the district health office and health workers in these health facilities were trained on the standard case definitions and management of line lists and subsequent reporting to the district surveillance focal persons. WHO and the regional team conducted this training jointly. Treatment centers were established in all affected sub counties of the affected districts. One of the wards/rooms in the health centres in these sub counties, where available, was used as isolation for treatment of cases. However, tents were erected in health facilities with inadequate space. Health workers in these facilities were trained rapidly on the standard treatment protocol,

before being assigned to these centres. The standard treatment protocol used Ceftriaxone, which was provided by MOH, Private Sector and WHO through ICG.

Community mobilization during the response was undertaken by multi-sectoral teams constituted of all stakeholders; health workers, district administrative, political and local leaders, all equipped with key standard messages to propagate in the communities, using a set of designated strategies. The key messages disseminated to the communities were; avoidance of massive gatherings/concentrations to prevent transmission, early reporting of persons with fever, stiff neck and sudden deaths to the nearest health facilities, avoidance of taking of antibiotics for prophylaxis and mobilization of people to go for vaccination. The occurrence of such an outbreak with this magnitude is unprecedented in the history of the Brong Ahafo region. The predominant causative organism was Streptococcus pneumoniae serotype 1 which usually mimics Niesseria meningitides in affecting larger number of people in an outbreak situation. The overall case fatality rate was 9.0%. Attack rate was highest in the Jaman North District, which recorded 382.3/100,000 population. The most likely vehicles of the ***S. pnuemoniae*** transmission in the region were:

- Prolonged dry weather condition might have caused mucosal defences damaged by the extreme environmental conditions and/or confections of the nasopharynx
- Low herd immunity as afforded by socio-economic reasons coupled with lifestyle of community members
- Over crowding
- Poor ventilation

Fig 7: Reported Meningitis Cases and Deaths, Ghana, 2016

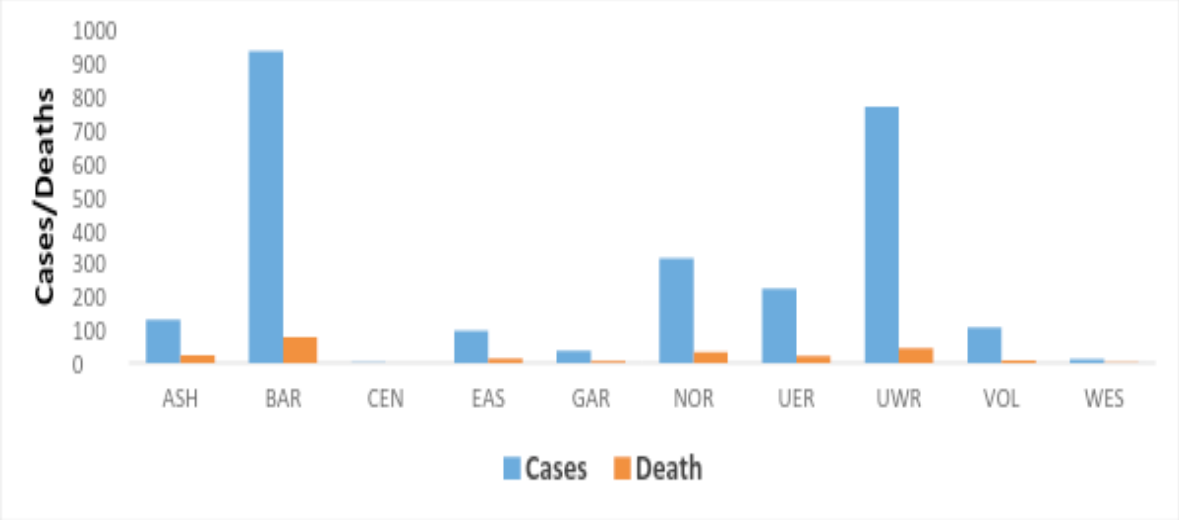


Table 22: Pathogens isolated from CSF collected (Latex Agglutination, Gram stain, Culture, PCR) 2016

Pathogen	Number
Nm A	0
Nm B	0
Nm C	1
Nm X	0
Nm Y	6
Nm W135	168
S. Pneumoniae	222
H. Influenzae	7
Gram Negative Diploccoci (GND)	167
Gram Positive Diploccoci (GPD)	87
HiB	1

Lessons from the outbreak brought to fore the inadequacies of the frontline staff in outbreak investigation and control. In this regard capacity-building activities was planned. The country through the Disease Surveillance department organized a three-day training for surveillance, health information and laboratory staff during the annual EPI/Surveillance review meeting in Accra. The CDC augmented this by organizing a similar training for the three regions in the north and Brong Ahafo in Tamale. The training saw the design and adaptation of a new Case-based surveillance form and a new template for line listing of cases.

(f) Guinea Worm Surveillance

The International Certification Team (ICT) for Drancunculiasis eradication visited Ghana on 7-25 July 2014 and based on their recommendations, Ghana was certified Guinea Worm free in January 2015. The country was therefore ushered into the Post-Certification Phase of the Guinea worm (GW) programme.

The Post-certification activities involve continuous documentation of Guinea Worm rumours, sensitization of the general public on GWD and Cash Reward.

In line with the above, planned activities for 2015 are geared toward the post certification prescribed activities to maintain the hard-earned GW free status.

Key priorities for 2016 were to: at the beginning of the year included:

1) Intensify rumour reporting and documentation and investigate every rumour or suspected guinea worm case within 24 hours. The current status is that there is no case of guinea worm reported. Rumour detection and investigation are on-going, with (25/26) rumours representing 96% were investigated in 24hrs beginning January 2016); and Surveillance (95% of 3,824 IDSR health facilities reporting on GWD

2) Strengthen data management and documentation and ensure guinea worm diseases reporting from all reporting units (including zero reporting). There were supervisory visits from the National to Ashanti and Volta regions.
3) Step-up nationwide awareness on the cash reward and guinea worm pre-certification activities. Major activities were to continue on-going nationwide awareness creation on Guinea worm disease and the Cash reward on GTV, procure and distribute 8000 Guinea Worm Picture Cards and 3,000 laminated educational hangers to all regions. A second Review Meeting of National Dracunculiasis Eradication Programmes in Post-Certification Phase was held in Lome, Togo

Table 23: Rumour Reporting and Investigation of GW, 2016

Region	# of Cases	# cases Investigated	# Investigated in 24hr	% Investigated in 24hr
Ashanti	1	1	1	100
Brong-Ahafo	2	2	2	100
Central	0	0	0	0
Eastern	2	2	2	100
Greater Accra	1	1	1	100
Northern	18	18	17	94
Upper East	1	1	1	100
Upper West	0	0	0	0
Volta	1	1	1	100
Western	0	0	0	0
Total	**26**	**26**	**25**	**96**

Table 24: IDSR Districts & Health Facilities reporting on GW 2016

Region	# Districts	# IDSR HF	# District reporting on GW	# IDSR HF reporting on GW	% District reporting on GW	% IDSR HF reporting on GW
Ashanti	30	409	30	391	100	96
Brong-Ahafo	27	412	27	396	100	96
Central	20	339	20	325	100	96
Eastern	26	591	26	518	100	88
Greater Accra	16	237	16	233	100	98
Northern	26	320	26	303	100	95
Upper East	13	304	13	298	100	98
Upper West	11	235	11	232	100	99
Volta	25	428	25	425	100	99
Western	22	404	22	372	100	92
Total	216	3,679	216	3,493	100	95

6.2. International Health Regulations (2005)

International Health Regulations (IHR) 2005 are an international legal instrument, designed to help protect all States Parties from the international spread of diseases, including public health risks and public health emergencies. In order to achieve this, States Parties need to develop and maintain core capacities to detect report and respond to all public health events or hazards.

In 2016, three IHR Steering Committee meetings were held during the first half of the year. The dates were 28 January, 16 June and 30 June 2016. These meetings were used to identify remaining gaps in the IHR implementation plan and steps taken as to how they could be addressed. The 16 June meeting was used to plan for a desktop simulation exercise of chemical origin to be held in first week in September 2016. We indeed commend the Norwegian Institute of Public Health for collaborating with the IHR NFP in planning and working towards the execution of the exercise. IHR advocacy materials were given to IHRSC members to use in their respective organizations.

A key feature at the Steering Committee meetings was the development of SOPs. Apart from chemical hazards where a specific SOP is not available the other hazard areas (radio-nuclear, food safety and biological) have existing SOPs that could be developed further with linkages to other relevant stakeholders. The user manual to help manage the Ghana IHR website was made available to the IHR National Focal Point. A one-day orientation on use will be required to enable full operationalization of website

On 30 December 2015, the country formally communicated to stakeholders that the validity of Yellow Fever vaccination has been extended from 10 years to life. All Points of Entry and International Vaccination Centres were communicated to in this regard and adherence to this change in policy has begun. Risk and capacity assessment is a key activity required under IHR implementation. Dr. Lawson Ahadzie was recruited as Consultant by the World Health Organization (WHO) to lead the process of mapping public health risks and conducting assessment of the existing capacities to adequately respond to all public health threats. The general objective of the consultancy was to map out the major public health risks in Ghana and conduct an assessment of the existing capacities to prepare and respond adequately to the identified risks. The methodology used included desktop review of databases, institutional annual reports and other relevant documents. The public health risks and capacities assessment fieldwork was conducted in February and March 2016 and supported with funds provided the IHR NFP from WHOM. The main objective of the risk mapping exercise was to provide an overview of hazards that could lead to public health emergencies in Ghana and the level of risk.

Hazards identified as having led to or have the potential of resulting in public health emergencies included:

1. Biological – Epidemics - Cholera, Meningitis, Yellow Fever, Avian and Pandemic Influenza, Viral Haemorrhagic Fevers (e.g. Ebola Virus Disease (EVD), Lassa Fever)
2. Physical – Flood, Drought, Earthquake
3. Technological - Transport Accidents – (Road, Air, Water), Structure Failures, Fire, Oil and Gas Spillage, Chemical, Nuclear and Radiological
4. Societal Hazards – Civil Disorders, Terrorism

These hazards may occur alone or in combination or as secondary hazard (hazard that occur as a result of another hazard e.g. cholera outbreak following flooding).

The northern savannah zone is at high risk for meningitis and drought whilst the high-risk hazards for the forest zone are yellow fever and those for the coastal zone are cholera and flooding.

Table 25: General Ranking of Hazard Risk

Rank	Hazard
1	Viral haemorrhagic fevers: Ebola, Lassa Fever
2	Cholera
3	Meningitis
4	Floods
5	Terrorism
6	Yellow Fever
7	Fires
8	Road Accidents
9	Avian and Pandemic Influenza
10	Aviation
11	Boat Accidents
12	Failure of structures and buildings
13	Drought
14	Earthquake
15	Oil/Gas spillage
16	Civil Disorders
17	Chemical
18	Nuclear and radiological accidents

The IHR NFP collaborated with the CDC to assess some capacities for the Global Health Security Agenda as indicated below. The WHO country office supported a self-assessment of capacities. An external team will be invited to conduct another assessment after completion of the self-assessment report:

Global Health Security Agenda

Prevent

1. National Legislation, Policy & Financing
2. IHR Coordination, Communication and Advocacy
3. Antimicrobial Resistance (AMR) (CDC)
4. Zoonotic Disease (CDC)
5. Food Safety
6. Biosafety and Biosecurity (CDC)
7. Immunization (CDC)

Detect

1. National Laboratory System
2. Real Time Surveillance
3. Reporting
4. Workforce Development

Respond

1. Preparedness (CDC)
2. Emergency Response Operations (CDC)
3. Linking Public Health and Security Authorities
4. Medical Countermeasures and Personnel Deployment
5. Risk Communication

Other IHR-related Hazards and Points of Entry (PoEs)

1. Points of Entry (PoE) (CDC)
2. Chemical Events
3. Radiation Emergencies

6.3. National Viral Hepatitis Control Programme (NVHCP)

The National Viral Hepatitis Control Programme (NVHCP) was established in 2011 to coordinate implementation of an enhanced surveillance, prevention and control of Viral Hepatitis in Ghana. In 2016, the programme developed and disseminated a first edition of the National Policy on viral hepatitis in Ghana. The main activities were an awareness creation during Celebration of World hepatitis day and media health talks. A collaboration with NGOs and Stakeholders: Partners and Donor support led to receipt of financial support from Roche Products Company Ltd to implement the following activities: 1) Development, launching and printing (300 copies) of the National Policy for Viral Hepatitis 2) Development of National Viral Hepatitis Treatment Guidelines. The MOH signed an MOU with Roche Products Company Ltd.

The program is working to strengthen clinical surveillance on Acute Viral Hepatitis. There do exist surveillance case definitions at the Districts/Regions with the introduction of the 2nd Edition IDSR. Regions and Districts are reporting surveillance data through DHIMS. Prevention and Control Measures include vaccinations through the Expanded Programme on Immunization (EPI) carrying out routine vaccinations of children less than one year with pentavalent vaccine (Penta) that includes hepatitis B vaccine. Hepatitis B vaccines are also available for health staff. There is a mandatory screening of all blood before transfusion with periodic screening of the general population.

In collaboration with EPI there is a proposal to conduct research on HEPATITS B SEROPOSITIVE AMONG PREGNANT WOMEN IN GHANA was finalized. The research will determine the prevalence rate of hepatitis B virus among pregnant women in the population, which will consequently inform health service planning in the introduction of Hepatitis B vaccination at birth.

There is a collaboration with the Hepatitis Society of Ghana (HEPSOG) and supported by Roche Products Company Ltd to start development of National Viral Hepatitis Treatment Guidelines for the clinical management of Viral Hepatitis cases in the health facilities. A stakeholders meeting held to finalize the guidelines. The Treatment guideline is in a final draft stage.

Viral Hepatitis Cases and Deaths in 2016

A total of 51,743 suspected acute viral hepatitis cases including 118 deaths (CFR=0,23%) were reported from all the 10 regions except Eastern, out of which 7,526 were confirmed (Table.). There were 1,148 Chronic Hepatitis B cases including 24 deaths and 157 Chronic Hepatitis C cases including 3 deaths. (Table 26)

Table 26: Reported Acute Viral Hepatitis Cases and Deaths by Region, 2016

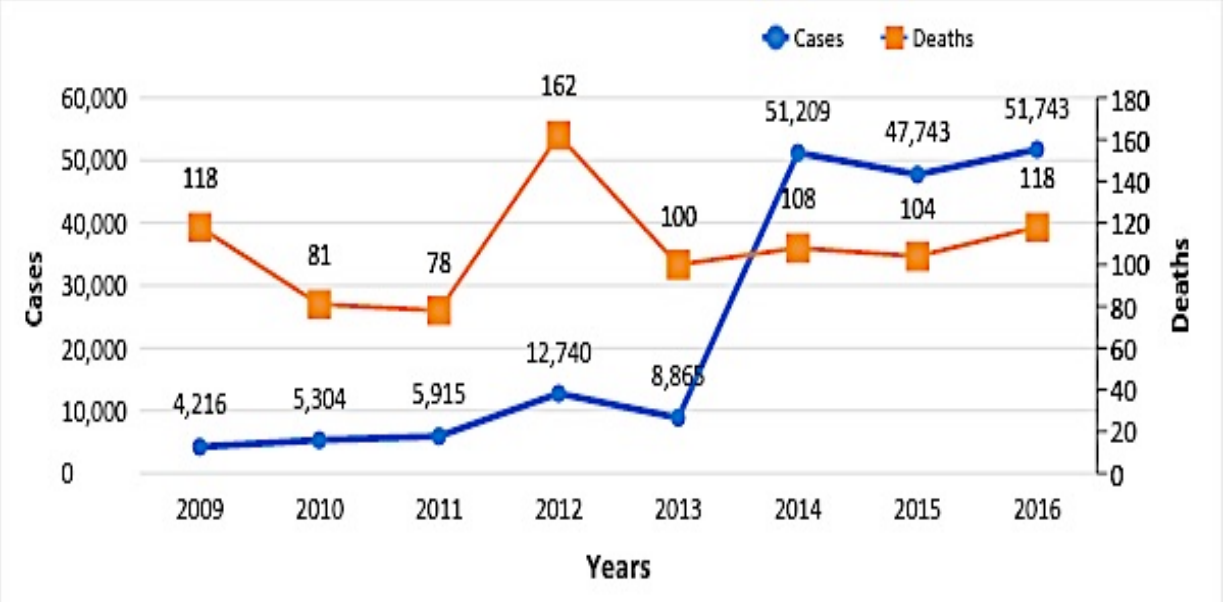
Region	Cases	Deaths	Lab Confirmed	CFR %
Ashanti	13,556	40	1,203	0.30
Brong Ahafo	7,157	13	2,263	0.18
Central	3213	9	417	0.28
Eastern	0	0	0	-
Greater Accra	6,693	37	546	0.55
Northern	86	0	15	0.00
Upper East	1,356	0	233	0.00
Upper West	7,601	6	1,400	0.08
Volta	2,036	0	195	0.00
Western	10,045	13	1,254	0.13
Ghana	**51,743**	**118**	**7,526**	**0.23**

Table 27: Reported Chronic Viral Hepatitis Cases and Deaths by Region, 2016

Region	Chronic Viral Hepatitis			
	Chronic Hepatitis B		Chronic Hepatitis C	
	Cases	Deaths	Cases	Deaths
Ashanti	272	0	0	0
Brong-Ahafo	269	5	54	2
Central	70	16	3	0
Eastern	0	0	0	0
Greater Accra	8	0	0	0
Northern	8	0	0	0
Upper East	0	0	0	0
Upper West	61	3	57	1
Volta	60	0	2	0
Western	396	0	41	0
Ghana	**1,144**	**24**	**157**	**3**

Figure 8 below shows annual trend of reported suspected cases of Acute Viral Hepatitis cases from the nine regions in Ghana

Figure 8: Trend of Reported Acute Viral Hepatitis Cases and Deaths, Ghana, 2009-2016



6.4. Neglected Tropical Diseases (NTDs)

(a) Lymphatic Filariasis

Lymphatic Filariasis is endemic in 98 out of the 216 districts in 8 regions of Ghana aside Ashanti and Volta regions. The NTDP has completed between 7-13 rounds of MDA in all endemic districts and transmission has been demonstrated to be broken in 76 endemic districts. LF is targeted for elimination by 2020.

The impact of MDA is assessed through sentinel and spot check sites so as to provide program managers accurate information on the trend of micro filarial infection over the course of the program. Data is collected on the prevalence of microfilaria in sentinel and spot check sites. For 2016, NBS was carried out in 6 districts in Upper West and Upper East regions. Samples taken for each site were between 300 -600. 1 (one) district passed and is therefore due for TAS1

Table 28: Results of Night Blood Survey in six districts in Upper West Region

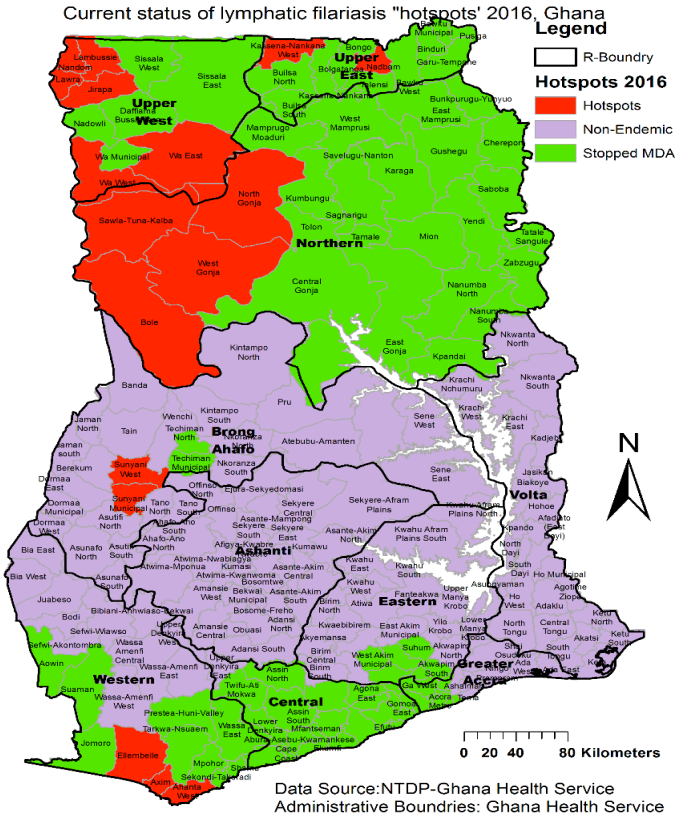
2015/2016 Pre-TAS results		
Region	**District**	Remarks
Upper West	Nandom	Passed
Upper West	Jirapa	Failed
Upper West	Wa East	Failed
Upper West	Lawra	Failed
Upper West	Wa West	Failed
Upper East	Nabdam	Failed

Transmission Assessment Surveys (TAS) are thus designed to help program managers determine whether areas have reached a critical threshold of infection and for the national program to take a decision as to whether to stop MDA or not. A survey of primary school pupils in classes one and two was undertaken in 69 districts of Ghana to ascertain the effectiveness of filarial drugs distributed annually to populations against Lymphatic Filariasis (LF). The purpose of the survey is to determine the end-point of LF mass drug administration (MDA), which has been implemented for over 10 years in Ghana. All the 69 districts that translated to 28 EUs passed TAS. There are 17 Hotspots:

a) Brong Ahafo Region: Sunyani Municipal and Sunyani West
b) Northern Region: Bole, Sawla -Tuna – Kalba, West Gonja and North Gonja

c) Upper East Region: Kassena Nankana West and Nabdam
d) Upper West Region: Jirapa, Lambussie, Lawra, Nandom, Wa East and Wa West
e) Western Region: Ahanta West, Nzema East and Ellembelle

Figure 9: Current status of lympahic filariasis hotspots in Ghana



These are districts that have high microfilaria load of above 1% after more than five rounds of MDA although coverage in these districts has been above 65%. Seven of these hotspots districts are directly situated at the borders.

After many rounds of MDA in the endemic districts, interruption of transmission of the disease was achieved in these districts in 2014, as evidenced by the results of the transmission assessment survey (TAS), and treatment was thus stopped in these districts. In 2016, a post-treatment surveillance (PTS) of lymphatic filariasis in the Greater Accra region in 2015 was put in place, with the aim of supporting the verification of LF elimination nationally, detect any transmission recrudescence in the post-MDA districts and to detect and monitor any “hot spots”.

In the Greater Accra region Post-treatment Surveillance (PTS) activities continued following the implementation of annual mass drug administration (MDA) for the elimination of lymphatic filariasis (LF) started in 2005. The Centre for Neglected Tropical Diseases (CNTD has provided both financial and technical support for lymphatic filariasis elimination activities in this region from the beginning to date. Districts that are endemic for LF in the region are the Accra Metro, La-Dadekotopon, Ledzokuku-Krowor, La-Nkwantanan Madina, Ga East, Ga West, Ga Central and Ga South municipals. These districts had all participated in the annual MDAs since the inception till 2014, when the last treatment was done.

ICT testing continued in 2016 with limited ICT cards available. Antenatal registrants and In-patients who are 18 years and above that have been requested to undergo a laboratory test were recruited to participate in the survey after consenting. A total of 7 facilities carried out this exercise and a total of 473 people were tested and none was positive. The programme is currently preparing to organize training on the use of FTS as a replacement for the ICT cards. The training would also be used for review of the activities as to improve on the processes. The activities have been ICT-testing of in-patients who are 18years and above that have been requested to undergo laboratory investigations and antenatal registrants in selected facilities. Other activities also include weekly collection of mosquitoes in selected communities for molecular analysis for the detection of lymphatic filariasis infection in the mosquitoes, which would be used as a proxy for detection of ongoing transmission in the communities. In addition to the routine PTS activities, which have since continued to date, a second transmission assessment survey (TAS-2) was carried out in 2016 in these post-MDA districts, as prescribed in the WHO guidelines.

Table 29: ICT Tests per facility

District	Name of facility	Number Tested	ICT Positive
Accra Metro	Maamobi Government Hospital	74	0
	Korle-Bu Polyclinic	75	0
	Ussher Polyclinic	65	0
Ledzokuku Krowor	LEKMA Hospital	75	0
	LEKMA Polyclinic	57	0
Ga West	Oduman Health Centre	87	0
	Mayera Community Clinic	40	0
Total		**473**	**0**

The weekly mosquito collections continued throughout the months in the participating districts. Mosquitoes collected have been sent to Noguchi Memorial Institute for Medical Research for sorting, preservation and analysis.

A review meeting is being planned, to help address identified challenges and to also reenergize the mosquito collectors and the health workers who supervise them. The performance of the various communities is also going to be evaluated and non-productive ones dropped or replaced in order that we achieve a higher productivity and efficiency. This will also be a caution to any other person working on the project, a vector collector or a supervisor, against non-commitment and wastage of resources being invested.

In 2013, all the LF districts in Greater Accra region passed the pre-TAS and thus qualified for TAS-1, which was undertaken in 2014, and they all passed. MDA was therefore stopped in these districts from 2014 and a post-treatment surveillance was established in 2015.
As per the recommendation of the WHO guidelines, all these districts qualify for TAS-2 in 2016, two years after passing TAS-1. A total of 6 evaluation units (EUs) were formed from the 8 participating districts.

Table 30: Results of TAS-2 in Greater Accra Region

EU No.	District	# of Schools	# Children Tested	# Positive	Remarks
EU23	Ga West	30	1562	0	Passed TAS2
EU24	Ga East La-Nkwantanang-Madina	30	1540	0	Passed TAS2
EU25	Ga South Ga Central	33	1568	0	Passed TAS2
EU26	Accra Metro	30	1800	0	Passed TAS2
EU27	La Dade-Kotopon	30	1432	0	Passed TAS2
EU28	Ledzokuku Krowor	30	1553	1	Passed TAS2
	Total	**183**	**9455**	**1**	

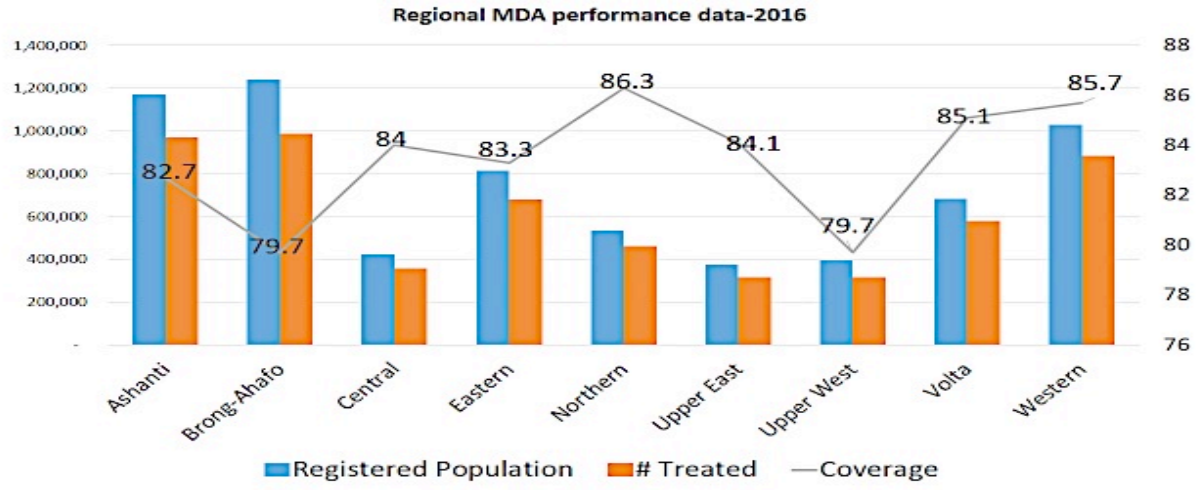
(b) Onchocerciasis

In Ghana Onchocerciasis has an estimated at-risk population of 4,7 million in 3115 communities in 85 endemic districts from nine out of the ten regions. Greater Accra Region is the only region that is not endemic for Onchocerciasis. The programme is pursuing the onchocerciasis elimination strategy and therefore undertakes treatment in all endemic districts and those that have also been identified through a recent mapping exercise

One key observation from the community registers was the erratic treatment of individuals, thereby compromising compliance. Consistent compliance to Mectizan treatment coupled with effective coverage is critical to achieving Onchocerciasis elimination. Community MDA R1 was organised in 105 districts in the Country in the month of May 2016. Prior to that, orientation of volunteers was done in these districts by the health workers after which distribution of drugs was done by the volunteers. Distribution of drugs was done from house to house and for the eligible.

The non- eligible were pregnant women, lactating women in the first week of lactation, seriously ill patients and under height kids below 90cm.

Figure 10: Regional MDA performance for the year 2016



The coverage for community MDA R1 ranged from 79,7% (Upper West and Brong-Ahafo regions) – 86,3% (Northern region).

(c) Trachoma

Trachoma is endemic in two regions (Upper West and Northern) in Ghana. The SAFE (Surgery, Antibiotics, Facial Washing and Environmental Improvement) strategy is the main strategy employed for the elimination of Trachoma. Pre-validation survey is currently underway in the Upper West and Northern regions as one of the pre-requisites to declaring the Country free of Trachoma. Currently, Ghana is one of the countries in the post-endemic surveillance stage [WHO 2012.]

(d) Schistosomiasis

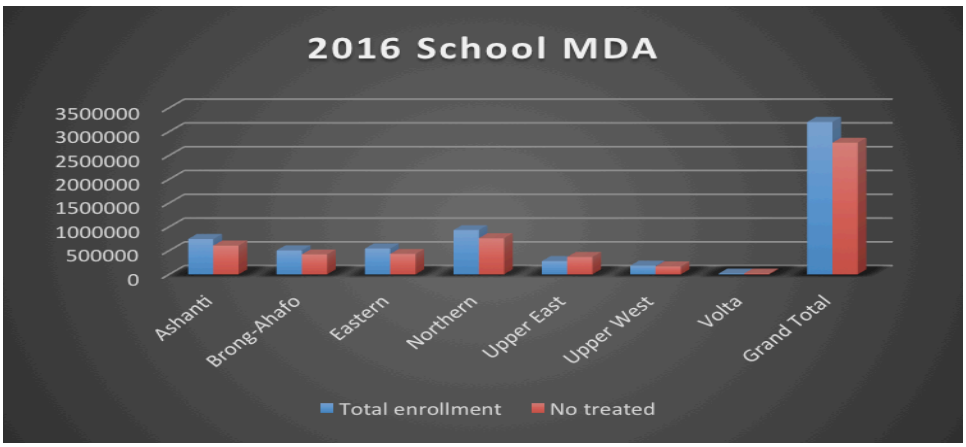
Urinary Schistosomiasis is also known as Bilharzia, a blood fluke Schistosoma haematobium causes bilharzia, it is widespread in Ghana and found in all regions in the Country. For the year under review a total of 4902 cases were reported from all the regions, compared with 5467 for the year 2015. The total cases for 2016 were made up of 3240 males and 1662 females.

(e) Soil-transmitted Helminths

The major Soil-transmitted Helminths in Ghana are *Ascaris lumbricoides, Trichuris trichuria, Necator americanus/Acylostoma duodenale* and *Strongyloides stercoralis,* these are what we know as common worms. Soil transmitted Helminths causes malnutrition, anaemia, growth retardation, cognitive impairment as well as lowering of resistance to other infections.

Hookworm causes blood loss and this results in iron-deficiency anaemia and growth retardation. *Ascaris lumbricoides* can cause intestinal obstruction in children and other complications when adult worms move from the small intestine to other parts of the body.

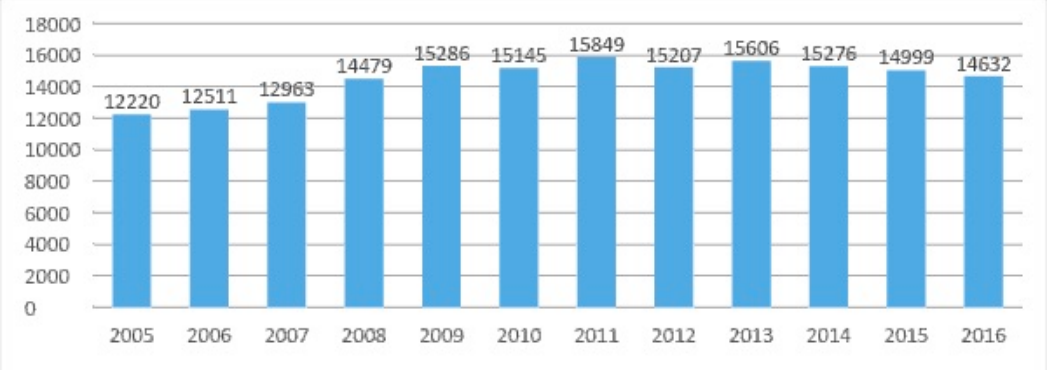
Figure 11: Result from School mass drug administration for soil transmitted helminthes



6.5. National Tuberculosis Control Programme

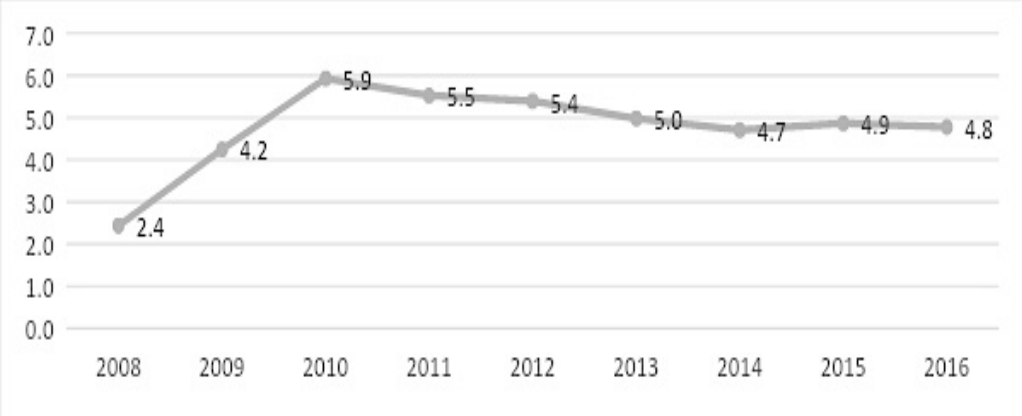
Notification data show a decline of the number of TB cases notified over the years. A total of 14,632 cases (all forms) were detected showing a decrease of 2.45% in the total number of cases notified in 2015. Possible explanations of variance may include complicated screening questionnaire, poor access to TB services.

Figure 12: Trend of reported TB cases (All forms) 2005 – 2016



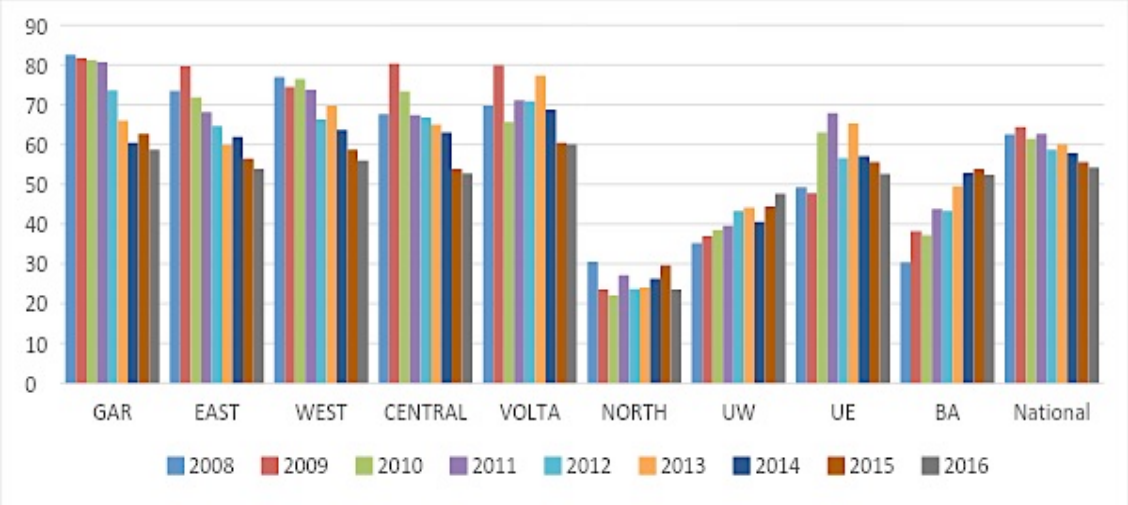
Analysis of TB data on the proportion of notified childhood TB cases (all forms) show a downward trend amongst the total number of cases reported. The proportion of childhood TB identified dropped gradually from 5.9% in 2010 to 4.8% in 2016. However, interventions like improving capacity in paediatricians as well as the introduction of PPD is ongoing to increase TB detection rate amongst children.

Figure 13: Trend of Proportion of Childhood TB cases (All forms) 2010 – 2016



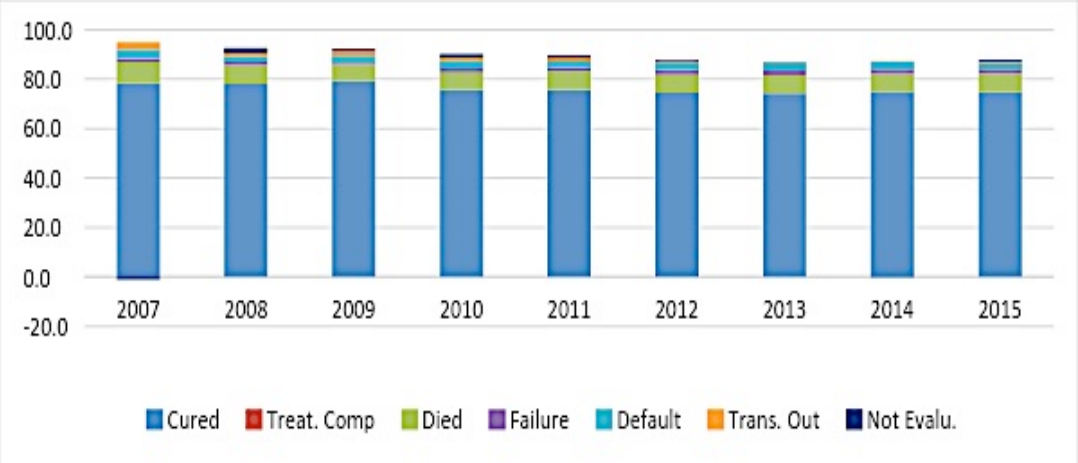
In 2016, the national case notification rate for the year under review was 54/100,000 population showing a downward trend from previous years. Four regions namely Greater Accra, Western, Volta and the Eastern reported higher notification rate than the national average. Northern Region (24/100,000) followed by the Upper west region (48/ 100,000) reported low CNR.

Figure 14: Comparative Trend of Regional Reported TB cases 2011-2016



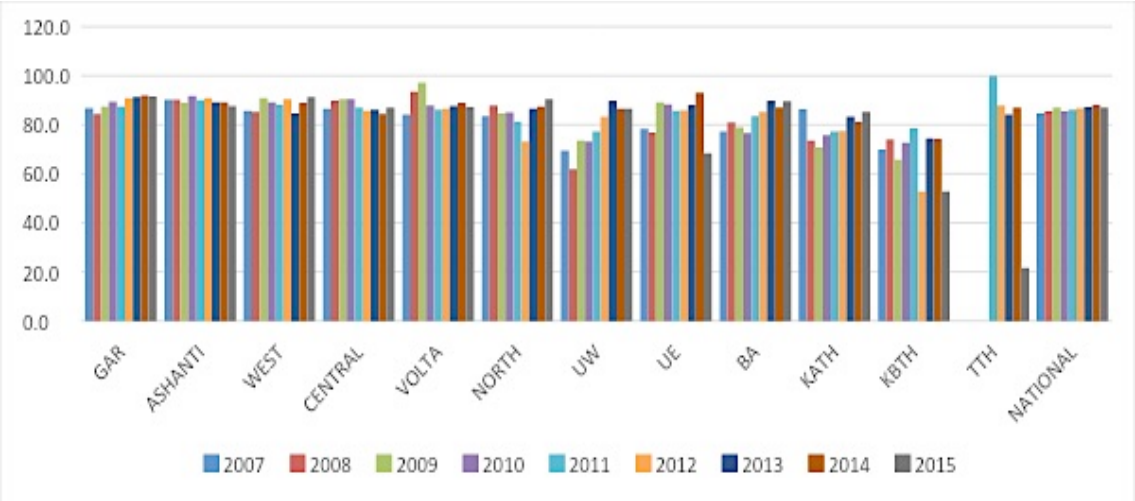
Between 2010 and 2015, cure rate remained between the ranges of 74-75%. Analyses show that about 7% of all smear positive cases reported at the national level died. Default rate however decreased from 3.1 in 2012 to 2.6 in 2015.

Figure 15: Trend of TB Treatment Outcomes 2007-2015



Treatment success for national reduced from 88.0% to 87.0%. Trend of treatment success rate has been high in the three most populous regions namely the Greater Accra Region, Ashanti region and the Western region. For the year under review, two teaching hospitals and one region i.e. KBTH (52.7%), TTH (21.6) and UE (68.4) reported lower than the national budget

Figure16: Performance of Regional Treatment Success 2007-2015



6.6. National Malaria Control Programme

To achieve targets for the year, some areas were identified as priorities; these included the advocacy for adherence to the test, treat and track policy and increase in the uptake of IPTp. Additional key areas were timely, quality allocation, and distribution of logistics advocacy for

locally mobilizing resources for malaria control in Ghana, and also improve data quality through in-depth research, surveillance, monitoring, and evaluation. In 2016, the administrative unit coordinated and supported the various departments and sub-committee meetings as well as the MICC meeting. The NMCP in collaboration with the Resource Mobilization Sub-committee/Working group developed a Financial Sustainability and Resource Mobilization Plan to guide the generation of domestic funds for malaria control in Ghana. The Resource Mobilization Working group out-doored Mr Prince Kofi Amoabeng as the Malaria Ambassador for Ghana who in-turn is spearheading the establishment of the Malaria Foundation.

The commemoration of World Malaria Day: On 25th April, 2016 World Malaria Day commemoration was held at the La Palm Royal Beach Hotel in Accra, Greater Region as part of 2016 Health summit. It was an indoor programme bringing together Regional/ Municipal and District Directors, Health workers, traditional & religious leaders, students, the security services and the general public, Activities included Press Briefing, Radio and TV discussion programmes, Exhibition by partners and Free Malaria Screening. It offered an opportunity to create awareness, provide updates on the interventions and also seek needed support from the partners for continuous support. The theme for the event was "Invest in Malaria: End malaria for Good". This placed emphasis on the need for continued investment in malaria. Prior to the event a media briefing was held at Alisa Hotel, Accra for media practitioners and radio presenters. A total of 29 media discussions on TVs and Radio stations were held across the country in English, Ga, Nzema, Dagbani, Ewe, and Akan with varied resource persons including programme manager for the NMCP and her deputy. The Regional commemorations were held in Volta and Northern regions.

A number of trainings and meetings were held under Malaria Case Management and Malaria in Pregnancy (MIP). Some training included microscopy training where a total of 295 laboratory professionals were trained at Kintampo Health Research Centre. Below is a picture of such training at the Upper West Regional Hospital, Wa.

On-site Malaria microscopy training at the Upper West Regional Hospital Laboratory in Wa

A Quality Assurance (QA) protocol for malaria RDTs and microscopy was developed. Sponsored five laboratory professionals to participate in an External Competency Assessment in Malaria Microscopy (ECAMM) for accreditation as WHO certified malaria microscopists in Nairobi-Kenya under the Diagnostic unit. Point Mass Distribution of LLINs, Continuous Distribution of LLINs, LLINs distribution for special homes, Indoor Residual Spraying (IRS), Insecticide Resistance Monitoring (IRM) and Larviciding. In all, a total of 4,884,154 nets were distributed in the four regions (Upper East, Northern, Greater Accra and Upper West) during the year, shown in Table 31.

Table 31: LLIN Allocated, Distributed and Coverage by Regions, 2016

No	Region	Total Llin Allocated	Total Llin Distributed	Coverage	Date of Distribution End User
1	**Upper East**	704,771	695,061	98.6%	25th – 29th Jan., 2016
2	**Northern**	1,813,072	1,762,811	97.2%	11th – 15th April, 2016
3	**Greater Accra**	2,460,914	1,971,922	80.1%	5th – 12th July, 2016
4	**Upper West**	463,797	454,360	98.0%	5th – 11th September, 2016
	Total	**5,442,554**	**4,884,154**	**89.7%**	

Seasonal malaria chemoprevention (SMC) was implemented for two round targeting children aged 3-59 months during the rainy season in the Upper East and Upper West regions of Ghana. The target group were given a three-course oral administration of medicine Sulphadoxine Pyrimethamine and Amodiaquine (SP+AQ) over three days. The child is given a dose of SP and

AQ on the first day, and a dose of only AQ administered on the second and third days. Data verification and validation was also conducted during the period under review as well as a review meeting for the 30 malaria sentinel sites. The NMCP engaged the Ghana Statistical Service (GSS) in conducting the Malaria Indicator Survey (MIS), held research working group meeting, conducted researches such as; Aids Tuberculosis and Malaria (ATM) Mortality trends in Ghana, Durability studies on LifeNets LLINs, Evaluating Impact of BCC Interventions, Desk review to answer reasons for low IPTp uptake in Ghana and End user verification of LLINs in Greater Accra and Upper West Region. Indoor Residual Spraying (IRS) was undertaken in fourteen districts in the country. Global Funded AngloGold Ashanti Malaria Control Limited carried out IRS in all the nine districts in Upper West Region. Spraying in the Obuasi Municipal was suspended due to vectors' resistance to the currently used insecticide (Actellic CS) and other known insecticides for IRS such as pyrethroids.

An assessment of the burden of malaria in 2016, the country recorded approximately 10.4 million suspected malaria cases representing about 39% of OPD cases seen. About 25% and 4% of total admission and total death respectively were attributable to malaria (Table 32).

Table 32: Malaria Morbidity and Mortality in Ghana, 2016

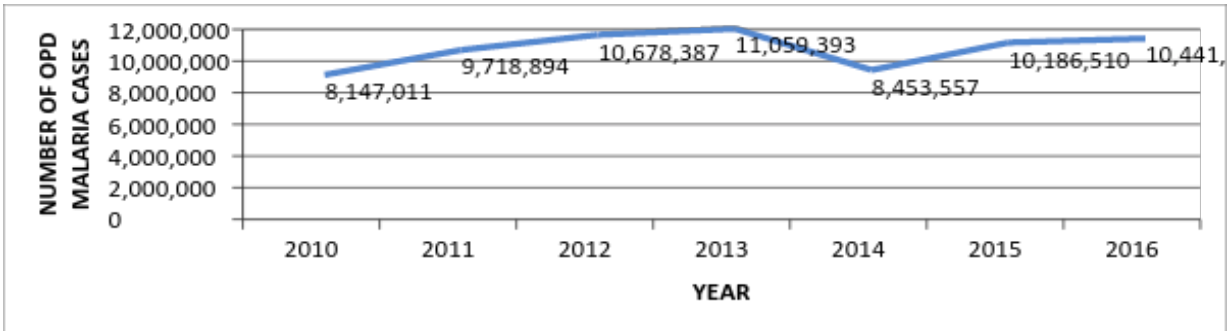
	Indicator	Number Reported	Proportion Of Cases Attributable To Malaria (%)
Out Patient Department (OPD)	**Total OPD Cases**	**27,011,587**	
	Suspected Malaria Cases	10,441,515	***38.7**
	Tested Malaria Cases	8,075,174	**77.3**
	Confirmed Malaria Cases	4,533,431	**43.4**
	Pregnant Women	382,862	**1.42**
Admission	**Total Admissions (All ages)**	**1,532,839**	
	Malaria admissions (All ages)	**379,986**	**24.8**
	Under 5 malaria admissions	182,438	**46.7**
Deaths	**Total deaths (All ages)**	**30,332**	
	Total malaria deaths (All ages)	**1,264**	**4.2**
	Under 5 malaria deaths	590	**46.7**
	UNDER 5 MALARIA CASE FATALITY RATE	**0.32**	

NB: * proportion of cases to total malaria case. ***Source: DHIMS February 2017***

The number of health facilities reporting in the DHIMs increased from 6,869 in 2015 to 7,060 in 2016. As observed in 2014, the increase in the number of data submission from facilities such as CHPS compounds and private service providers led to this increment. With about 77.3% proportion of OPD malaria cases tested in 2016 (73.6% in 2015) confirmed malaria cases recorded increased from 4,319,919 in 2015 to 4,533,431 in 2016 (Figure 17).

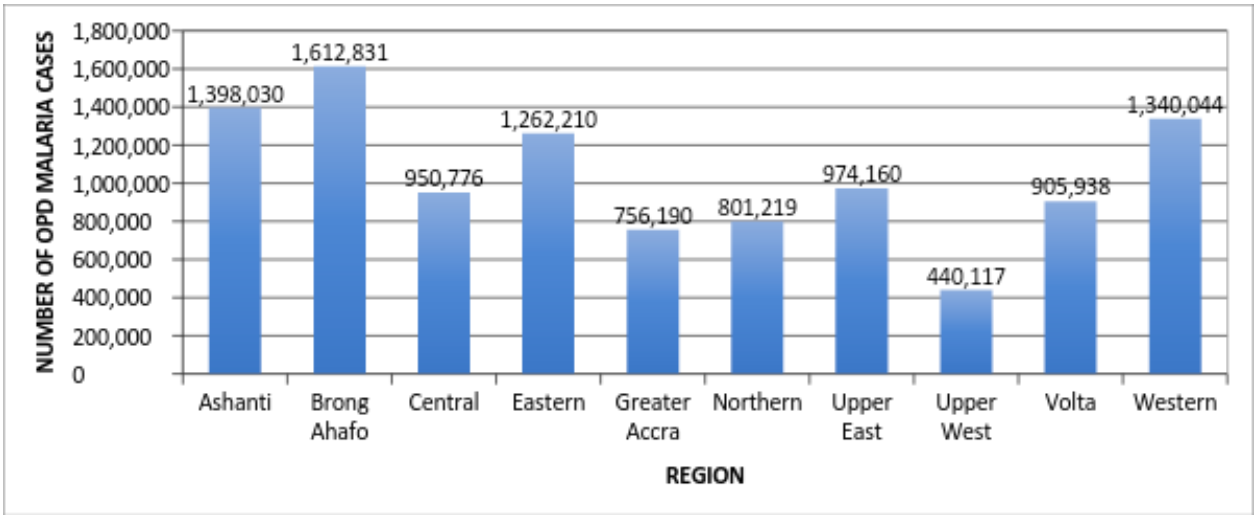
There were 10.4 million malaria cases at the OPD representing 2.5% increase over cases seen in 2015. The reason for this trend may be attributed to the increase in number of reporting facilities. On the average, approximately 28,607 cases were seen per day in 2016 in all health facilities.

Figure 17: Out Patient Suspected Malaria Cases in Ghana, 2010 – 2016



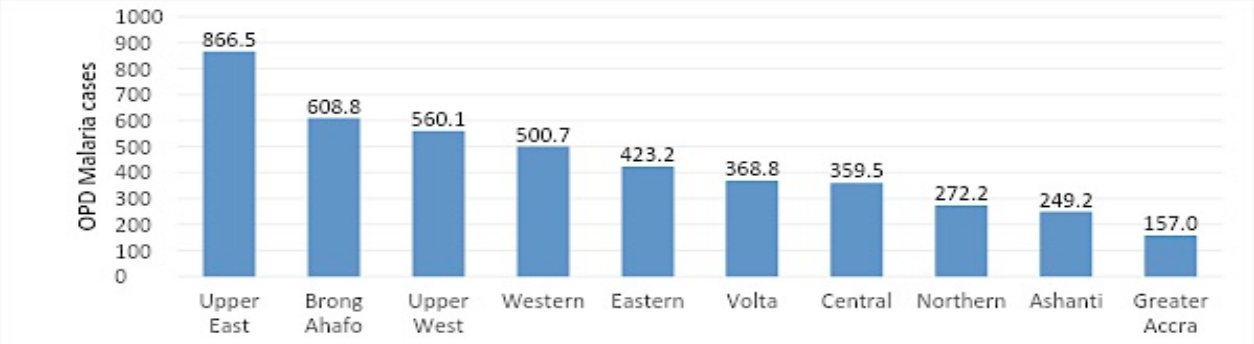
The Upper West region recorded the least number of OPD malaria cases, 440,117 followed by Greater Accra and Upper East regions (756,190 and 794,160) respectively. Brong-Ahafo region reported the highest number of malaria cases in 2014, 2015 and 2016.

Figure 18: Number of OPD Malaria Cases in 2016 by Region in Ghana



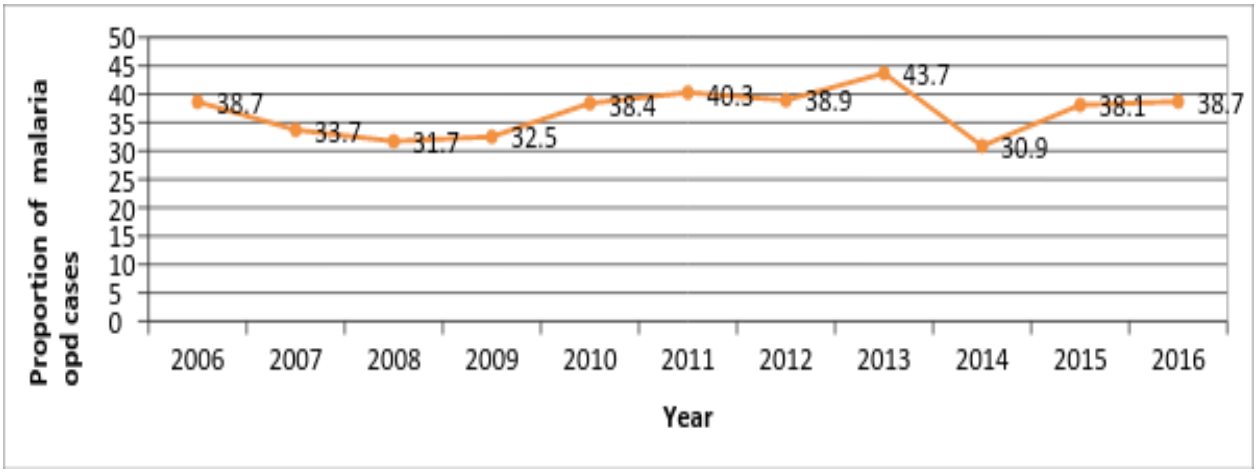
The Upper West region recorded the least number of cases; it ranks third in malaria burden contributing 560 cases per 1000 population. Greater Accra recorded the lowest proportion of malaria burden contributing 157 cases per 1000 population of malaria burden. Seven regions Brong Ahafo, Central, Eastern, Upper East, Upper West, Volta and Western Region recorded malaria burden above the national average of 363 per 1000 population.

Figure 19: OPD Malaria Cases (Suspected) per 1000 Population by Region, 2016



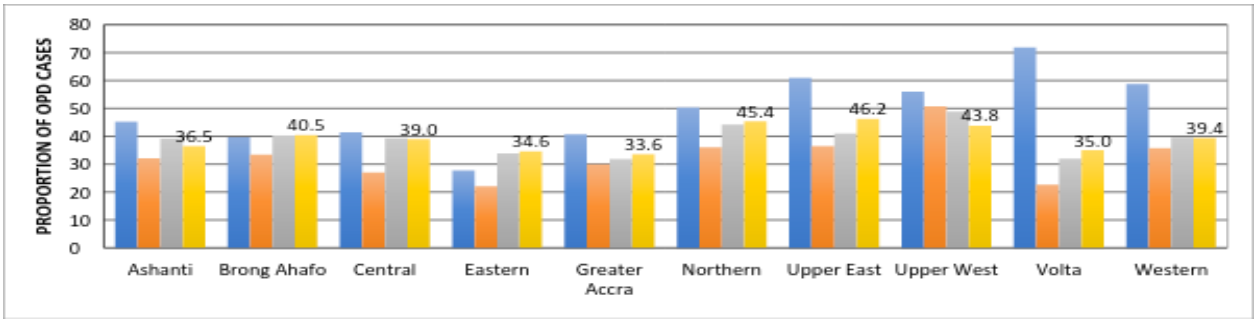
The proportion of OPD cases attributable to malaria (suspected cases) from 2006 to 2016 range from 31.7% to 43.7%. It decreased steeply from 43.7% in 2013 to 30.9% in 2015 and increased steadily to 38.7% in 2016 probably due to increase in number of health facilities.

Figure 20: The Trend of Proportion of OPD Cases Attributable to Malaria from 2006-2016



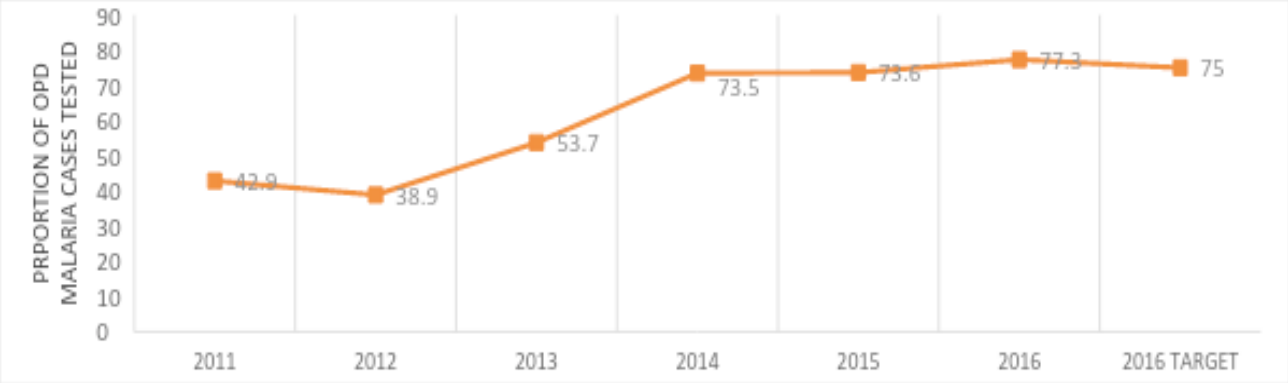
Greater Accra recorded the lowest proportion of 33.6% of OPD cases attributable to malaria whiles Upper East region recorded the highest proportion of 46.2% (Figure 13) of OPD reported malaria cases.

Figure 21: Proportion of OPD Cases Attributable to Malaria by Regions from 2013 to 2016



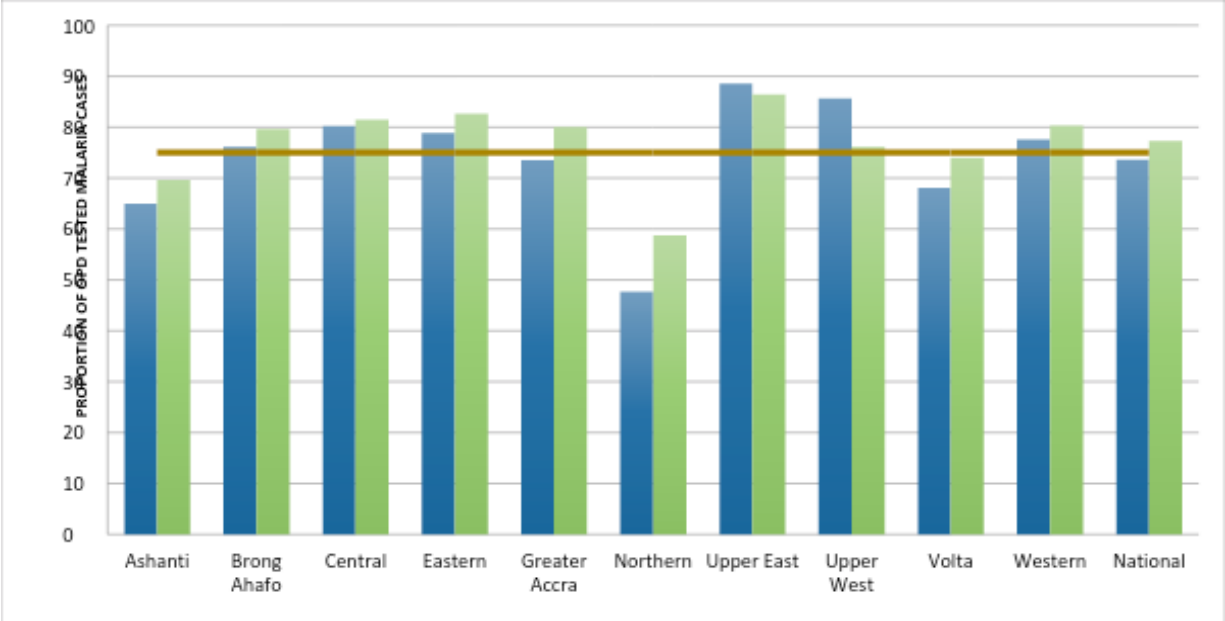
Since 2012, the proportion of OPD tested malaria cases (microscopy or RDT) have been increasing. Approximately 39% of OPD malaria cases were tested in 2012, this has increased to 77.3% in 2016(figure 22).

Figure 22: Proportion of OPD Malaria Cases Tested, 2015- 2016



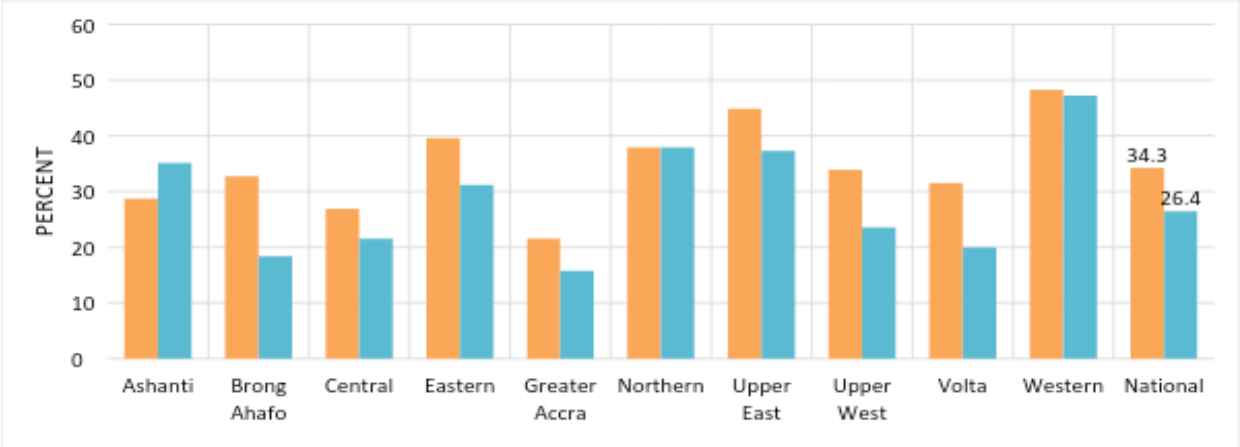
The proportion of malaria cases that received a parasitical test in 2016 varied across the regions. With the exception of the upper east region, which recorded a decline in the malaria parasitical test, from 89% in 2015to 86% in 2016, there was a sharp increase in all the remaining nine regions for the year under review. Seven out of the ten (7/10) regions: Brong Ahafo, Central, Eastern, Greater Accra, Upper East, Upper West and Western regions achieved above the 75%. National target set in 2015 with the highest testing rate recorded in Upper East, approximately 86%. Northern region recorded the least testing rate (48%) in 2015, but malaria parasitical testing rate improved to 59% in 2016 (figure 23).

Figure 23: Proportion of OPD Malaria Cases Tested by Regions, 2015-2016



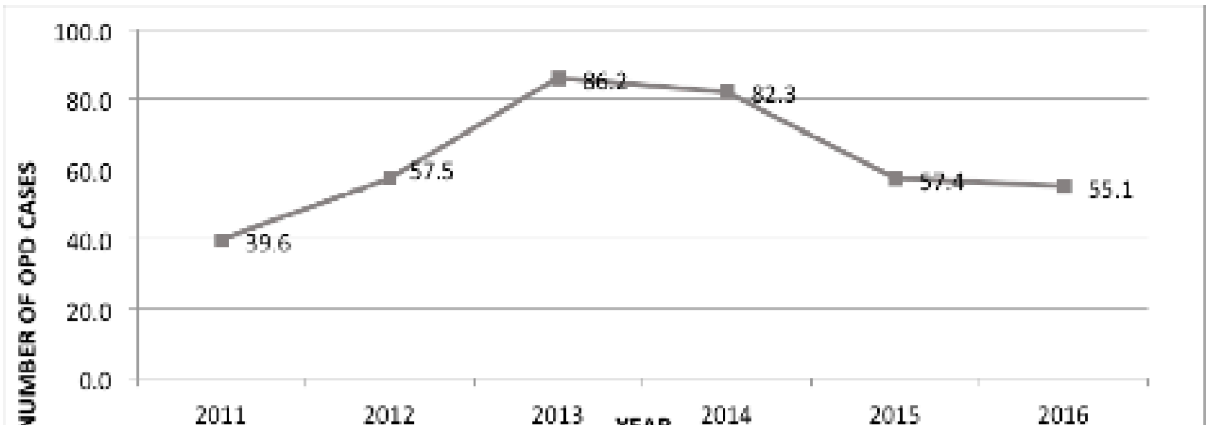
Service providers continue to accept the need to test before treatment. In 2016, the malaria test positivity rate for both RDTs and microscopy nationwide, were 34.3% and 26.4% respectively. The Greater Accra region continues to have the lowest test positivity rate of 21.6 % (Figure 24)

Figure 24: Test Positivity Rates for RDT and Microscopy in 2016



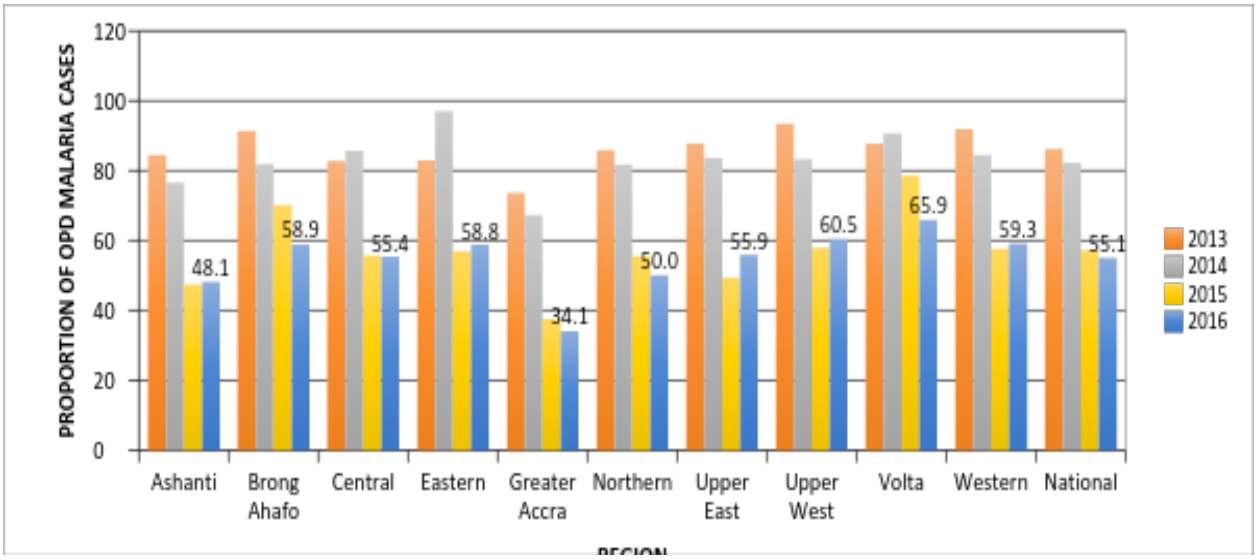
The use of ACTs to treat uncomplicated malaria cases was adopted in 2004. Since then it has been of interest to track its use in both public and private health sectors. The proportion of OPD malaria cases treated with an ACTs decreased from approximately 57% in 2015 to 55% in 2016 as a result of improved testing rates in the 10 regions. This reduction in the use of ACTs is due to increase in the parasitological test of suspected malaria cases and adherence to the Test, Treat and Track policy.

Figure 25: Proportion of OPD Malaria Cases Put on ACTs, 2011-2016



The Volta region treated the largest proportion (65.9%) of all suspected malaria cases with ACTs, followed by the Brong Ahafo region (60.5%) while the greater Accra region was the least (34.1%) in 2016 (Figure 26).

Figure 26: Proportion of OPD Malaria Cases Put on ACTs by Regions in 2013 to 2016

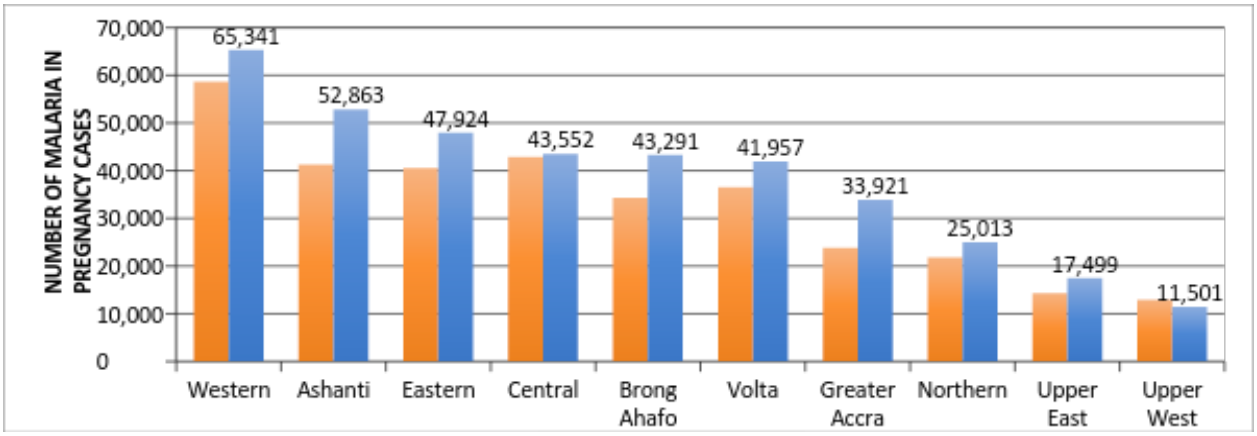


Malaria in Pregnancy

Among pregnant women, malaria cases recorded at OPD in 2016 was 382,862 as compared to 328,119 in 2015. The number of malaria cases recorded among pregnant women in 2016 represents an increase of 16.7% over the number of malaria cases among pregnant women in 2015. The top three regions with the highest number of malaria in pregnancy cases in 2016 were the Western region (65,341 cases), followed closely by the Ashanti Region (52,863 cases) and

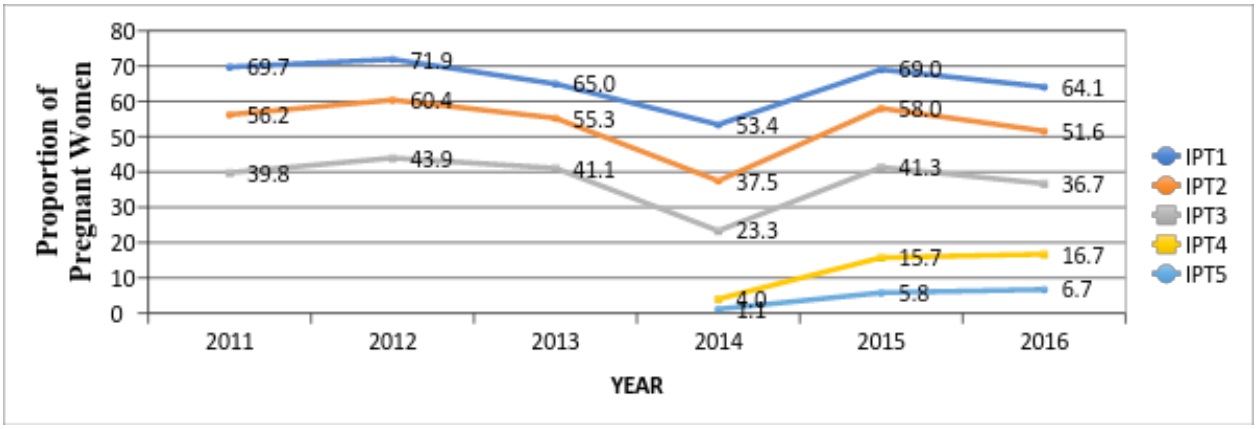
Eastern region (47,924 cases). The region with the least number of malaria in pregnancy cases is the Upper West Region (11,501 cases).

Figure 27: Ranked Order of Malaria in Pregnancy by Region, 2015 - 2016



The use of Sulphadoxine Pyrimethamine for preventing malaria during pregnancy is one of the interventions being pursued by the country under the Intermittent Preventive Treatment of malaria in pregnancy (IPTp). In 2016, a total of 954,937 pregnant women were registered, 611,765 (64.1%) of them received IPTp1 in the same year as compared to 651,986 (69.0%) who received IPTp1 in 2015. For IPTp2 the figure was 492,288 (51.6%) in 2016 compared to 548,213 (58.0%) in 2015 and for IPTp3, 350,363 (36.7%) was recorded in 2016 as against 390,370 (41.3%) in 2015. The general uptake of IPTp plummeted further in the year under review. In 2016, 159,780 pregnant women (16.7%) took up IPTp4 and 63,810 (6.7%) took up IPTp5. The trend over the years is as shown in (Figure 28).

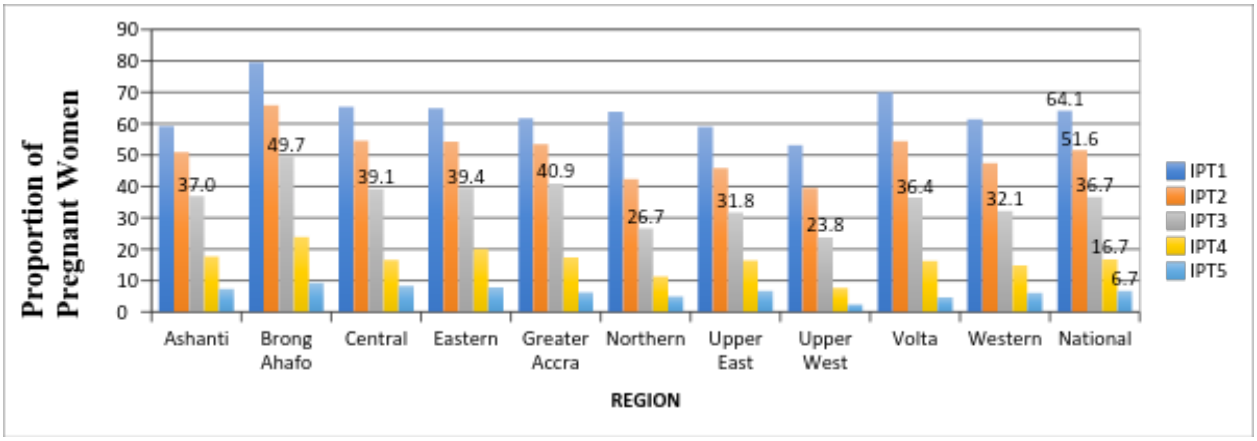
Figure 28: Proportion of Pregnant Women who took up IPTp from 2011-2016



Monitoring IPTp 1 to 5 has become necessary due the new policy taking SP till delivery. In 2016, IPTp 3 coverage was 36.7%. This was below the NMCP target of 60.7%. Brong Ahafo

reported the highest of 49.7% followed by Greater Accra with 40.9% whiles Upper West recorded the lowest of 23.8% (Figure 29).

Figure 29: IPTp Uptake by Pregnant Women by regions, 2016



Malaria Admissions decreased from 429,940 in 2014 to 409,446 in 2015 and further decreased to 379,986 in 2016. Among children under five years, 182,438 were admitted due to malaria in Ghana in 2016.On regional distribution of admissions due to malaria in 2016, Ashanti region had the highest number of admissions (85,593). The Upper East regions recorded the lowest numbers of malaria admissions (15,293), as shown in (Figure 30).

Figure 30: In-patient Malaria Cases by Region, 2014-2016

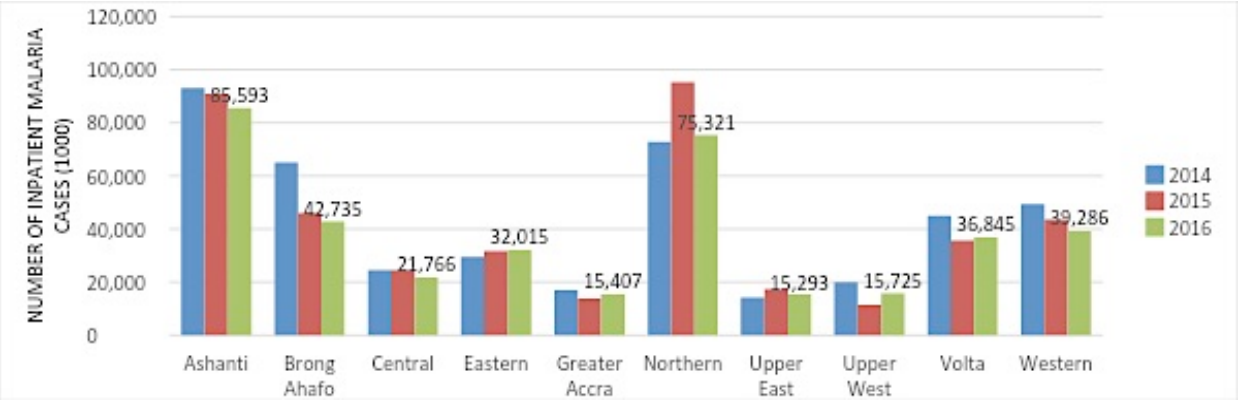


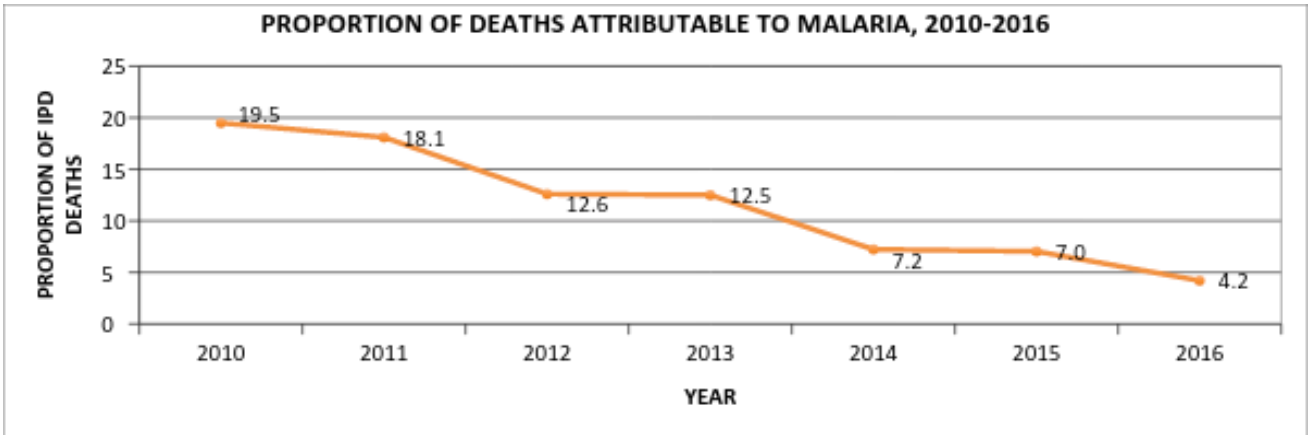
Table 33: In-patients Malaria Deaths, 2000-2016

Years	In-patient malaria Death	< 5 (under 5 years) malaria Deaths	≥ 5 (5 years and older) Malaria Deaths
2000	6,054	3,952	2,102
2001	4,158	2,717	1,441
2002	4,274	2,914	1,360

Years	In-patient malaria Death	< 5 (under 5 years) malaria Deaths	≥ 5 (5 years and older) Malaria Deaths
2003	3,571	2,195	1,376
2004	2,734	1,380	1,354
2005	5,948	2,026	3,922
2006	4,434	973	3,461
2007	4,579	1,241	3,338
2008	3,760	1,697	2,063
2009	3,352	1,505	1,847
2010	3,882	1,812	2,070
2011	3,197	1,539	1,658
2012	2,799	1,129	1670
2013	2,985	1,348	1,637
2014	2,200	1,060	1,140
2015	2,133	1,033	1,100
2016	1,264	590	674

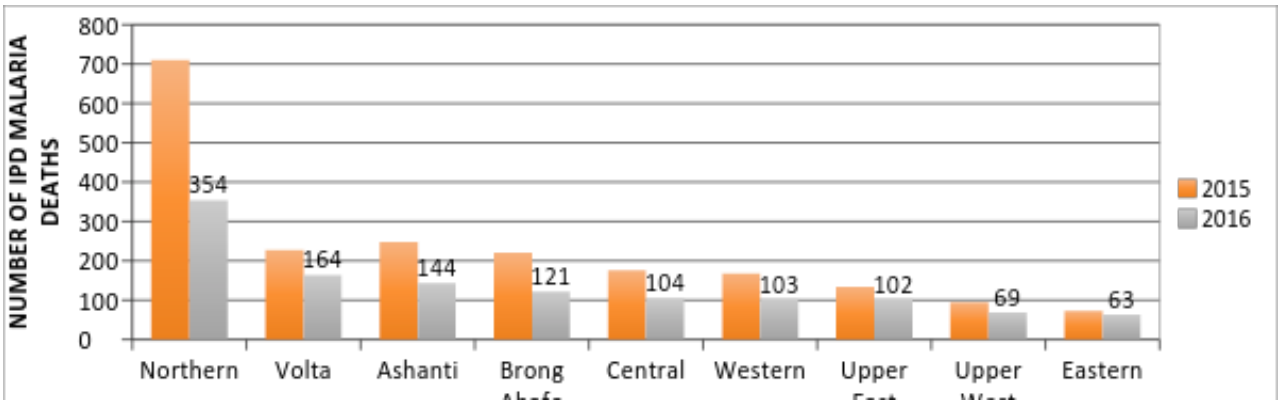
Malaria-Related Deaths in 2016 was 1,264 representing a reduction of about 40.9% over total number of deaths attributable to malaria (2,133 deaths) in 2015. Out of these malaria deaths, 590 occurred among children-under-5-years in 2016 compared to 1,037 in 2015. The trend of in-patient malaria deaths from year 2000 to 2016 is presented in Table 33.
Figure 31. shows proportion of in-patient malaria deaths, 2010-2016, which indicates a decreasing number of malaria deaths over the period, despite the fact that total deaths on admission have been on the increase from 2011. It is also observed that in the eleven years preceding the year under review, malaria related deaths in children-under-five years were less than that in persons five-years-and-older. It is worth noting that the country recorded a sharp systematic reduction in the proportion of deaths due to malaria, as recorded at the In-Patient Departments of facilities in the country.

Figure 31: Proportion of In-Patient Malaria Deaths, 2010-2016



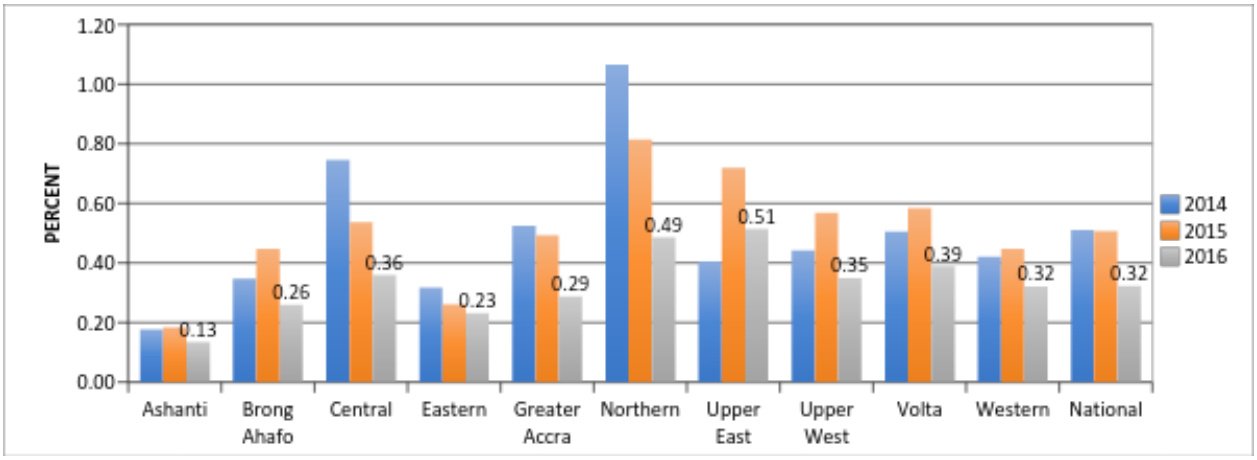
At the regional level, the Northern region recorded the highest number of deaths due to malaria (354) followed by the Volta region (164) while the Eastern region recorded the lowest number of deaths due to malaria (63) in 2016 (Figure 32).

Figure 32: Ranked order of Inpatient Malaria Deaths by Region, 2015-2016



There was a reduction in the Case Fatality Rate recorded from approximately 0.51 in 2014 to 0.32 in 2016. In 2016, Upper East region recorded the highest case fatality (0.51) and the least by Ashanti Region (0.13) (Figure 33).

Figure 33: Children Under-five Case Fatality Rate by Region, 2014 – 2016



Following scale-up of ACTs in the public sector, LLINs to all populations; and IRS in targeted districts for more than five years, outpatient malaria cases and deaths decreased by over 50% and 65% respectively. The decrease was prominent among children under five years old. Test positivity rate decreased by 41%. The decrease in malaria deaths was at the backdrop of increased admissions owing to free access to hospitalization through the NHIS. Malaria control in Ghana is dependent on sustained coverage of effective interventions and strengthened surveillance is vital to monitor progress of these investments.

6.7. National AIDS/STI Control Programme

There was PMTCT Training for some service providers in Greater Accra, Ashanti, Eastern, Western, Brong Ahafo Volta, Central, Upper East, Upper West and Northern Regions. The ART Guidelines were revised and an ART and Pharmacovigilance Training were held in Greater Accra, Ashanti, Eastern and Western Regions. Commencement of the Treat All ART intervention in Greater Accra, Ashanti, Eastern and Western Regions was in 2016. There was a HSS 2015 Analysis and report writing. The programme procured and distributed health products and medicines. There was an ART Technical Working group meeting. Achievements FOR THE HIV/AIDs service during in 2016 were:

- Joint HIV TB Annual review meeting held in January
- Dissemination of 2015 HIV Sentinel Survey results in May
- Supportive and Supervisory Monitoring Visits to Eastern and Ashanti Regions
- Programme Monitoring visits to all ten regions
- 1,040,430 persons tested for HIV
- 702,381 pregnant women tested for HIV
- 603,465 pregnant women tested for syphilis and 13,065 positives identified and treated.
- 53% of HIV Positive pregnant women have been given ARVs
- 20,497 new clients enrolled into ART care

- 74,226 PLHIV were screened for TB whilst 1,247 were provided with ARVs
- Three meetings held by ART and HIV Drug Resistance TWG
- Increasing ART sites from 204 in 2015 to 245 in 2016
- Increasing PMTCT sites from 2,325 in 2015 to 2,697 in 2016

Table 34: Regional Performance on Elimination of Mother to Child Transmission of HIV (eMTCT)

Region	Expected Pregnancy	Number Tested	Percentage Tested (%)	Number Positive	Number Given Arvs
Ashanti	216,248	134,764	62	2,440	1782
Brong Ahafo	106,426	73,898	69	1,775	1,527
Central	97,390	60,760	62	1,685	548
Eastern	121,143	71,907	59	1,494	1,508
Greater Accra	184,545	131,962	72	3,570	1,857
Northern	114,351	53,658	47	1,721	300
Upper East	47,552	33,766	71	177	233
Upper West	31,701	23,802	75	138	133
Volta	97,368	54,920	56	2,413	703
Western	115,483	62,944	55	2,703	1,089
Ghana	1,132,207	702,381	62	18,116	9,680

Table 35. Early infant diagnosis performance by regions, 2016

Region	Exposed Babies	Total Babies Screened (DNA/PCR)	Coverage of exposed babies	No. +ve	% +ve
AR	2,440	798	33%	57	7%
BAR	1,775	417	23%	24	6%
CR	1,685	232	14%	40	17%
ER	1,494	860	58%	224	26%
GAR	3,570	2013	56%	252	13%
NR	1,721	174	10%	18	10%
UER	177	253	143%	20	8%
UWR	138	97	70%	4	4%
VR	2,413	450	19%	40	9%
WR	2,703	257	10%	14	5%
TOTAL	**18,116**	**5,551**	**31%**	**693**	**12%**

The number of pregnant women tested and counselled for HIV and who received their results was 702,381; (62% of expected pregnancies), 18,116 (2.6%) were positive. The 9,680 (53.4% of sero-positives) were provided ARVs to prevent Mother-To-Child Transmission of HIV. Five thousand five hundred and fifty-one (5,551) HIV exposed infants received Early Infant

Diagnosis (EID) using DNA PCR (31% of positive mothers). 12% of these babies were positive (693).

6.8. EXPANDED PROGRAMME ON IMMUNISATION

Main Interventions and Activities carried out in 2016

Routine immunization

- Procurement and distribution of vaccines and devices
- Micro-planning at the District/sub-district/CHPS
- Routine vaccinations at static and outreach sites
- Trained 400 Community health nurses in Cold chain management
- Switched from use of tOPV to bOPV in April 2016
- Introduced Meningococcal A Conjugate Vaccine into routine on 1st November 2016
- Commemorated African vaccination/ Child Health Promotion Week
- Developed communication materials

Accelerated Control of VPDs;

- Conducted Men A conjugate vaccine mini catch-up campaign in Northern, Upper East and Upper West Regions.
- Implemented strategies to improve 2YL interventions
- Established Congenital Rubella syndrome Surveillance

Logistics Management;

- Procured and distributed
- 20 units TCW 3000 and 85 units TCW 2000 refrigerators
- 1,500 fridge tags
- 200 TVS motorbikes
- 125,000 child health record booklets
- Started the installation of continuous temperature loggers in the National and Regional Cold Rooms
- Operational Research/technical support;
- Carried out household and health facility survey in the 3 regions on the second year of life (Northern, Volta and Greater Accra)
- Conducted mapping of experts towards the establishment of NITAG

Summary of Performance of Routine immunization

Table 36 below shows the summary of EPI coverages from 2014-2016 for routine antigens. It shows an increase performance compared to the previous year of 2015 with respect to percentage and absolute coverage for all antigens except YF and Td2+. Yellow Fever vaccination coverage declined in terms of absolute figures and percentages by 95,912 and 10% respectively as a result of global vaccine shortage that affected the nation. Td2+ vaccination coverage declined in 2016 by 2% and 9,205 in absolute terms as compared to 2015. This declined may be as a result of poor data capture and inadequate understanding of the Td schedule by health staff..

Table 36: EPI Performance at a glance

	2014		2015		2016		
Antigen	# Vaccinated	% Cov	# Vaccinated	% Cov	# Vaccinated	% Cov	Difference
BCG	1,122,322	103	1,063,417	95	1,170,552	103.4	107,135
OPV-3	983,977	95	1,024,889	96	1,054,239	98	29,350
Penta-3	981,952	95	1,012,362	95	1,060,178	99	47,816
PCV-3	989,147	95	1,021,622	96	1,060,089	99	38,467
Rota-2	971,357	94	998,311	94	1,035,247	96	36,936
MR-1	960,406	93	995,553	94	1,022,990	95	27,437
MR-2	729,303	70	806,599	76	827,914	77	25,383
YF	952,384	92	1,014,378	95	918,466	85	-95,912
Men A					140,505	13	140,505
Td2+	679,344	62	725,439	65	716,234	63	-9,205

Though the country has seen significant improvements in the performance of districts, there continue to be clusters of low performing districts. Strategies will be put in place to address the clustering of low performing districts. Where there is a need to delve deeper and investigate, the Ghana Health Service will liaise with partners and conduct appropriate studies.

6.9. Non-Communicable Disease Control Programme

Chronic Non-communicable diseases (NCDs) have been defined as diseases or conditions that occur in, or are known to affect, individuals over an extensive period of time and for which there are no known causative agents that are transmitted from one affected individual to another. The World Health Organization (WHO) defines the scope of NCDs to include cardiovascular diseases, mainly heart disease and stroke, cancers, chronic respiratory diseases, diabetes, others, such as mental disorders, vision and hearing impairment, oral diseases, bone and joint disorders and genetic disorders.

NCDs contribute significantly to illness, disability and deaths in Ghana. The major NCDs in Ghana are cardiovascular diseases, cancers, diabetes, chronic respiratory diseases and sickle cell disease. The first four share common risk factors namely, tobacco, harmful use of alcohol, unhealthy diet and physical inactivity. Their burden of the first four common NCDs is projected to increase due to ageing, rapid urbanization and unhealthy lifestyles. The prevalence of adult hypertension in Ghana appears to be increasing and ranges from 19% to 48%. Current studies have identified that, up to 70% of persons identified to have hypertension are not on treatment and only 13% of those with hypertension have their blood pressures well controlled. The prevalence of adult diabetes in Ghana is about 9%. The risk factors for developing NCDs are worsening.

Policy Review, Printing and Launch of NCD Policy

The National Non-Communicable Diseases Policy and Strategic document as well as national Cancer plan awarded for contract by the ministry of health have been successfully printed. The Honourable Minister of health launched the NCD policy documents during the world cancer day celebration at the Civil Servant's Hall. Subsequently, the NCDCP have received these documents and has begun distribution of the policy and strategic documents. An advisory committee for Accra cancer registry located at the radiotherapy centre of Korle Bu teaching Hospital has been inaugurated. The NCD control program has successfully coordinated activities at the two facility-based cancer registries in KATH and KBTH. The two cancer registries have improved from facility-based cancer registry to registries with pre-defined geographic areas i.e. Kumasi cancer registry and Accra Cancer registry. The national NCD multi-sectoral committee was launched with the TOR:

- Outline and harmonize all activities, programmes and intervention directed at promoting, preventing or management of NCDs in Ghana.
- Review NCD activities undertaken by the various agencies, bodies and organizations.
- Coordinate resource mobilization for the implementation of NCD programmes, and
- Carry out any additional task to be assigned to the committee from time to time

In collaboration with Marie Stopes international Ghana, the NCD program trained selected midwives from Maries Stopes on cervical cancer screening using VIA/Cryotherapy & pap smear and provided technical support towards the establishment of function VIA/Cryotherapy centres in most Marie Stapes's facilities across the country.

There was Assessment of drug availability gaps for pain management across the selected districts and key stakeholders including manufacturing unit of KBTH, which prepares oral morphine solution, were engaged to facilitate procurement of morphine for the selected districts.

The NCD programme played a key role in the burden of disease study, which was led by the PPME division of the Ministry of Health. Committees were formed to review studies and provide data on burden of diseases in the country. A draft report on the BOD study has been submitted after series of meetings. The programme developed capacity in Field Epidemiology and Diseases Control to residents and students through lectures on Principles of epidemiology and Introduction to Non-Communicable Diseases to MPH and MPhil students at School of Public Health, University of Ghana and other health training institutions.

A technical working group which comprised Directors or representatives from PHD, FHD, ICD, PPMED and HR being chaired by the Deputy Director General has been formed to coordinate establishment of ten (10) functional cervical cancer screening sites in Ghana.
This followed a proposal developed and submitted by the NCD program to WHO (BMGF) for financial support.

The WHO has responded to finance development of IE&C material only (and not establishment of ten (10) functional screening sites. Series of meetings on development of cervical cancer IE&C materials have been held. However, funds for development of IEC are yet to be released by WHO. The NCD programme supported the EPI program in the introduction of the HPV vaccines for cervical cancer control through feasibility pilot among girls 9-12 years in the central and northern region. NCD also supported the Child Health unit of Korle-Bu Teaching Hospital to increase awareness in childhood cancer during the launch of the childhood cancer posters. NCD collaborated with Marie Stopes International Ghana (MSIG) to organise a 10-day training workshop on Cervical Cancer Screening for their Midwives. The theoretical sessions of the workshop were held at the conference room of the support office of MSIG at Tesano, Accra from 1st – 3rd August 2016 and the Clinical Practicum, from 4th – 11th August 2016 at Ashaiman and Kokomlemle centres. The last day which was 12th August, was spent in the classroom for post course examinations, clarifications, certification and closing curtsies. A total of 14 Midwives drawn from MSIG service provision centres in the various Regions namely: Greater Accra, Eastern, Ashanti, Brong Ahafo, Western and Northern Regions were trained. A team of facilitators comprised of, the Acting Director of Non-Communicable Disease Control (NCD) Program of the GHS- Mr. Dennis Ocansey, Dr. Efua Commeh-NCD/GHS, Mrs. Mavis Apatu-RRH/GHS and Ms. Doris Agyei also from RRH/GHS conducted the training**.**

PATH Cervical cancer screening training course (TOT) for selected health professionals
The NCD program through PATH international has had engagement with the African Regional Cervical Cancer Training Excellence Centre, based at the Uganda Cancer Institute (UCI) in Kampala, to organize cervical cancer screening course for trainers focusing on clinical skills for

cervical cancer screening (visual inspection with acetic acid, or VIA) and pre-cancer treatment (cryotherapy). The course is specifically designed to meet the needs of national health services for certified trainers/master trainers who can build national capacity for affordable cervical cancer screening services. The course has two modules, one focusing on clinical skills and the second focusing on training skills. The course would come off in next month in Accra.

Community engagement and partnerships
The program trained core team of health professionals at primary care in Greater Accra region on palliative care. Capacity of Core team of health professionals has been strengthened to sensitise community health nurses and other health professionals on palliative care.

Engagement with Danish government (MOH & Novo Nordisk Pharma)
The Ministry of health and Novo Nordisk Pharma Gulf FZ-LLC (facilitated by the Danish Embassy in Ghana) recognise the need for improving the well being of people with diabetes in Ghana as well as the prevention and early detection of diabetes in the country through a long-term sustainable win-win partnership. The Ministry of Health is working to reduce morbidity, mortality and disability and improve the health status of the Ghanaian people through providing a comprehensive package of promotive, preventive, curative, rehabilitative and regulating health services. This is done through a decentralized and democratized health system in collaboration with stakeholders. Novo Nordisk is a global healthcare company and a world leader in diabetes care and is committed to improve access to and quality of care, and drives advocacy and support for people with diabetes worldwide. Both Parties are committed to contribute to the achievements of the Sustainable Development Goals (SDGs) adopted by the United Nations General Assembly in September 2015 including the goal of reducing by one third the mortality due to non-communicable diseases (NCDs).

The Parties would like to work together and use the Ministry of Health's expertise in the field of healthcare management and policies, and Novo Nordisk's expertise in the field of diabetes care (medicines and devices, capacity-building, supply chain management, innovative projects to improve diabetes care and treatment such as The Buddy Doctor Initiative (BDI) and the Base of the Pyramid (BoP) project) see appendix.

Novo Nordisk would like to work together with the Ghanaian authorities in achieving the SDGs, in particular in their fight against diabetes and NCDs and hereby put diabetes and other NCDs higher up on the health and political agendas in Ghana.

Current diabetes initiatives

MOH and Novo Nordisk Pharma are to work together to review two on-going initiatives aimed at improving the lives of people with diabetes in Ghana and currently implemented by Novo Nordisk and local partners in the country: *The Buddy Doctor Initiative (BDI)* and the *Base of the Pyramid (BoP) project*. This review will be carried out in order to identify better practices, potential areas of improvement and assessment of areas of integration of the projects in Ghana's NCD strategy and SDG strategy.

Buddy Doctor Initiative

The Buddy Doctor Initiative (BDI) is a professional coaching & mentorship of General Practitioners (GPs) aiming to change the strategic approach for improved glycaemic control in Type 2 Diabetes. The concept stems from the need to ensure reliable diabetes care to patients in primary care in view of the chronic shortage of diabetes specialists in African countries. The Buddy Doctor Initiative (BDI) uses a framework that encourages specialist doctors to form links with General Practitioners in their countries, providing enduring mentorship for better diabetes care.

Base of Pyramid Project

Novo Nordisk's Base of The Pyramid (BoP) project is an initiative that aims to increase access to comprehensive diabetes care and insulin for the working poor in developing countries. The project is currently running in Ghana, Kenya, Nigeria and India. Through the project's integrated approach, patients receive the benefits on:

1. Increased awareness of diabetes in the local community
2. Screening and early diagnosis to prevent complications of diabetes
3. Access to quality care by healthcare professionals trained in diabetes management
4. Stable and affordable supply of insulin
5. Improved self-management through patient education

In Ghana under the BoP project 6 Diabetes support centres have been established both in Government Hospitals as well as in the following Faith-Based Facilities:

- Accra (Maamobi General Hospital and Ga South Municipal Hospital)
- Ashanti (Manhyia District Hospital)
- Western (Effia Nkwanta Regional Hospital)
- Eastern (Holy Family Hospital, Nkawkaw)
- Central (Our Lady of Grace Hospital)

Insulin supply and access to care

The Ministry of Health will, as part of its international commitment to reaching the SDGs, assess how to reach the SDG target of reducing mortality due to NCDs by 30% –including diabetes by

2030. Such a review could assess the potential of reducing or lifting taxes on life saving medicines including insulin and syringes but also on some tests as HbA1c tests. Novo Nordisk will support the Ministry in this evaluation, by providing its expertise when requested.

In order to ensure that Ghanaian patients get access to good quality treatment, the Ministry of Health is committed to broaden the spectrum of criteria regarding tenders beyond price only. Quality of products will be one of the additional parameters considered. Other qualitative criteria will be included such as the existence of innovative projects to improve diabetes care in the country, the commitment in capacity building of healthcare professionals and the ability to deliver on agreed volumes in time. Novo Nordisk is committed to take part in future relevant tenders proposing high-quality products at competitive prices across the portfolio of products for diabetes management including Human Insulin and Human Insulin in Pens as well as modern insulins. Novo Nordisk is committed to enforce its Least Developed Country (LDC) pricing policy for Human Insulins sold as part of tenders and in any other commercial activities with the Ministry of Health. Cooperation between the Parties will also contribute to the fulfilment of the WHO Global Action Plan for the Prevention and Control of NCDs 2013-2020 and is aligned with the commitment on NCDs adopted at the 1st African Ministers of Health meeting jointly convened by the AUC and WHO and with the SDGs adopted by the United Nations General Assembly on 25 September 2015. Cooperation will also help achieving the National Policy on the prevention and control of chronic NCDs in Ghana adopted in 2012. Selected health professionals were trained on surveillance for cancers to manage the cancer registry so as to improve routine data to ensure local quality data that would guide proper planning of cancer control interventions

CHAPTER SEVEN

7 REPRODUCTIVE AND MATERNAL HEALTH, NEWBORN AND CHILD HEALTH

7.1 Safe Motherhood

(a) Antenatal Care Coverage (ANC)

Global evidence suggests a strong correlation between benefiting from antenatal care (ANC) services and positive pregnancy outcomes. Essential interventions in ANC include intermittent preventive treatment for malaria during pregnancy (IPTp), identification and management of obstetric complications such as preeclampsia, tetanus toxoid immunisation, intermittent and identification and management of infections including HIV. In addition, ANC affords the opportunity to promote the utilization of skilled attendance during delivery and healthy actions such as breastfeeding, early postnatal care, and family planning.

Antenatal coverage continues to be a success story in the country. More than 80% of pregnant women had at least one contact with a skilled provider during pregnancy in 2016. Notwithstanding the country has recorded declines in its antenatal coverage over the past three years (Figure 34).

Figure 34: Trend in ANC Coverage 2012-2016 - National

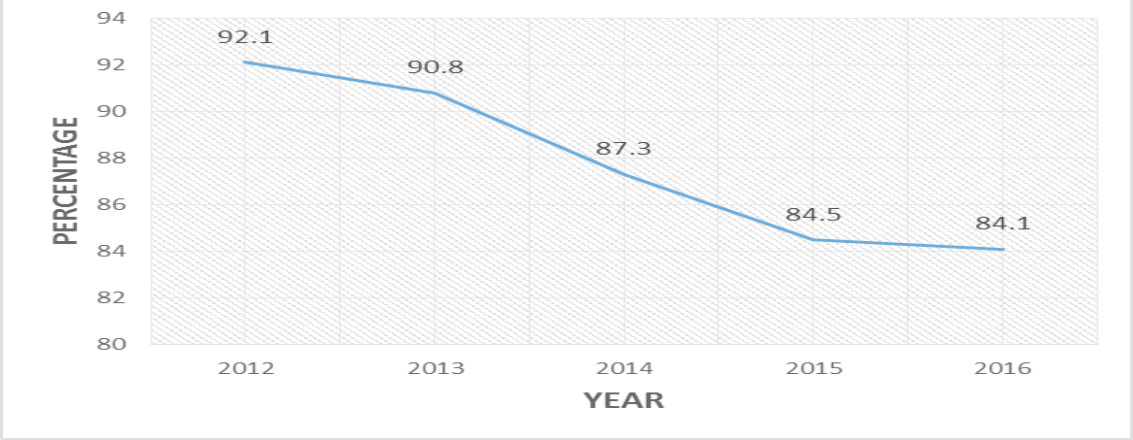
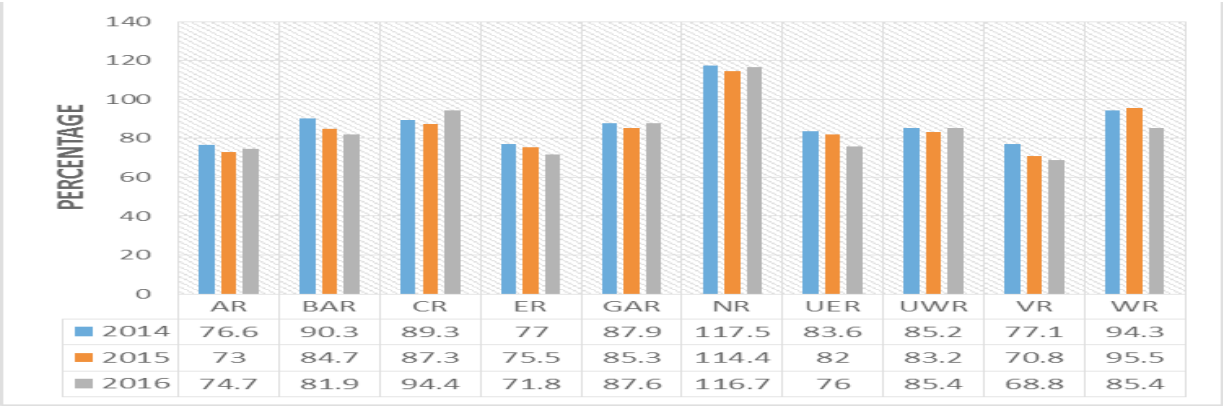


Figure 35 describes the ANC performance of regions in the past 3 years. Northern region recorded the highest coverage of over 100% and Volta recorded the least of about 69% in the year under review. Brong Ahafo, Eastern, Upper East, Western and Volta regions recorded marginal declines in ANC coverage in the year under review and 4 out of the 5 regions have continuously recorded declines in coverage for the past three years. A careful analysis of data from the Northern Region revealed that 50% of districts in the region have recorded ANC coverage of over 150% in the last 5 years and in some cases over 200%. Tamale Metropolis has recorded coverage of over 200% in the last 5 years. This could be one of the reasons contributing to the over 100% ANC coverage consistently recorded from 2012 to 2016 in the region.

Figure 35 Trends in ANC Coverage by Regions 2014-2016



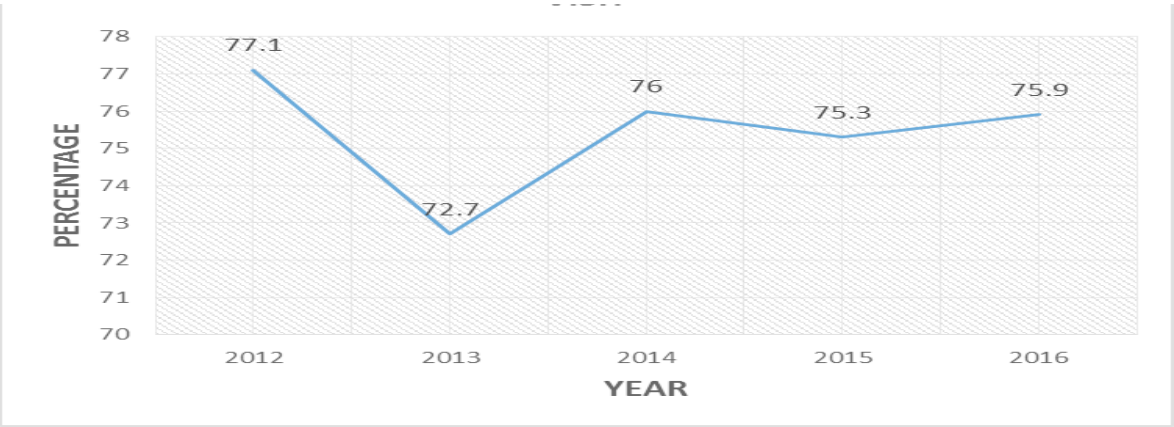
	AR	BAR	CR	ER	GAR	NR	UER	UWR	VR	WR
2014	76.6	90.3	89.3	77	87.9	117.5	83.6	85.2	77.1	94.3
2015	73	84.7	87.3	75.5	85.3	114.4	82	83.2	70.8	95.5
2016	74.7	81.9	94.4	71.8	87.6	116.7	76	85.4	68.8	85.4

Feedback received from the regions identified inadequate human resource and logistics, poor data management as well as inadequate monitoring and supervision of service provision especially at the peripheral levels and weak community engagement as among the key contributory factors to the downward trends. To address the challenges, several actions have been initiated by regions including capacity building for midwives, task shifting, staff rationalization and reposting and orientation of service providers on data collection and reporting tools. In addition, monitoring and supervision were intensified and monthly data validation and verification schedules were adhered to. Furthermore, home visits to register pregnant women were carried out in some districts. Pregnancy schools were also initiated by some facilities. These approaches also provided the avenue for in-depth interactions with pregnant women to identify their peculiar needs and address them.

The Health Promotion department liaised with all regions, particularly those that recorded declines to improve engagement with communities to promote awareness about the need for early and continuous ANC attendance.

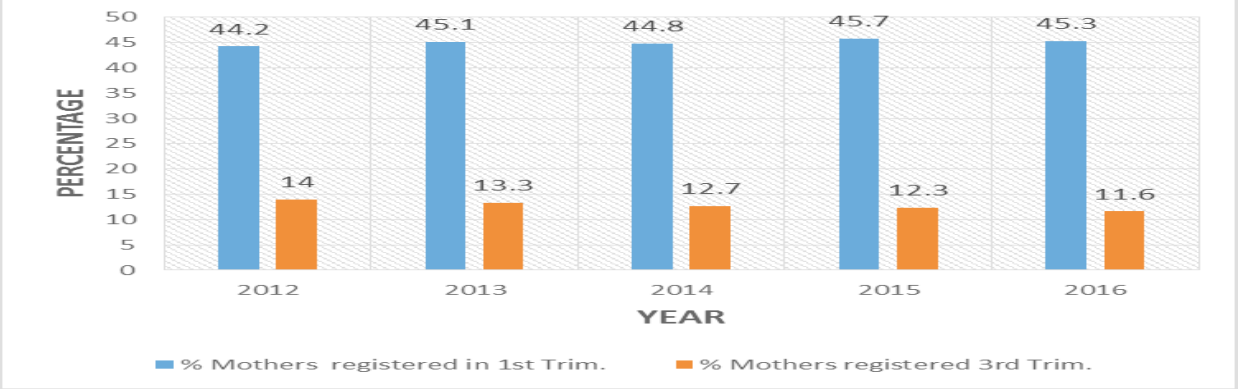
Inadequate care during pregnancy breaks a critical link in the continuum of care, which can affect the outcome of pregnancy. In order for the pregnant woman to benefit adequately from the essential interventions designed for antenatal care, provision of a minimum of four visits at specified intervals is recommended for pregnant women with no underlying medical problems. Whiles ANC coverage remains high, the coverage of at least four ANC visits remains lower at approximately 76 per cent, which is a slight improvement over what was recorded in 2015 (Figure 36). Interventions implemented over the years include SBCC to create awareness of the need for early and regular ANC attendance, the Community-based Health Planning Services (CHPS) strategy to improve access to maternal and child health services as well as capacity building for improved client-service provider relationship; however, progress to achieve the set target of 85% has remained slow. Some of the obstacles include challenges with the implementation of the CHPS strategy, lack of adequate numbers of human resource and logistic supply and in some instances persistent poor provider-client relationships. Ghana is yet to adopt WHO's new antenatal care model which increases the number of contacts a pregnant woman has with health providers throughout her pregnancy from 4 to 8. The average number of ANC visits still remains at 4.2. There is need for the progress being made to be consolidated as well as improve the stagnating performance as shown in the trends for the past three years.

Figure 36: Trends in ANC 4+ Visits 2012-2016



Pregnant women are expected to register for antenatal care within the first trimester in order to benefit from comprehensive and effective care; however, over the past 5 years, first attendance at ANC within the first trimester has stagnated around 45%. Persistent superstitious and cultural beliefs are some of the reasons that prevent women from accessing care during the first trimester of pregnancy. SBCC campaign targeting early attendance to ANC would be intensified. Marginal reduction in first attendance in the 3rd trimester was recorded in 2016 (Figure 37).

Figure 37: Trend in Timing of ANC Registration 2012-2016



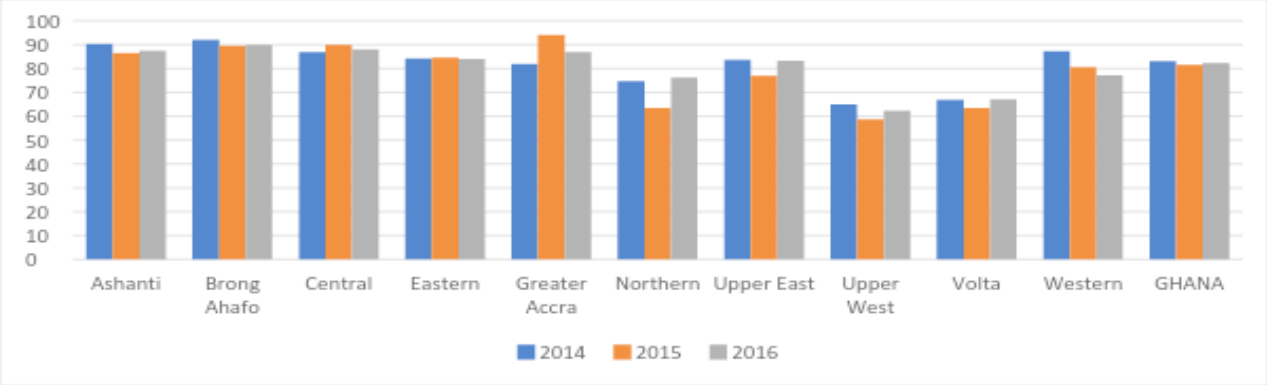
Interventions to reduce negative pregnancy outcomes e.g. anaemia prevention or treatment and counseling on maternal nutrition and infant feeding are most effective if contact with mothers is frequent. Having less than 50% of women attending their first ANC in the 1st trimester may reduce the number of contacts and thereby effective interactions that would lead to positive pregnancy outcomes. Moreover, opportunities for thorough discussion and eventual adoption of exclusive breastfeeding and family planning may be missed, necessitating the need for intensified SBCC campaign.

Haemoglobin tested at Antenatal Care Registration

One of the strategies to reduce anaemia, is through the use of supplements to improve the health and wellbeing of the pregnant woman as well as pregnancy outcomes. One measures of the state of health of all pregnant women is to have their haemoglobin levels determined at least on their first visit for antenatal care and again when they turn 36 weeks. The proportion of expectant mothers whose Haemoglobin level was tested at ANC registration increased from 81.6% in 2015 to 82.4% in 2016 (Figure 38). However, this is still a shortfall from 100% due to lack of testing facilities in some hospitals, health centres and CHPS compounds leading to women having to seek testing services elsewhere without feedback to the requesting facilities. Additionally, some women are required to make payment for the testing in private laboratories and this has the potential to reduce the number of pregnant women tested at ANC registration. Some regions reported shortages of maternal health records, which also made recording and reporting a challenge.

Most regions have stagnated in the rate of testing of ANC registrants; however Northern region recorded the biggest increase of over 10% between 2015 and 2016. The major contributor to this achievement was the supply of hemocues to midwives in some districts by USAID sponsored projects SPRING and RING who also trained health staff in the identification and management of anaemia in pregnant women and children Other regions which recorded marginal increases are Upper East, Volta and Upper West. Upper West recorded the lowest coverage in 2016 of just above 60%.

Figure 38: Trend in Proportion of Pregnant women with HB tested at Registration 2012-2016



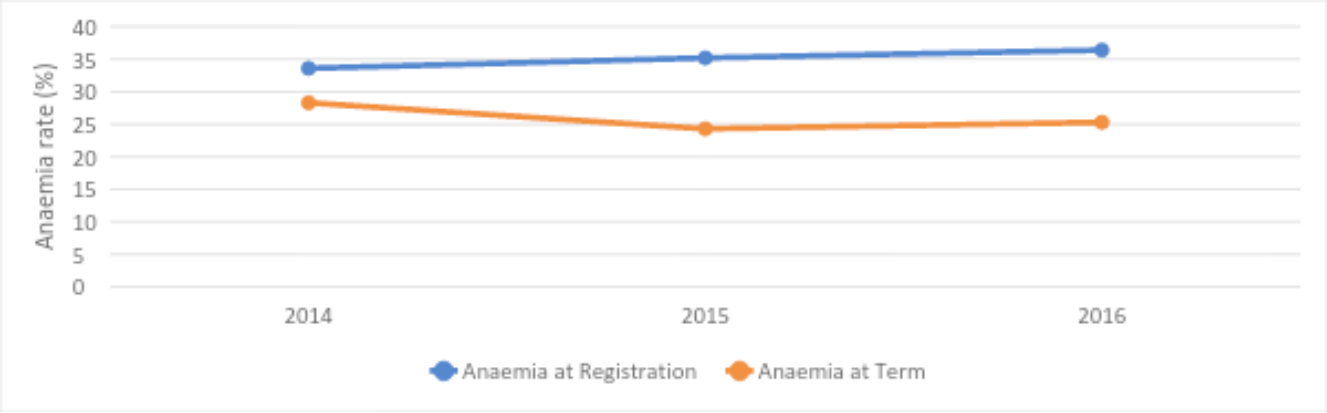
Scattered communities and lack of testing facilities in most districts were the main contributors to this trend. Within the Upper West region, Wa Municipal and Nandom are the only districts with adequate number of testing facilities. Similarly, Volta region reports of large numbers of overseas communities where health facilities are unavailable lack of boats and/or fuel hampers efforts to reach them; as well as lack of health facilities in most of their districts contributing to their poor performance over the years. It is important to provide health facilities where possible, but equally important is the willingness of staff of accept posting to such difficult terrains, with

incentives including prompt release for further education or re-posting to well-endowed districts after some years of working explored.

Trends in Anaemia Prevalence at Registration and at Term

Anaemia among ANC registrants increased marginally, by about 1% over the 2015 rate in the year under review. A cursory look at the trends (Fig 39) shows that anaemia among pregnant registrants has been increasing since 2014. Similarly, anaemia among pregnant women at term, (36weeks) increased marginally between 2015 and 2016, after recording a dip between 2014 and 2015. Anaemia in pregnant women is a risk factor for low birth weight and haemorrhage during and after delivery, which increases the risk of maternal mortality. In Ghana, the major strategy to prevent anaemia in pregnancy is the provision of iron and folic acid (IFA) supplements during pregnancy till 6 weeks postpartum. Issues of lack of compliance to IFA and appropriate dosing regimens as well as inadequate counselling (also linked to lack of compliance) have been cited as factors affecting anaemia prevention strategies; however empirical data for decision making in this area is lacking.

Figure 39: Trends in Anaemia Prevalence at Registration and at Term 2014 – 2016



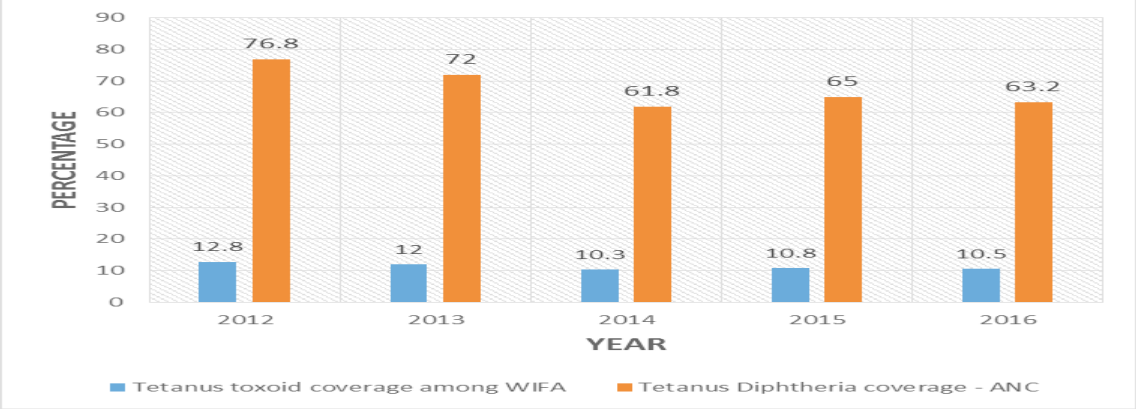
There is an initiative to improve anaemia levels among mentruating women and adolescents, through SBCC to create awareness and generate demand for actions to reduce anaemia among the target group and by extension improve the health of women before they enter pregnancy. In the meantime, ensuring adequate stocks of IFA, appropriate counseling for improved compliance to IFA regimens, as well as increase in contact time during pregnancy for anaemia prevention actions would help reduce negative pregnancy outcomes due to anaemia. Reduction in anaemia levels through Iron and folic acid supplementation are proven to be more effective when the supplements have been taken over longer durations of at least three months. In the light of the high anaemia rates at registration and the possibility of giving supplemental doses because of late testing at registration rather than treatment doses if anaemia is detected early, more pregnant women may get to term not having recovered from anaemia. It is implied therefore that if more

pregnant women do not register early during pregnancy, and issues related to lack of testing facilities in health facilities are not addressed coupled with poor compliance to IFA regimen, anaemia prevention and control measures may not achieve the desired impact.

Prevention of Maternal and Neonatal Tetanus

Provision of at least 2 doses of tetanus-diphtheria (TD2) to all pregnant women in high-risk areas is one of the key strategies for achieving elimination of maternal and neonatal Tetanus recommended by WHO/UNICEF/UNFPA. Although Ghana is among several countries, which have successfully eliminated maternal and neonatal tetanus, data collated for 2016 shows a decline in the coverage of Tetanus vaccination among ANC clients and the Women-in-Fertile-Age (WIFA) population.

Figure 40: Trend in TD Vaccination among WIFA and Pregnant Women 2012-2016



Poor record keeping for TD vaccination leading to incomplete data on immunization status of pregnant women is among the key factors contributing to the record of low coverage.

(b) Skilled Delivery

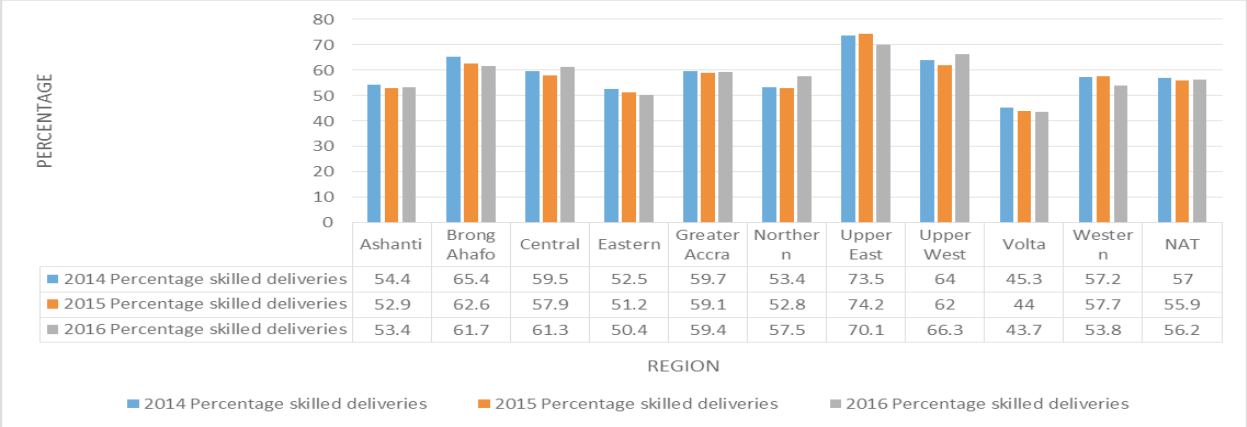
Globally consensus has been reached over the past years on the interventions that are significant in reducing maternal mortality. Attendance by skilled health staff during delivery is proposed to be one of the important factors and this is reflected in the use of proportion of birth attendance by skilled health staff as a benchmark indicator for monitoring progress towards the Millennium Development Goals (MDGs). In general, births with skilled attendants are associated with lower rates of maternal mortality. In 2016, skilled health providers attended to 56.2% of deliveries (Fig 41). The fact that this is lower than the figure of 73.7% recorded by the 2014 Demographic and Health Survey (DHS) underscores the concern that deliveries from private health facilities and maternity homes may be under reported due to the lack of a formal system to actively capture data from these sources. Achieving the national target of 80% will continue to be an insurmountable challenge unless this issue is addressed.

Figure 41: Trend in Skilled Delivery 2012-2016

Skilled delivery – Regional trends

Figure 41 describes the regional trends in skilled delivery from 2014 to 2016. Upper East region has consistently recorded the highest skilled delivery coverage over the past 3 years (though there was a reduction from 2015 to 2016), whilst Volta region has consistently recorded the lowest within the same time period. Brong Ahafo, Eastern and Volta region has consistently recorded declines in skilled delivery coverage for the past three years. (Figure 42). Analysing performance for 2016 within the Volta region, 4 districts (Akatsi North, Afadjato South, Ho West and Adaklu) recorded less than 20% skilled delivery and a total of 15 districts recorded less than 50% skilled delivery rate. Only Kpando district recorded 77%, which was a significant decline from 89% in 2015 (Fig 42).

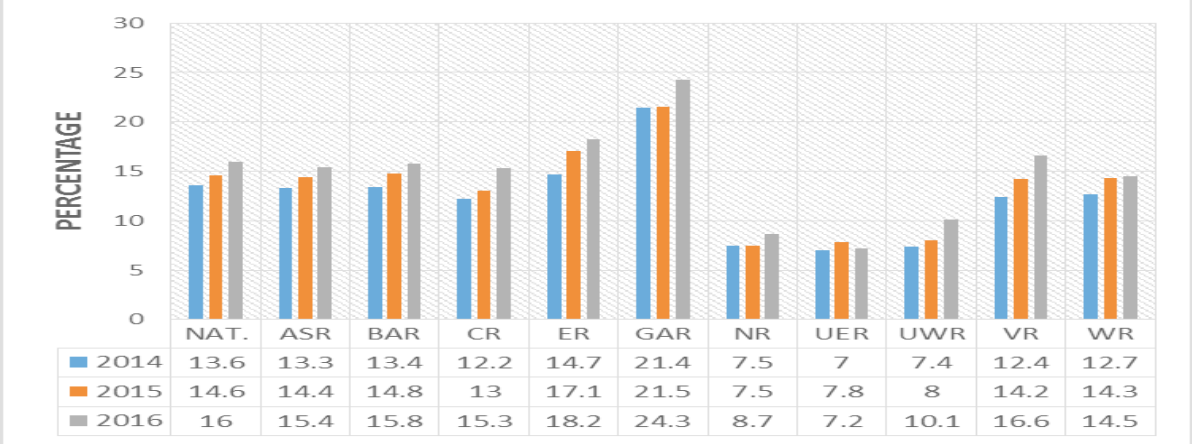
Figure 42: Trends in Skilled Delivery 2014-2016, Regional



Caesarean Section Rate

The proportion of deliveries by caesarean section recorded for 2016 was above the recommended rate of between 5% and 15% of all births by the WHO. The proportion has increased from 14.6% in 2015 to 16.0% in 2016. Regional variation shows a general increase across the country apart from the Upper East, which recorded a decrease in 2016 (Figure 43)

Figure 43: Trend in Caesarean Section Rate by Regions 2014 – 2016



	NAT.	ASR	BAR	CR	ER	GAR	NR	UER	UWR	VR	WR
2014	13.6	13.3	13.4	12.2	14.7	21.4	7.5	7	7.4	12.4	12.7
2015	14.6	14.4	14.8	13	17.1	21.5	7.5	7.8	8	14.2	14.3
2016	16	15.4	15.8	15.3	18.2	24.3	8.7	7.2	10.1	16.6	14.5

Greater Accra contributed the highest percentage (24.3%) and the Northern region recording the lowest percentage (8.7%). Several factors can be attributed to the high CS rate in Greater Accra region, including having the largest teaching hospital, which also serves as the national referral centre. There is improved access due to the high numbers of health facilities with capacity to conduct caesarean sections. Despite the non-availability of a reliable and internationally accepted classification to enable comparisons across the regions, the division would initiate measures to ensure that the procedure is not being used for non-emergency reasons so as to prevent the exposure of mothers to unnecessary risks associated with anaesthesia and surgery.

Family Health division will liaise with the research unit and the regions performing above target to develop a tool to investigate drivers of the upward trend in caesarean section rate in public and private health care facilities and to ascertain the impact of this high rate on the outcome of deliveries recorded over a record period of time. This is also to ensure that health care resources are being used efficiently.

Maternal Deaths

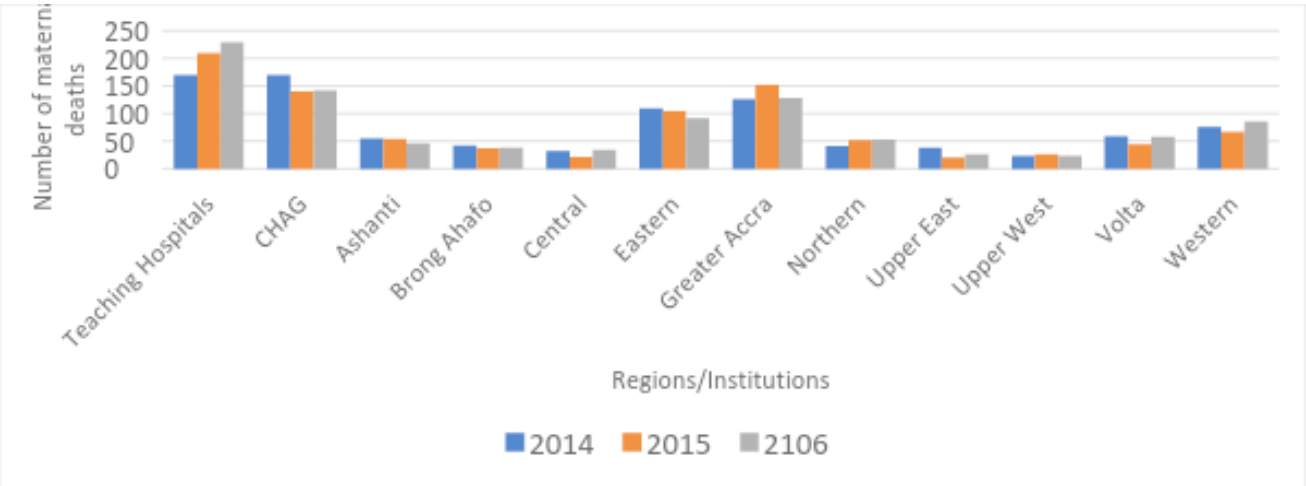
In 2016, a total of 955 women died from pregnancy related causes, which is an increase over that recorded in 2015 (figure 44). Ghana Health Service (GHS) facilities reported 61% of all maternal deaths, the Christian Health Association of Ghana (CHAG) facilities contributed 15% and the teaching hospitals contributed 24% in 2016. Deaths from teaching hospitals have been consistently increasing in the 3 years, while that from the CHAG health facilities are reducing.

Figure 44: Percentage contribution of Regions to Institutional Maternal Mortality 2016

6

Figure 45 describes trends in maternal deaths by regions or institutions from 2014 till 2016 and this reveals that the teaching hospitals are recorded consistent increases in deaths over the period. Among the regions, Greater Accra continues to record the highest number of maternal deaths, though the there was an increase between 2014 and 2015 (figure 45). Greater Accra region reports that the region sis facing what they call "no bed syndrome", where pregnant women who are referred are moved around from one facility to the other, being rejected on account of no bed until it is too late. The region has instituted a call centre to coordinate facilities and provide up to date information on bed availability. Facilities referring women would call into the centre and are immediately told which facility is prepared to meet them.

Figure 45: Trends of Maternal Deaths by Regions/Institution 2014 - 2016



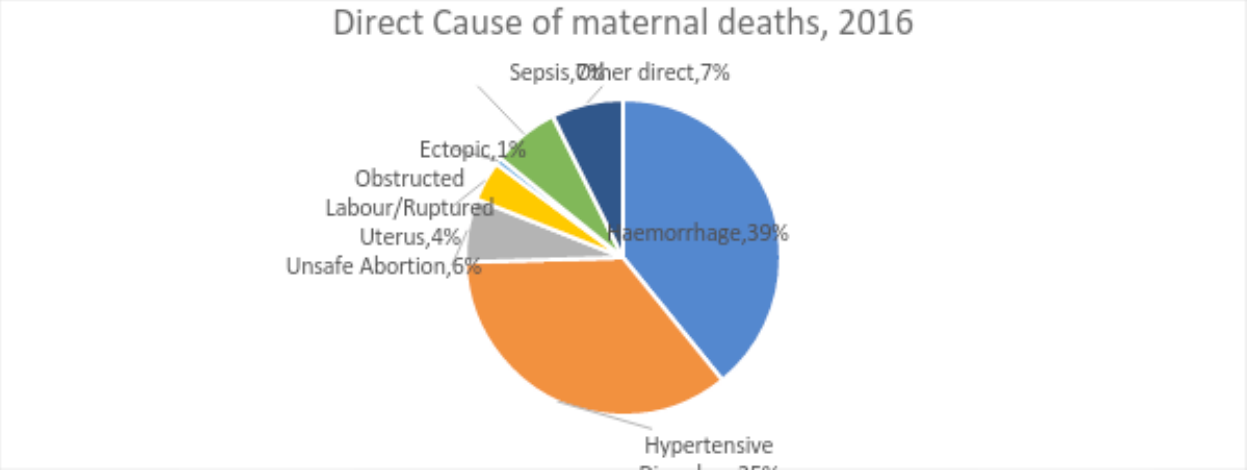
In the Volta region, lack of critical health staff and high cost of scan were some challenges enumerated. Upper West region reported highly scattered communities and poor access as major challenges. Most regions complained that only few (in some cases 2) facilities have the capacity

to receive referred clients and provide comprehensive care. Women having challenges moving from overbanks of rivers were reported in some districts and the galamsey menace was also cited as major challenges to maternal health in the country.

Causes of maternal deaths

Out of the 1033 maternal deaths recorded, 872 (84.4%) were audited and causes identified. Most (56.6%) of the deaths were due to direct causes as shown in Figure 46. Haemorrhage (39%) continues to be the leading direct cause of maternal death, with hypertensive disorders (35%) following closely as the second direct cause of maternal death in the country. Indirect causes including malaria, severe anaemia, HIV, embolism and sickle cell disease accounted for 26% of the maternal deaths and 1.7% was due to unknown causes. Many of the causal factors were documented. Regardless of this, there are persisting gaps in our knowledge of the scope, with 1.7% of the deaths attributed to unknown causes.

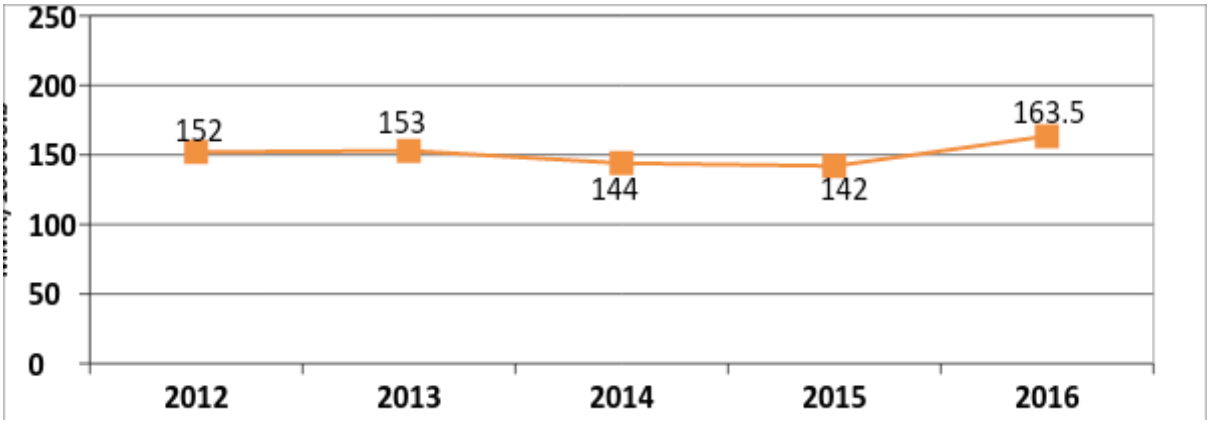
Figure 46: Causes of maternal mortality by proportions for 2016



Maternal Mortality Ratio (MMR)

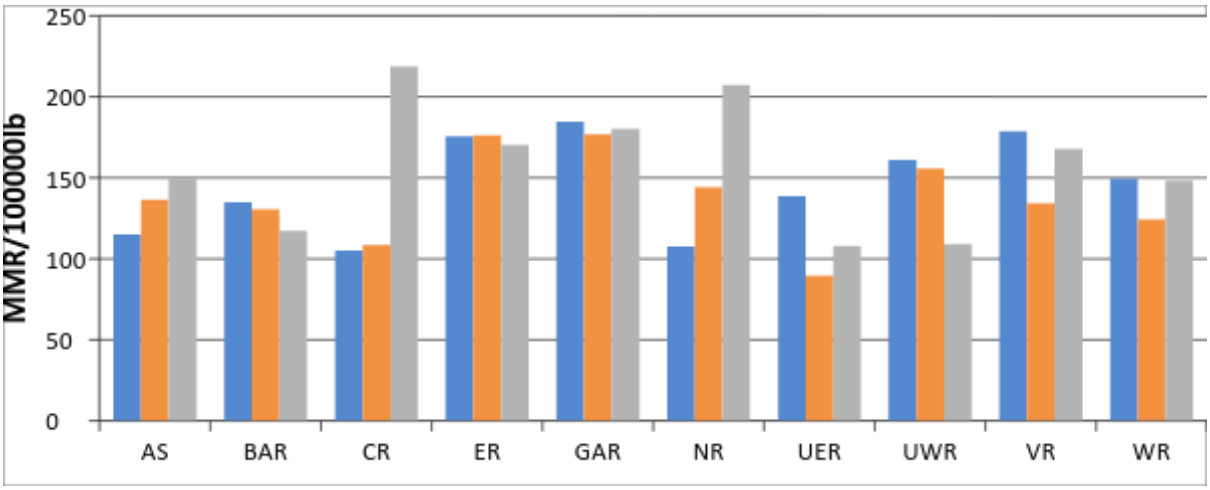
The number of maternal deaths recorded for 2016 reflects a corresponding increase in maternal mortality ratio, which had declined from 2013 to 2015 during the implementation of the MDG Acceleration Framework (MAF) programme. However, this decline was not sustained as shown by the significant increase in figure 47. This implies that the risk of a woman dying when she becomes pregnant has relatively increased.

Figure 47: Trend in Institutional Maternal Mortality Ratio-2012-2016



The Upper East region recorded the lowest obstetric risk in 2016, although maternal mortality ratio for the region has increased from what was recorded in 2015 (figure 48). Seven out of the ten regions recorded increases in maternal mortality ratios; however, data collated over the past three years shows that pregnant women in the Northern region have an increased risk of dying when compared with their counterparts in the other regions. The Northern region has recorded steady increase in risk over the past three years.

Figure 48 Trend of maternal mortality ratio by Regions 2014 -2016



The country is implementing cost-effective interventions, which are proven to address maternal mortality. Some of these interventions include quality antenatal care providing a comprehensive package of health and nutrition services, promoting access to family planning services, access to skilled health personnel at delivery, availability of basic and comprehensive emergency obstetric care services. However, there still remain both human and systemic challenges, which have slowed down the efforts of reducing maternal mortality significantly over the years.

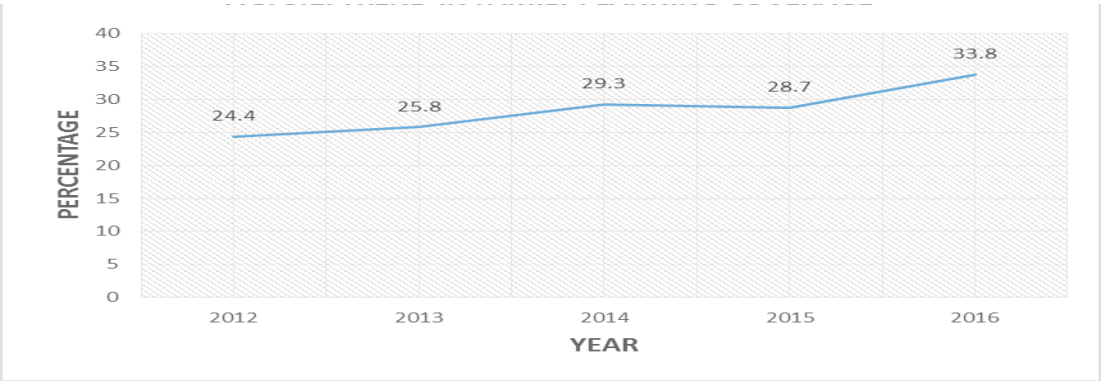
(c) Family Planning

Pregnancy by choice and not by chance is the basic requirement for women's health. Fertility regulation is also a major component of the safe motherhood strategy and has been delineated under the family planning programme for the purpose of emphasis and increased focus. The goal of the family planning is to assist couples and individuals of all ages achieve their reproductive goals and improve their general reproductive health. The strategies adopted include the provision of information, education and counseling, affordable contraceptive services and the prevention and management of reproductive tract infections and STIs/HIV among others. During the year under review the programme carried out various interventions, which have been reflected in its performance discussed below:

Acceptor Rate

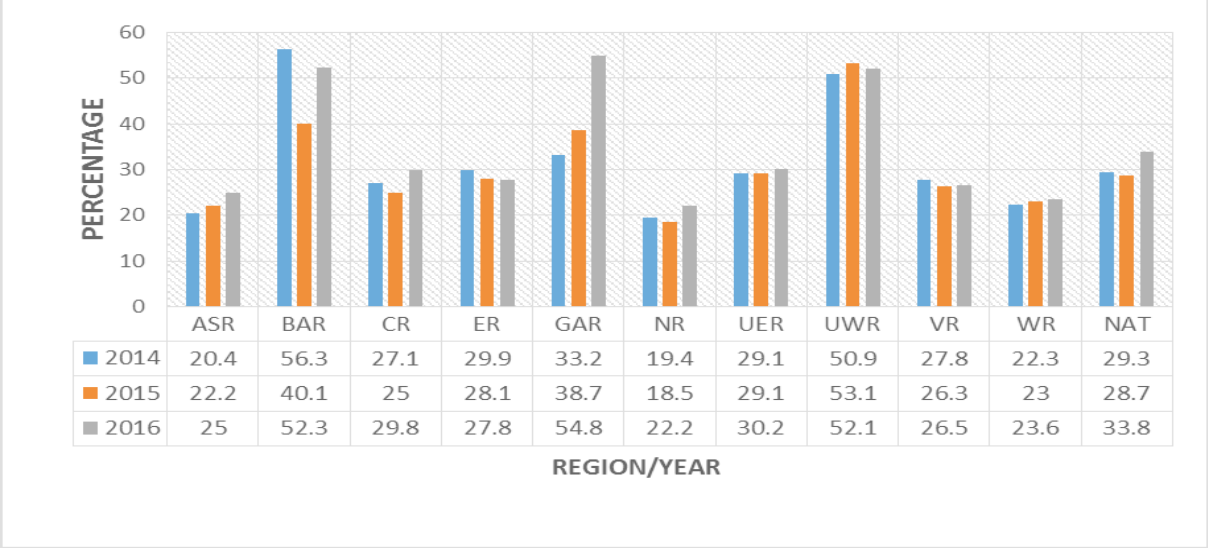
Following the unexpected decrease in 2015, which was attributed to a major decrease in the acceptor rate for the Brong-Ahafo Region, efforts were intensified to improve uptake of family planning services. This has reflected in the significant increase in acceptor rate of 33.8% recorded for 2016. Greater Accra Region was the highest contributor to this achievement (Fig. 49).

Figure 49: Trends in Family Planning Coverage



Analysis of service data from the regions shows consistent increase in the acceptor rates in the past 3 years for Greater Accra from 33% in 2014 to 38% in 2015 to over 50% in 2016; and Ashanti region from 22% in 2015 to 25% in 2016. Significant increases in acceptor rate were also observed for the Central, Northern and Brong Ahafo regions following the considerable declines between 2014 and 2015. However, Volta, Upper East and West and Western regions either showed a plateaued performance or slight increases in acceptor rate. Eastern region has shown a consistent decrease in the acceptor rate from 2014 to 2016. This may be attributed to persistent socio-cultural beliefs.

Figure 50: Trend in Family Planning Acceptor Rate by Region 2014-2016



	ASR	BAR	CR	ER	GAR	NR	UER	UWR	VR	WR	NAT
2014	20.4	56.3	27.1	29.9	33.2	19.4	29.1	50.9	27.8	22.3	29.3
2015	22.2	40.1	25	28.1	38.7	18.5	29.1	53.1	26.3	23	28.7
2016	25	52.3	29.8	27.8	54.8	22.2	30.2	52.1	26.5	23.6	33.8

Key among the initiatives that have contributed to the improved performance in some regions is the active re-registration of clients on long-term methods, which was a challenge in the previous year. The availability of local resource persons at service delivery points has led to training being decentralized and improved on-site coaching and mentoring contributing to improvement in the capacity of providers to render family planning services.

Other contributing factors include the scale up of implementation of the implant task shifting policy affording community health and enrolled nurses the opportunity to be trained to provide implant services. Other initiatives included family planning outreach programmes, strengthened collaboration with other implementing partners and the private sector, actively promoting male involvement and identification and training of community leaders as advocates and champions for family planning.

Eastern region, which recorded a decline between 2015 and 2016, cited poor data management, artificial stock outs at service delivery points and persistent myths and misconceptions on the use of contraceptives as well as inadequate monitoring and supportive supervision as some reasons for the observed decreases. It is expected that setting-specific measures would be put in place to address the challenges identified to be contributing to the decrease in acceptor rate in the regions.

Couple Year Protection (CYP)

In line with programme plans, projections and expectations, the national CYP trend showed significant increases over the years (Figure. 51). This CYP measures the programme

performance by providing information about the volume of all contraceptives sold or distributed and is an immediate indication of the volume of programme activity. Again, this trend can be attributed to the scale-up of task shifting allowing community health and enrolled nurses to provide implant services, an overall increased access to long acting and reversible methods and improved commodity security. All regions recorded increases in CYP from 2015 to 2016 (Fig 52), with the Greater Accra and Ashanti regions contributing the highest proportions to the national CYP figure.

Figure 51: National Trend in Total Couple Years Protection 2012-2016

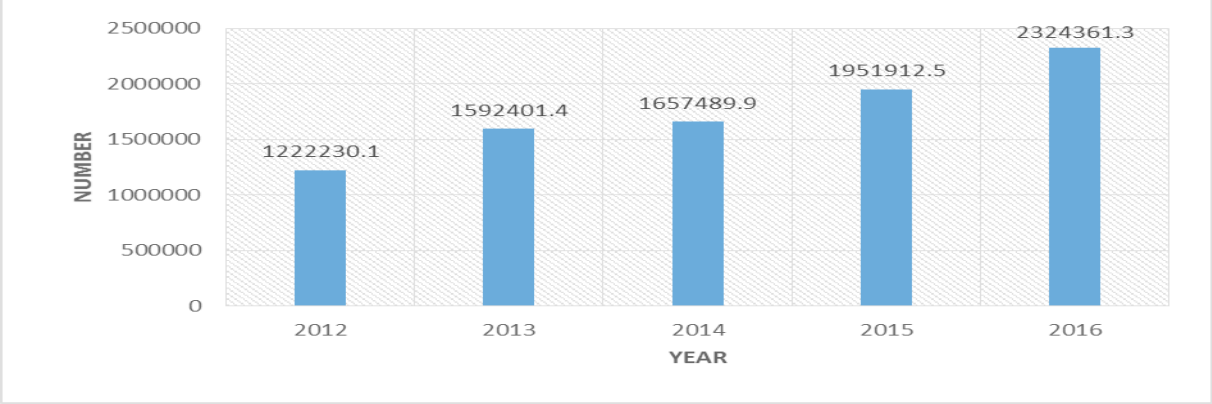
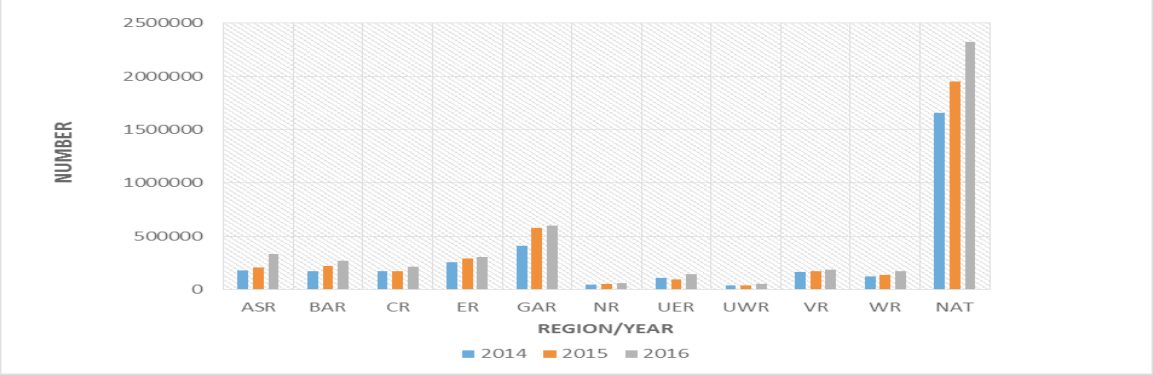


Figure 52: Trends in Total Couple Year Protection by Region 2014-2016



7.2 Child Health

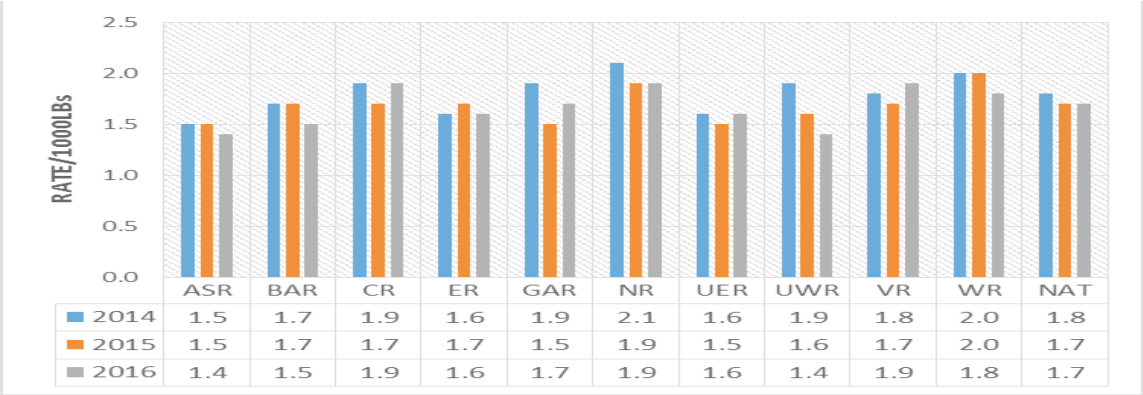
The child health programme focuses on the first five years of life as the most vulnerable period of childhood, which sets the tone for child growth and development thereafter. Although progress has been made over the years in reducing childhood morbidity and mortality, there are several challenges that need to be addressed. Newborn deaths are an important component of child mortality and currently represents over 40% of all under-five deaths. Mortality varies between geographic areas and by a number of other factors including the age the age and level of

education of the mother and household incomes, with the most deprived having higher mortality rates. The complex and multifaceted causes of child morbidity and mortality call for a shared vision and an effective integrated approach among various stakeholders across a number 0f sectors apart from the health sector.

(a) Still Birth Rate

Stillbirths are a reflection of the quality of care given to women and newborns during antenatal and delivery. In 2016, still birth rate was 1.6% as in the preceding year. Among the regions, significant changes were not recorded; however marginal declines occurred in the Western, Upper West, Brong-Ahafo and Ashanti regions. The trends seem to be increasing in Volta, Upper East, Central and Greater Accra regions. With the rollout of the perinatal death audits programme, the underlying causes of still births should be identified and interventions put in place to reduce them.

Figure 53: Trend in Still Birth Rate by Region 2014-2016



	ASR	BAR	CR	ER	GAR	NR	UER	UWR	VR	WR	NAT
2014	1.5	1.7	1.9	1.6	1.9	2.1	1.6	1.9	1.8	2.0	1.8
2015	1.5	1.7	1.7	1.7	1.5	1.9	1.5	1.6	1.7	2.0	1.7
2016	1.4	1.5	1.9	1.6	1.7	1.9	1.6	1.4	1.9	1.8	1.7

(b) Neonatal Deaths

The majority of the deaths that occur in the neonatal period are as a result of 3 main conditions – adverse intra-partum events (mainly birth asphyxia), prematurity and infections. Interventions to reduce these conditions are clearly outlined in the National Newborn Strategy and Action plan. Perinatal death audits can unearth some of the reasons behind these deaths. From 2015 to 2016, neonatal death rates decreased in the Greater Accra, Northern, Upper East and Western regions (figure 54). However, the other regions reported increases in neonatal deaths per 1,000 live births. The national trend has not seen any significant change over the past three years as shown in figure 54. Infant mortality rates on the other hand increased in all regions with the exception of the Northern and Upper East Regions (figure 55). This is worrying and calls for further study to determine and address the causes.

Figure 54: Trend in Neonatal Deaths per 1000 Live births by Region 2014-2016

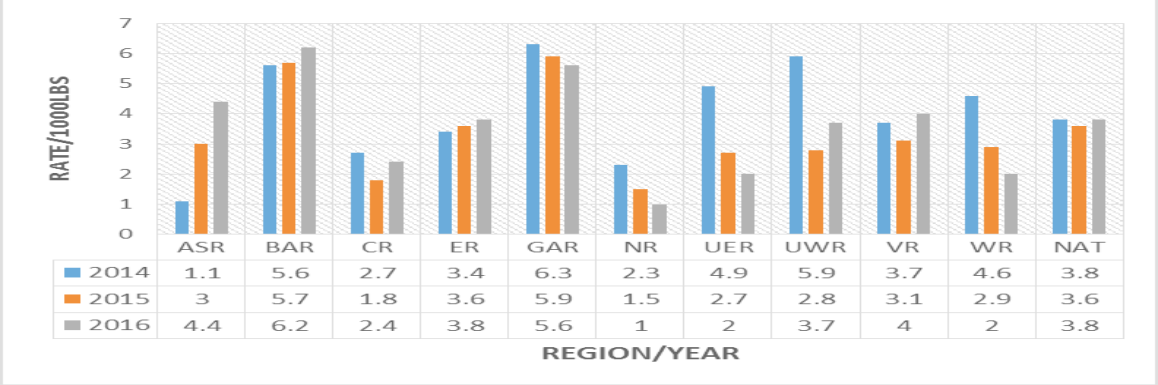
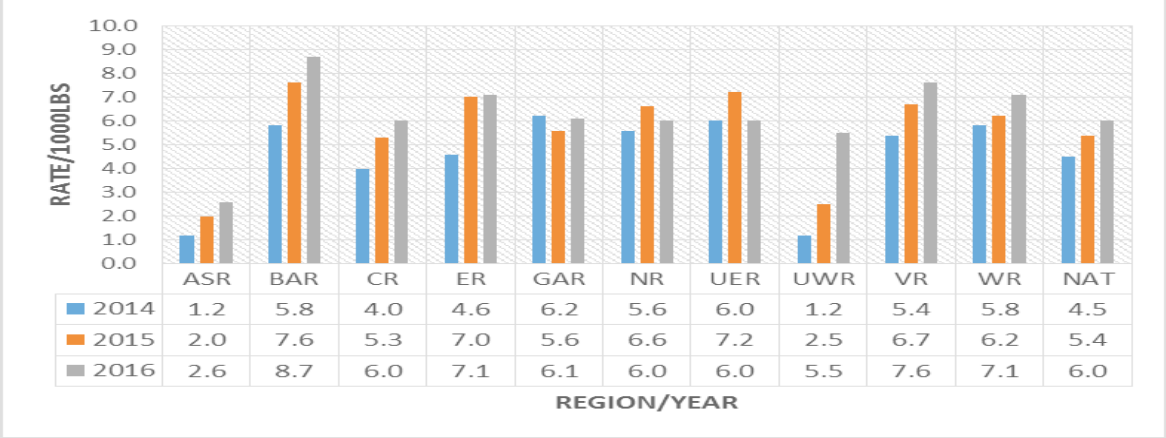


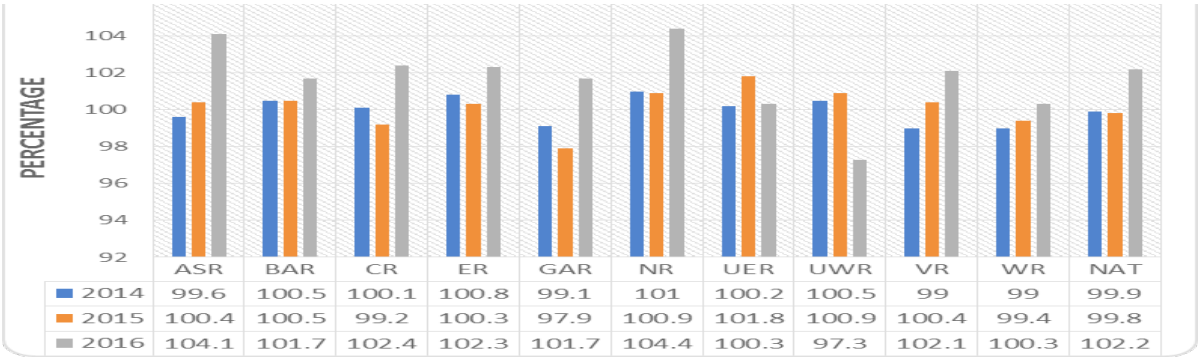
Figure 55: Trend in Institutional Infant Mortality by Region 2014-2016



(c) Exclusive Breastfeeding at Discharge

The percentage of mother/infant pair exclusively breastfeeding at discharge has seen a consistent increase since 2014. This gain should be sustained through scaling up the baby friendly initiative in all health facilities providing maternity services. Mothers should be supported to sustain the practice of exclusive breastfeeding when they go back to their communities.

Figure 56: Percentage of Mother/Infant pairs Exclusively Breastfeeding at Discharge, 2014 - 2016



7.3 Adolescent Health

The National Adolescent Health and Development Programme constitute a comprehensive care for young people (10-24yrs). This comprehensive care is about bridging the gap between clinical and public health programmes to promote adolescent health. The elements of this comprehensive care are promotive, preventive, clinical and rehabilitative health care. The goal of the ADHD programme is to integrate adolescent friendly health services into both public and private health facilities at all levels of service delivery including the community level. The key strategy of the programme is to make health services adolescent/youth friendly. This means health services at every level should be available, accessible, acceptable, equitable and affordable for every young client no matter their social or economic status. Every young person should be considered an individual with all rights reserved for the population of the country and so be treated with dignity and respect. The ADHD programme targets primarily young people aged 10-24years), parents, teachers, social workers and health workers (the stakeholders) and health and related sectors (the system).

(d) Adolescent Pregnancies

Adolescent pregnancy presents both health and social implications. Adolescents who get pregnant are more constrained in their ability to pursue educational opportunities than their counterparts who delay childbearing. Adolescent pregnancy contributes to the cycle of maternal mortality and morbidity because adolescent mothers are more likely to experience adverse pregnancy outcomes than their older counterparts. In addition, babies born to adolescent mothers are at increased risk of sickness and death; therefore, adolescents need special attention during pregnancy. The proportion of adolescents who sought antenatal care services for 2016 reduced marginally from 12.1% in 2015 to 11.8% in 2016 (Figure 57). Coupled with this is an increase in the proportion of adolescents accessing family planning services. For the past five years, institutional data shows a decrease in reported adolescent pregnancies and proportions accessing safe abortion services with a steady increase in the use of contraceptives among adolescents. (Figure 58)

Figure 57: National Trend in Percentage of Adolescents (10-19 years) attending ANC 2014-2016

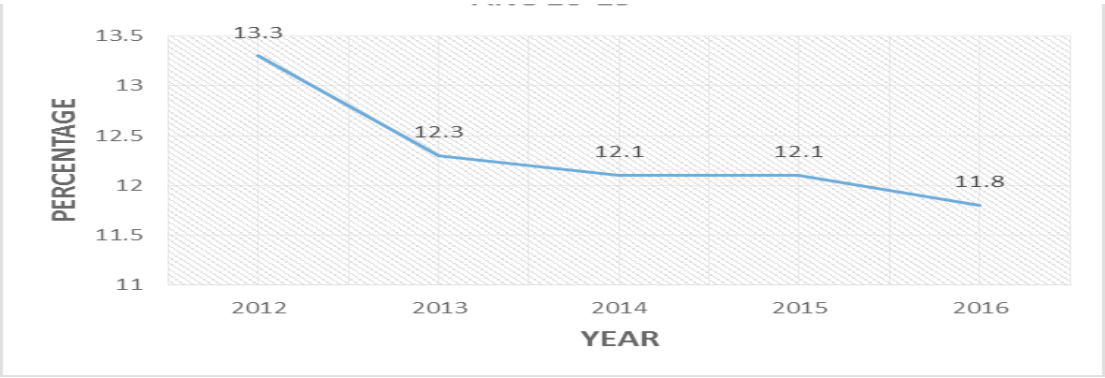
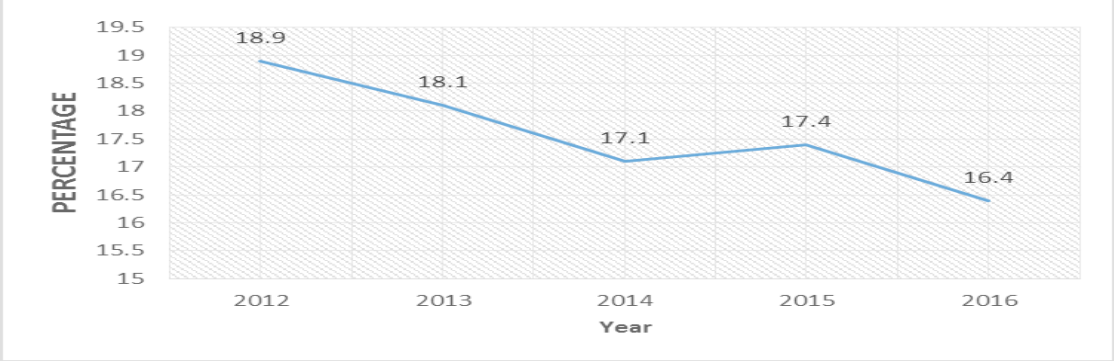


Figure 58: Percentage of Adolescents (10 – 19 years) Accessing Family Planning Services 2012-2016

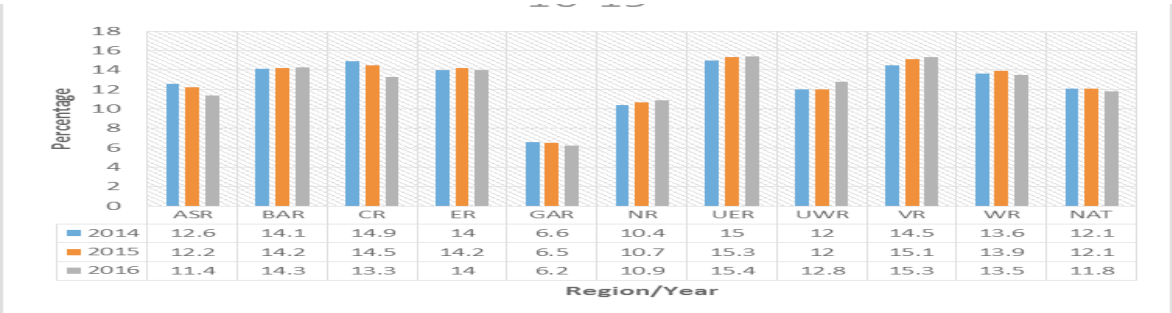
Figure 59: National Trend in Percentage of Adolescents (10-19 years) having Abortions 2012-2016



In 2015 where the proportion of adolescents accessing family planning services decreased slightly (figure 58), there was a corresponding rise in adolescents accessing safe abortion services (Figure 59) with no change in the proportion of adolescent pregnancy (Figure. 57). These patterns reiterate the importance of contraceptive use among sexually active adolescent as a preventive measure against unintended pregnancies.

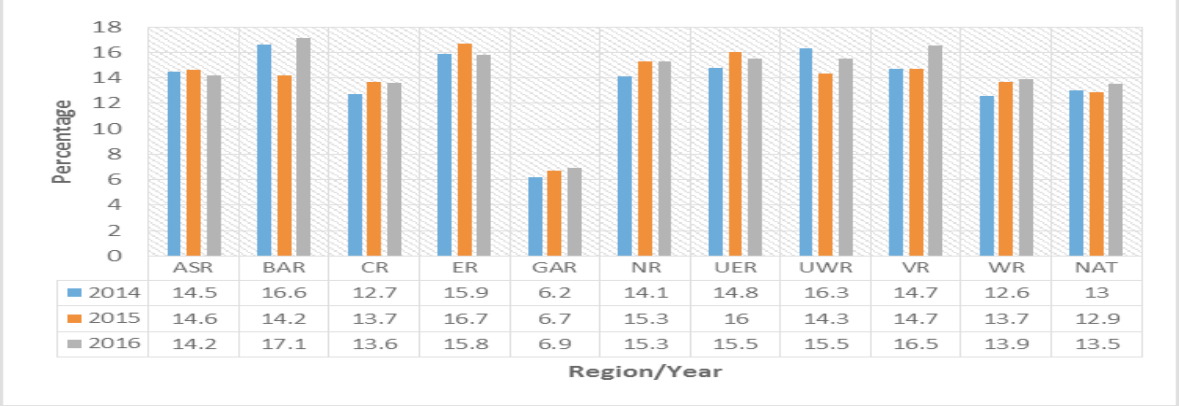
Adolescent Pregnancies and access to Family planning by Regions

Figure 60: Percentage of Adolescents (10-19 years) attending ANC – by Region, 2014 - 2016



Four out of the ten regions recorded slight increases in the proportion of antenatal registrants who were adolescents in 2016 compared with 2015. Greater Accra region recorded the lowest proportion of 6.2 per cent and the Upper East recording the highest of 15.4 per cent.

Figure 61: Percentage of Adolescents (10-19 years) accessing Family Planning Services by Region, 2014-2016



	ASR	BAR	CR	ER	GAR	NR	UER	UWR	VR	WR	NAT
2014	14.5	16.6	12.7	15.9	6.2	14.1	14.8	16.3	14.7	12.6	13
2015	14.6	14.2	13.7	16.7	6.7	15.3	16	14.3	14.7	13.7	12.9
2016	14.2	17.1	13.6	15.8	6.9	15.3	15.5	15.5	16.5	13.9	13.5

7.4 Nutrition

The Maternal, Infant and Young Child Nutrition Programme, Nutrition Rehabilitation with emphasis on management of severe acute malnutrition and moderate malnutrition, Micronutrient Deficiency Control and Nutrition Support for Vulnerable Groups were all implemented.
In the year under review, priority actions were focused on Maternal, Infant and Young Child Nutrition (MIYCN), Improving coverage of Vitamin A Supplementation for children 6-59months and Integration of management of severe acute malnutrition protocols into Integrated Management of Neonatal and Childhood Illnesses.

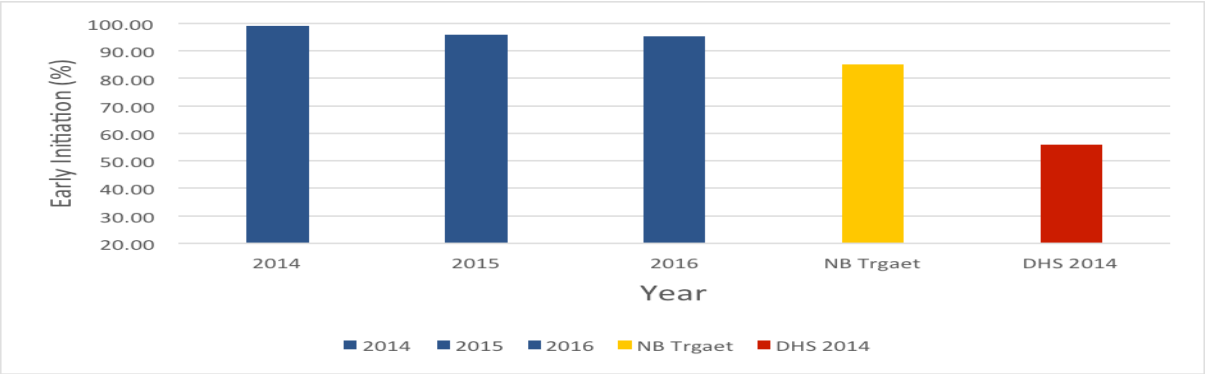
(a) Maternal, Infant and Young Child Nutrition

National recommendations on breastfeeding stipulates that all infants be put to the breast within 30 minutes after delivery and be placed in skin-to-skin contact for at least 1 hour. Early initiation of breastfeeding has been shown to reduce neonatal deaths by about 13%; early initiation of breastfeeding has been routinely monitored over the years as an indicator of quality of care for all facilities offering maternity services. In 2016, feeding status of babies at 3 and 6 months were included in the routine health data systems to be monitored.

Initiation of Breastfeeding

The National Nutrition Policy and New-born Strategy has targeted that at least 85% of all newborns should be put to the breast within 30 minutes of delivery. Routine data analyses show that nearly all infants delivered in health facilities are put to breast within the first 30 minutes of life, which may be indicative of the fact that the targets have been achieved. However, DHS 2014 shows a 56% early initiation rate, a discrepancy between routine and survey data.

Figure 62. Trend in Initiation of Breastfeeding 2014-2016

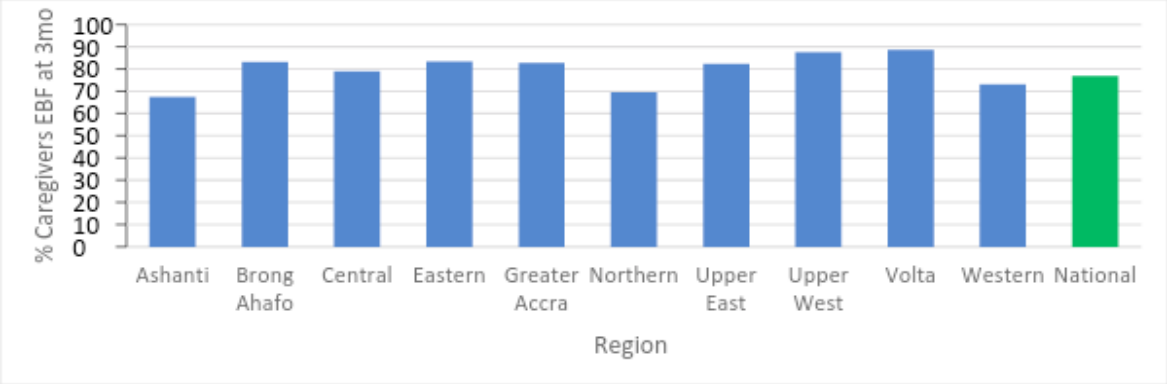


It is interesting however to note that the 2014 Demographic and Health Survey Report puts early initiation rate at 56%, an achievement much lower than the national achievement for the past three years (figure 62). In the light of this development, there was a nationwide drive to build capacity on the Lactation Management and use the opportunity to explain the practice to health staff as an approach to improve the practice and how it is reported. It is imperative to bridge the gap between survey and routine data and by extension afford every Ghanaian child the best start in life. The decentralization of BFHI assessment process, which has capacity building for acquisition of skills to change facility practices to that, which supports breastfeeding initiation, and success for the first 6months as a major strategy, would target private facilities. Additionally, opportunities to engage all health facilities, especially the private health facilities would be explored, with every platform including monthly meetings and monitoring visits used to discuss breastfeeding issues.

Exclusive Breastfeeding at 3 Months

In the year under review, a new indicator was introduced into the routine data collection system (DHIMS 2) to track how infants are fed at the time of PENTA 3 vaccination, when the babies are about 3months. This was done, as apart from national surveys, there is no practice indicator. Figure 63 shows the percentage of infants who were being exclusively breastfed at 3 months in 2016. Caregivers who presented their infants at 3 months for growth monitoring and promotion were asked how the infants were fed. The responses were coded under whether they were giving only breast milk or they were adding other liquids or foods. A total of 1,144,960 caregivers were enumerated, out of which 880,548 women indicated that they were giving only breast milk at the time of the visit. This translates into a national prevalence of 77%, ranging from about 68% in the Northern region to almost 90% in the Volta region. Clinical staff and frontline health workers were trained in breastfeeding promotion, with the aim of designating more facilities as baby friendly. This effort contributed to the massive promotion of exclusive breastfeeding in all regions within the year.

Figure 63: Exclusive Breastfeeding at 3 Months by Region



Management of Severe Acute Malnutrition

In 2008, Ghana adopted the Community-based Management of Acute Malnutrition (CMAM) protocol to manage children with severe acute malnutrition SAM). Globally, it is expected that over 75% of children who are identified are cured, less than 15% default and less than 5% die while in care. Figure 64 shows the CMAM performance indicators for 2016. A cure rate of 69.7% was achieved, defaulter rate of 14.1% and non-recovery rate of 14%. The highest non-recovery cases were reported in Berekum (605), followed by Offinso (324) and then Sefwi Wiawso (272). Interestingly, Berekum district does not implement CMAM programme. In all the years of SAM management, non-recovery rate has been less than 1%. A closer look at the data revealed huge challenges in data reporting, with some facilities currently not managing SAM recording high cases of non-recovery. Findings from mentoring and support visits carried out in the year indicated a lack of understanding of management and reporting protocols due mainly to lack of adequate training of staff and in some instances untrained staff managing SAM cases.

Figure 64: CMAM Performance Indicators 2016

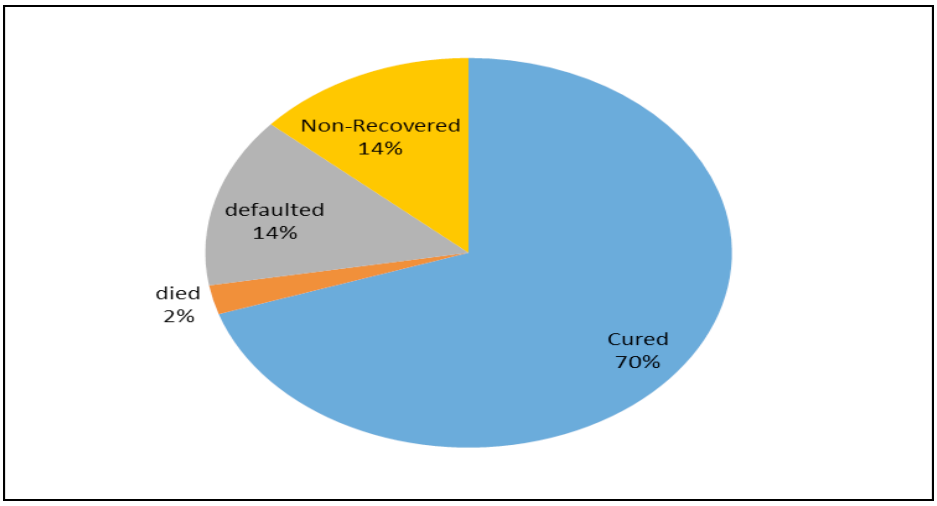
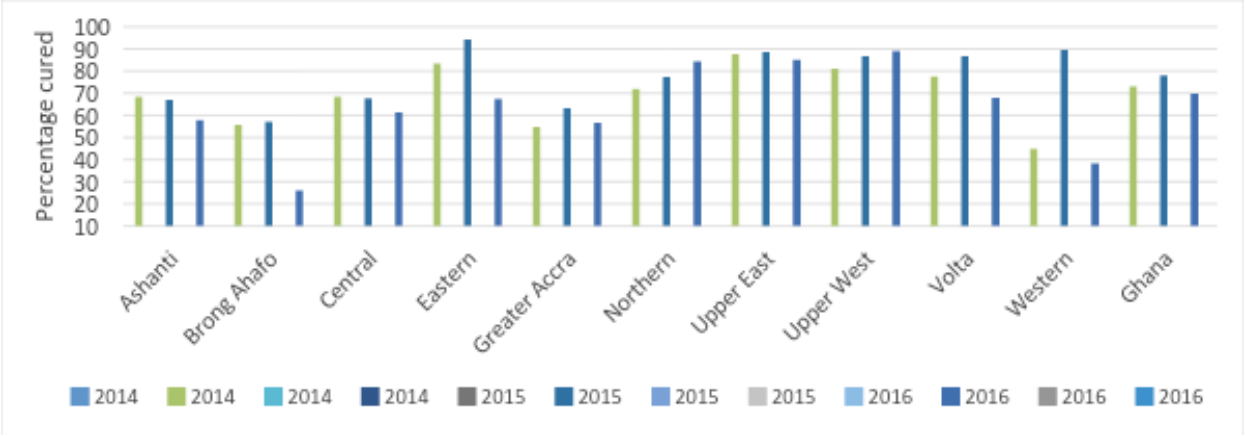


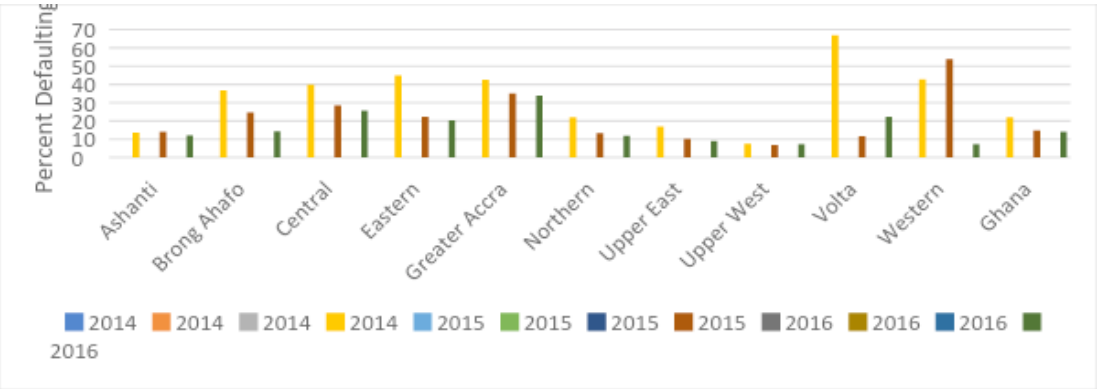
Figure 65 below shows the CMAM cure rates from 2014 to 2016. The national cure rate dipped from 78% in 2015 to just below 70% in in 2016 after increasing slightly between 2014 and 2015. Cure rates are expected to be at least 75% according to the universal standards. The regions that contributed to this decline are Brong Ahafo, Eastern and Western Regions. These 3 regions have not yet scaled up fully; and clients get lost in between care when their children get better. There is poor follow-up, which is a major challenge: especially when clients are not from immediate environs of the health facility. Additionally, non-use of approved tracking forms, poor data capture and reporting were identified as other challenges leading to the significant decline in cure rate. Northern, Upper East and Upper West regions had cure rates over 75% in 2016 improving steadily in Northern and Upper West regions over the years. Continuous capacity building for SAM management and regular mentoring are some factors contributing to this achievement.

Figure 65: Trend in CMAM Cure Rates – 2014 – 2016



CMAM Defaulter rates have steadily improved from about 20% in 2014 to 14% in 2016 (figure 66). Defaulting care occurs mostly when mother notice their children with SAM have become better after they begin treatment. Coupled with inadequate counseling at the beginning of treatment, some mothers return with children in a worst state after defaulting, which in some instances lead to death of the children. Defaulter rates have decreased across all the regions. Central, Greater Accra and Eastern regions have defaulter rates over 20%, with Greater Accra recording the highest of over 30%. Over the years, support for capacity building and programme implementation in the phase 2 regions – Brong-Ahafo, Western, Ashanti, Volta and Greater Accra has been a challenge. Adequate support in funding for capacity building for health staff and community level activities as well as logistics like RUTF and other supplies would go a long way to improve case admission and management.

Figure 66: Trend in CMAM Defaulter Rates by Region 2014 - 2016



Non-Recovery Rates

Data inconsistencies and poor entries accounted for the high non-recovery rate of 14% recorded in the year under review. Three districts, Berekum, Sefwi wiawso and Offinso contributed over 50% (1201) to the total number of 1727. Intensive mentoring and reporting as well as regular feedback on data entries by facilities and districts would be employed to ensure accurate reporting.

Micronutrient Deficiency Control

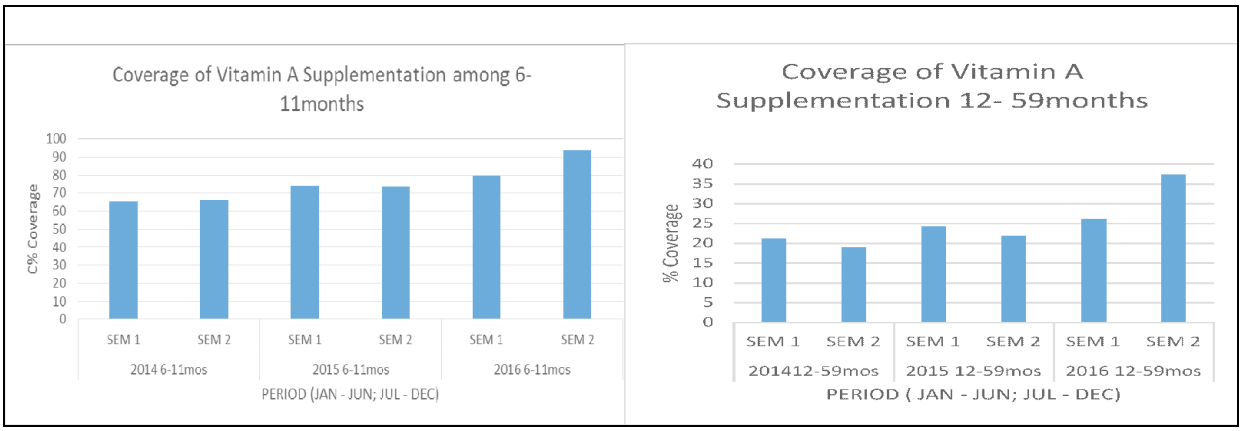
1) Vitamin A Supplementation

Adequate intake of vitamin A has been shown to improve immunity, increase resistance to infections and improve sight. In Ghana, the vitamin A supplementation programme provides high dose supplements to infants 6-59 months. A national coverage of at least 80% is expected. Dosing eligible children has been achieved primarily through mass campaigns, routine child

welfare service delivery points, school health and home visits. The latter two have been least explored over the years.

Coverage in children 6-11 months improved in the year under review, recording 70% in January to June and over 90% in July to December (figure 67). Most of the children within this age group attend child welfare clinics regularly for vaccinations, hence it is easier reaching them and dosing at the appropriate time. Coverage among the 12-59 age group however, remains a challenge due to their non-attendance to child welfare clinics, especially after 18 months when they have received Measles-Rubella 2 vaccination. It is expected that after the vaccinations at 18 months, children continue to visit the child welfare clinics for growth monitoring and promotion and supplementation with vitamin A; however, this does not happen. With more children being sent to schools at this age and the inadequate school health services coverage, especially to crèches, the avenues to reach them remains untapped. Supplementation coverage in all semesters for 2014 and 2015 and the first half 2016 hovered around 20-30%. In the second half of 2016, coverage improved to almost 40% (figure 67). This improvement is due to improved supplementation among that age group from 5 regions, which received support to conduct analysis of the reasons why they remain unreached and draw up strategies to reach them.

Figure 67: Trend in Vitamin A Coverage for Children 6-59 months 2014-2016

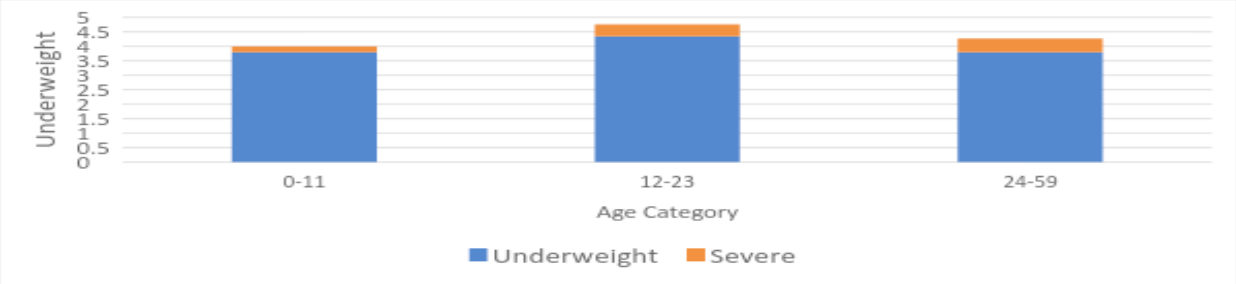


2) Growth Monitoring and Promotion

Growth monitoring and promotion services are provided through static points and outreach activities to monitor the growth of children. The weights of children are monitored monthly with the aim of detecting onset of under nutrition early and intervening to prevent growth faltering. All children 0-59 months who attend growth-monitoring sessions are weighed and the weight plotted on the growth chart to determine their growth trend. Monthly data on nutrition status of all children weighed are recorded. Underweight among children attending CWC in 2016 was 4.34% (figure 68). Among the age categories, the burden of underweight is borne by the 12-23 months' age category with a rate of 4.7%, of which 0.42% is severe. In 2016, training of staff in

infant and young child feeding and counseling on the 4-star diet was intensified. Additionally, health staff was trained in breastfeeding promotion towards the designation of their facilities as baby friendly. It is believed that these efforts would improve the capacity of staff to counsel and support caregivers for optimal nutrition behaviour uptake.

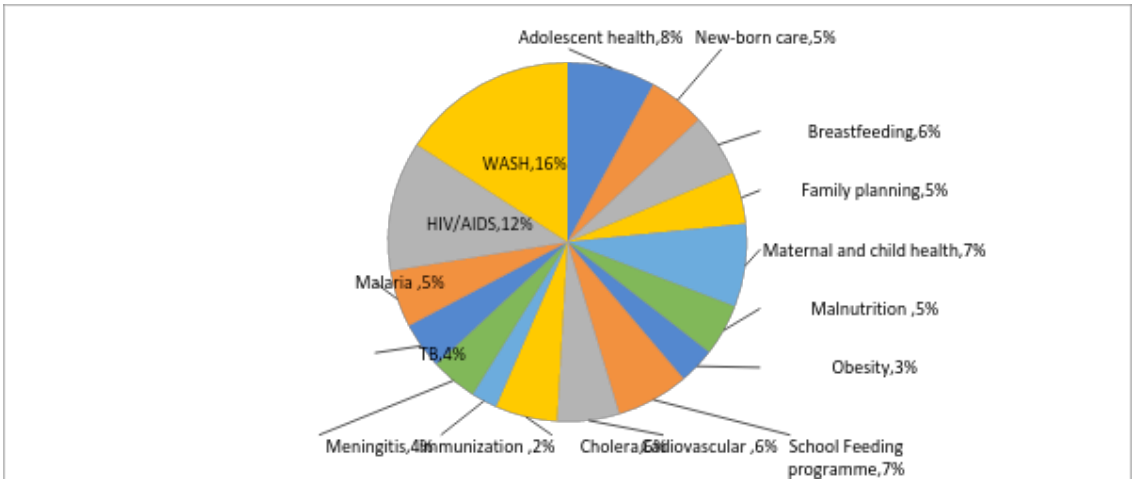
Figure 68: Underweight among Attendants to Child Welfare Clinics



7.5 Health Promotion

Seminars on selected monthly health themes were re-instituted. These seminars targeted particularly media practitioners to ensure that accurate health information is churned out from their outlets to the general public and to ensure that issues related to healthy living are given prominence in the media. In line with this the media were monitored by carrying out content analysis of reportage and news items to track the number of times the topics on various key health interventions were done. A total of 214 publications including articles and news commentaries were done at the national level during the year under review. The Chart below shows the various proportions published by dominant print Media such as the Graphic and Ghanaian Times.

Fig. 69. Publications by Health Topics



Special Initiatives

(a) Safe Motherhood

1) Training of Midwives in Ultrasonography

The free maternal health care initiative introduced in July 2008, covers the cost of services and drugs for six ANC visits as well as two ultrasounds for pregnant women. However, the inadequate access to ultrasound services for pregnant women at the primary level serves as a barrier to expectant mothers benefiting from the full package of cost-free services under the initiative.

In response to this challenge, the division with support from General Electric (GE) has begun the training of midwives in limited obstetric ultrasound use. Under this programme 500 v-scans ultrasound units are to be deployed to 500 health facilities across the country and 600 midwives trained. This is to improve access to quality maternal and newborn care services at the primary health care level. A total of 121 midwives were trained with 120 machines deployed for use by the midwives in 2016.

2) Training Community Health Nurses as Midwifery Assistants

In line with the implementation of the task sharing policy to improve access to skilled care and during childbirth, the division initiated the Midwifery Assistant Training Program to build the capacity of community health nurses in basic midwifery skills. As part of this initiative community health nurses are given a minimum of two days' orientation and provided with the resource materials for self-paced learning for two weeks. They are examined at the end of two weeks, after which they are required to go through on-the-job training under the supervision of a midwife for six weeks. In 2016, a total of 99 community health nurses in the Eastern and Ashanti regions were trained as midwifery assistants.

(b) Family Planning

1) Mapping, development and dissemination of compendium of contraceptives and family planning products and services

Limited access to information especially from referral points such as pharmacies, over the counter medicine sellers and limited access to information on availability of clinical methods in the private sector has been a barrier to the provision of family planning information and/or services over the years. Following several consultative and collaborative meetings with stakeholders in family planning, a need was expressed for the development of a document that would provide service providers at all levels and clients, with general information on family planning, as well as a directory for easy identification of service delivery points and referral of clients; Compendium of Contraceptives and Family Planning Products and Services.

After several working group and stakeholders' meetings, as well as months of data collection and compilation, the first edition of a Compendium of Contraceptives and Family Planning Products and Services was finalized and disseminated to stakeholders from the government sector, civil society organizations, nongovernmental organizations and other key family planning partners. The print version of the document is currently being worked on, whereas a mobile version has been deployed unto the Reproductive and Child Health Department Mobile Application, available at the Google Play store.

2) Review of national family planning protocols

The National Family Planning Protocols, which was developed in 2007, was reviewed in 2016 mainly to align family planning service delivery with the updated Reproductive Health Services Policy and Standards. The document was also reviewed for the following reasons:

- To update document in line with current trends and emerging issues on service delivery
- To align document with the 2015 WHO Medical Eligibility Criteria (MEC)
- To incorporate elements from new job aids; Comprehensive Family Planning Learning Guide, Community Based Providers Handbook
- To improve on structure of document; to more acceptable and user friendly

As part of the review process, a series of stakeholders and technical working group meetings were held with stakeholders from GHS/Family Health Division, Planned Parenthood Association of Ghana (PPAG), Marie Stopes International Ghana (MSIG), USAID/Systems for Health Project, Korle Bu Nursing and Midwifery Training College, Komfo Anokye Teaching Hospital and Korle Bu Teaching Hospital, other health facilities and some independent consultants.
At the end of the review process, significant structural changes included: new chapter for each method and standardized the steps for each method with sub headings. With respect to the contents, changes made include:

- Aspects of the Reproductive Health Policy and Standards
- Social and Behavior Change Communication
- Counselling
- Contraception for special groups
- Emergency Contraception
- Management of Infertility
- Community Based Contraceptive Services
- Logistics Management of Contraceptives
- Infection Prevention and Control On Outreach
- Medical Emergency Preparedness on Outreach

CHAPTER EIGHT

8 CLINICAL CARE SERVICES

8.1 OPD Attendance

Total OPD attendance in all health facilities reporting during the year reduced marginally from 29741608 in 2016 as compared to 29949173 in 2015 and 31087824 in 2014. Regarding those insured, 82.1% of the total numbers were insured for the current year as against 83.1% in 2015 and 83.5% in 2014, showing slight decline in the numbers insured. This indicated that on the average over 80% of OPD attendance depend on the health insurance scheme; therefore, delay in the re-imbursement has a heavy toll on the management of health facilities. The OPD per capita for 2016 was 1.1. and has remained unchanged over the last 3 years.

Figure 70 Regional OPD per capita in a three-year trend.

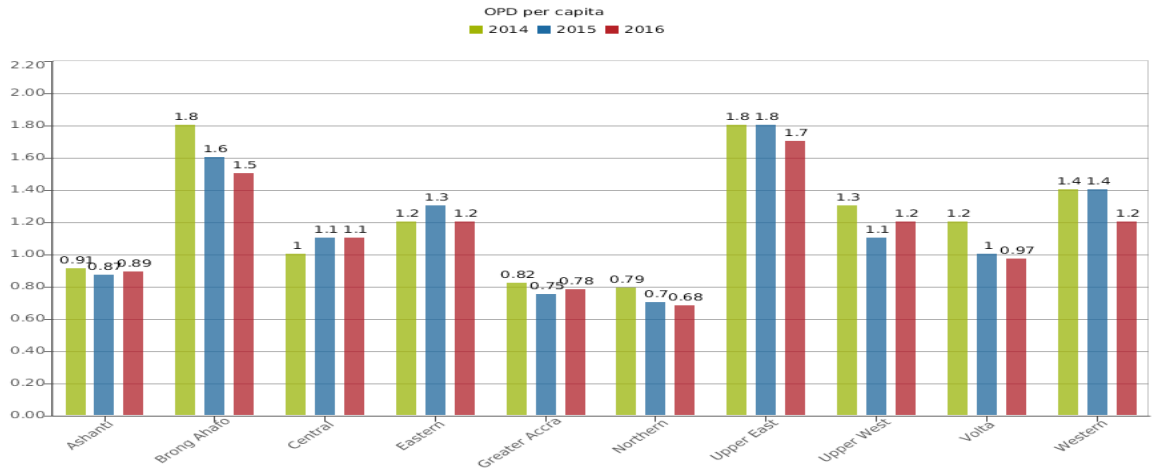
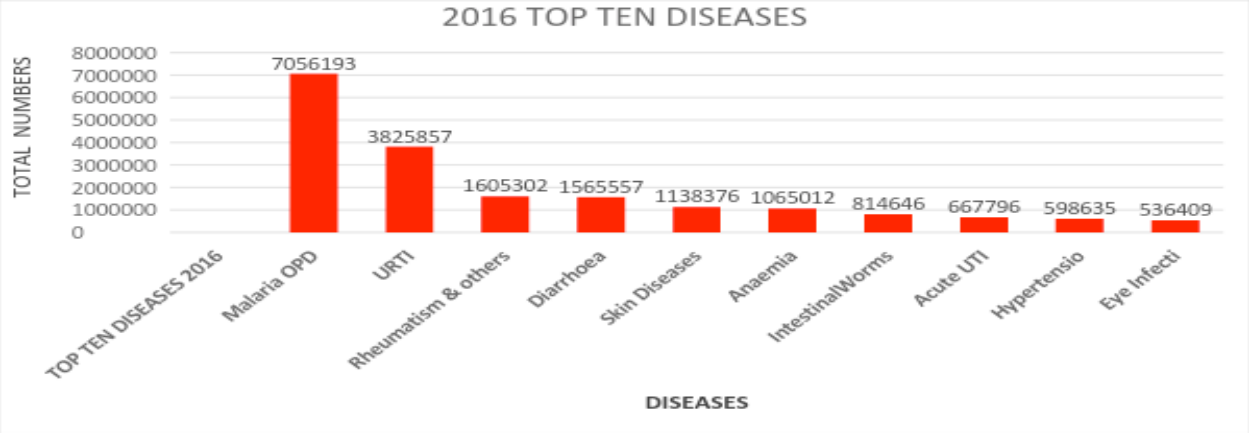


Figure 71 Top twenty diseases seen at the OPD



The top ten diseases reported for the year under review showed Malaria as leading, followed by Upper Respiratory Tract Infections, Rheumatism, Diarrhoea, with the last being Eye Infections.

8.2 Admissions and Institutional Deaths

Total Admissions for the period under review was 1,532845 out of which 83.3% were insured. The total institutional deaths for the reporting period were 30,332 given an all-cause mortality rate for the year 2016 to be19.8 per 1000 admissions compared to the previous year.

Table 37: Summary of Hospitals admissions and outcomes by regions 2016

	Total hospital admissions_2016	Percentage inpatients insured_2016	Total number of deaths_2016	All-cause mortality rate (/1000)
Ghana	1,532,845	83.3	30332	19.8
Ashanti	286,661	81.2	3372	11.8
Brong Ahafo	181,540	89.9	3744	20.6
Central	111,815	83.1	2552	22.8
Eastern	182,695	83.7	4427	24.2
Greater Accra	118,899	64.9	3437	28.9
Northern	186,159	90.1	2585	13.9
Upper East	68,122	96.4	1336	19.6
Upper West	82,954	92.2	1803	21.7
Volta	150,371	83.4	3981	26.5

8.3 Training on Safe Burial Practices for Ebola cases

One hundred and seventy participants from Ministry of local government and mortuary staff from Ghana Health Service were trained on Ebola Virus Disease (EVD) safe burial practices. They were trained as regional burial teams for public health emergencies. The training took place in five regions from 10th of February to 11th March 2016. Two regions took part in each training session. This training was a follow up after the EVD safe burial manual have been developed.

8.4 Infection Prevention and Control (IPC) Trainings

There were training of Infection Prevention and Control Master Trainers from all over the regions; it was done in Volta region. Thirty participants, made up of Doctors, Nurses, Pharmacists, and Biomedical Scientist who were experienced facilitators were selected from all regions and taken through extensive two weeks training from 14th- 23rd March 2016 at the Bob Freeman Hotel in Ho. Three local and one international facilitators conducted the training. IPC training for regional trainer of trainers was started first in Kumasi from 30th May and ended in Elmina on 30th September 2016. The trainings took place in all the regions from May to September 2016. Each training was for six days. Participants were regional trainers who went through both knowledge and skill training so they could roll out the district trainings. They were doctors, nurses, Biomedical Scientists, Physician Assistants, Health promotion officers, Pharmacists, Disease Control Officers, Nutrition officers. A total of three Hundred and fifty-four (354) trainers of trainers were trained in IPC.

Regional IPC Trainings

The regional and district IPC trainings were rolled up by the regional trainers nation-wide. All regional hospitals and some district hospitals are involved. It was supported by Systems for Health and Maternal and Child Survival Program, (MCSP) Jhpiego Ghana. Each partner is supporting his or her five regions. Systems for Health supported regions are Greater Accra, Northern, Central, Volta and Western regions. The number of staff trained in these regions are 12050 being 8121 clinical staff and 3929 non-clinical staff. In the Jhipiego regions Eastern, Ashanti, Upper East, Upper West and Brong-Ahafo regions 2697 clinical staff and 1009 non-clinical staff have been trained. Each facility trained established champions and developed facility action plans.

A six-day training on cholera SOP was also conducted on 12th-17th December at the central Region for health staff in six districts. It was in two sessions of three days per session for three districts. A total of hundred and sixty staff made up of nurses, doctors, health promotion officers, disease control officers, District Directors of Health Services, Environmental Health Officers, Veterinary officers, Nutrition officers, Pharmacist, stores officers, school health education

programme (SHEP) coordinators and many more were trained in the cholera SOP including infection prevention and control. The districts were: Gomoa West District, Asikuma Odoben-Brakwa (AOB) District, Fanteman District, Assin South District, Cape Coast Municipal and Abura-Asebu Kwamankese (AAK) District).

8.5 Quality Assurance

(a) Patient Safety Policy

Under the coordination of the MOH, a patient safety policy was developed with technical assistance from WHO

(b) Maternal New-born and Child Health

1) Paediatric and Obstetric triaging

Reducing maternal, newborn and child mortality is a priority of the Service. To improve emergency obstetric and paediatric care, the service with support from Systems for Health facilitated the scale up of obstetrics and paediatric triaging in Greater Accra, Central, Western and Volta and Northern regions and the Korle bu Teaching Hospital. Guidelines for implementation were developed, training of trainers done and training facility staff also carried out. Monitoring has shown good progress of implementation in the facilities trained

Mother Baby Friendly Facility Initiative. This is a quality improvement initiative of WHO and UNICEF. Contributions have been made in the development of the implementation guide, training of trainers and selected facilities in 3 districts in the upper east region

Child Protection, A new initiative to train health workers identify and better manage abused children. Gap analysis carried out by Health Research Division and led by an external consultant with inputs from the department. A training manual has been developed by the consultant and reviewed by clinicians in this field with our inputs. Training of regional trainers will start early January

(c) Persons Who Inject Drugs Project

The one-year project was undertaken to assess selected health facilities and NGO's capacity to manage persons who inject drugs, develop health education and training materials for health workers and to train staff in those facilities. This was a CCM project funded by GIZ, which ended in September 2016.

(d) Peer Reviews

For the first time, all ten regions conducted peer review and developed regional league table. It was however limited to some district hospitals and some polyclinics, except Upper East region, which had theirs for the regional, and some districts hospitals. Facilities that performed well

were awarded. For example, Volta region motivated their staff with special trophy awards. Data for the peer review are analysed and sent to all facilities both Districts Health Administration and the hospitals so they could see their performance. Volta, Greater Accra, Western and Ashanti regions have advanced in the peer review mechanisms. They have designed special trophies for awarding deserving facilities. The other regions are also being encouraged to learn from them.

8.6 Mental Health Services

A 2-day meeting from 19-20 April 2016 was held in Accra for stakeholders' engagement to discuss proposal plans 2016-2019 developed for the expansion of the FAEI project and plan for scaling-up. At the end of the meeting it was agreed there would be a full gradual scale up to all remaining districts of the 5 implementing regions and later to the other remaining regions. Scale up activities started with a Regional TOT training of 15 regional facilitators in epilepsy management each from Volta and Eastern regions to build regional capacity for future training. Four additional districts from 2 regions were enrolled to the project bringing the total number of implementation sites to fourteen (14).

One supportive supervision on epilepsy management was made to 10 districts of 5 regions. Mental Health Authority (MHA) supported training of 23 primary health care providers in management of common mental health disorders.

Basic Needs, Ghana supported a 2-day Regional team meeting on strengthening integration of Mental Health into primary health care. The theme of the meeting was 'Improving Community Mental Health Services in Ghana.' Regional Deputy Directors Clinical Care and Public Health and Regional Mental Health Coordinators and representatives from MHA and DFID were present.

211 out of the 216 districts provide MH services – mainly OPD and community care by CPN, CMHOs. Few have support of Physician Assistants in psychiatry. 3 regional hospitals (ER, BAR, VR) have MH wings. General wards at the other 7 regional hospitals and some district hospitals admit and manage some cases with mental disorders

8.7 Eye Care Services

The World Health Organisation/VISION 2020 has recognised low vision and its far-reaching socio-economic consequences as significant public health issue and hence a priority in WHO/IAPB agenda in 2006. The burden of low vision as a disability is increasing as the elderly populations and non-communicable diseases increase. Traditionally, low vision services have come under neglect as practitioners have very limited skills, in addition to inaccessibility of

assessment tools and devices. Currently, there is only one well-functioning Low Vision Centre in Ghana, which is located in the Eastern Regional Hospital at Koforidua.

Operation Eyesight Universal (OEU) supported GHS with the establishment of 20 low vision centres within Eye Care units to improve access to low vision service in Ghana. To effectively manage these centres, OEU, with technical support from the Brien Holden Vision Institute and the Special Education Unit of Ghana Education Service organized a two-week (18th to 28th July 2016) training workshop in low vision for 20 optometrists from "**Seeing is Believing**" partner facilities. The main objective of the workshop was to equip the optometrists with requisite knowledge and skills to be able to identify, assess and give low vision care to clients in their eye clinics.
The topics treated included WHO/IPPCB working definition of low vision, global prevalence, calculation of low vision need at the national level, causes of low vision, clinical assessment of low vision using the logMAR charts, pre-verbal assessment of low vision in children, visual field testing, colour vision testing, and testing contrast sensitivity.

Participants were also taken through low vision refraction, magnification using magnifiers and telescopes, prescription of optical and non-optical low vision devices, and training in the use of the devices. As part of the workshop, participants were taken to the Akropong School for the Blind and the Eastern Regional Hospital for practical training sessions.

At the end of the workshop participants acknowledged that they have been provided with the knowledge, skills and additional competencies needed to provide low vision services in their various facilities.

"Seeing is Believing" (SiB) Partners
The Service in collaboration with Operation Eyesight Universal (OEU) embarked on regional meetings with all "Seeing is Believing" partners between 25th April and 16th May 2016. However, the meeting for Greater Accra Region was postponed to December 2016. The meeting, among other issues, was used to

1. Disseminate key findings of SiB phase IV evaluation report and
2. Review activities for SiB Phase V

In all, thirty-six (36) ophthalmic nurses, hospital directors, Deputy Director, Clinical Care, District Director of Health Services and Regional Ophthalmologists were invited to the meeting.

Key Findings of SiB Phase V in the evaluation report acknowledged the successes of the project; were that the supply of ophthalmic equipment to partner facilities has enabled partners to offer quality eye care to their patients and the Project's ability to exceed its surgical target after the one year no-cost extension period. Some challenges the project faced were inadequate support

from hospital management, least involvement of regional ophthalmologists and delay in reimbursement of hospitals by NHIS. Partner facilities gave brief report on their activities, clearly indicating areas where they had performed well and where they had underperformed. Partners were also allowed to share their experiences, successes and challenges. Challenges that were identified were:

1. High attrition of primary eye care workers in the various communities. Hence those trained do not stay at their post for long.
2. Inadequate financial supports to conduct refresher training for primary eye care workers (PECWs) as well as training of more PECWs.
3. Absence of support to conduct monitoring and supervisory visit to the trained PECWS
4. Lack of optometrist in some hospitals
5. Low cataract surgery output due to lack of ophthalmologists

OEU provided some funds to the Regions to support Ophthalmic Nurses in their monitoring and supervisory visits to the trained primary eye care workers and also for awareness creation on eye health and eye health services available in the various hospitals.

The meeting suggested the need to promote and support the use of WHO "catops" forms and the analysis of cataract surgery outcome by all hospitals offering cataract surgical services in order to improve the quality of cataract surgery.

Trachoma Pre-validation Survey in Northern and Upper West Regions

Ghana, in 2008, achieved the acceptable thresholds needed to eliminate blinding trachoma. Three-year post MDA surveillance was implemented in Northern and Upper West Regions between 2011 and 2014 to identify and manage the remaining TT and TF cases to ensure that all communities met the elimination threshold. A pre-validation survey was undertaken between December 2015 and March 2016 to:

1) Determine if Ghana has sustained the elimination prevalence thresholds.
2) Help review the trachoma surveillance strategy used in Ghana: whether it was able to identify any potential resurgence of infection.
3) Results from the survey will provide the Ghana with evidence to apply for validation from WHO.

In all 149,743 individuals in 11,090 households were examined. The results of the survey indicated that all endemic districts had TF less than 5% in children 1-9years. For trichiasis (TT) all the districts, except Yendi (Northern Region), had met the elimination criteria of having TT less than 1 per 1000 population.

Trachoma Trichiasis (TT) case search and surgeries in Yendi/Mion

The results from the trachoma pre-validation conducted between December 2015 and March 2016 indicated a TT backlog of 417 for Yendi. This necessitated a TT case search in all 474 communities in Yendi (now Yendi and Mion) for at least 200 TT surgeries to be performed concurrently. This was to enable the district meet elimination criteria of having TT less than 1 per 1,000 population. The case search began with the training and orientation of 31 Ophthalmic Nurses in Tamale. Seven teams were formed and each team visited four communities per day. Two very experienced TT surgeons facilitated the identification of TT cases, pre-operative preparation for surgery, anaesthesia, surgery and postoperative management. In all 32,340 people were screened. Total of sixty-two (62) surgeries were done over the eight- day period

World Sight Day 2016

World Sight Day (WSD) is a global event, which falls on the second Thursday in October every year. The Day is set aside by World Health Organization (WHO) and International Agency for Prevention of Blindness (IAPB) as an annual day of awareness creation where the world's attention is focused on Global blindness and visual impairment as a major international public health issues. The rolling theme for World Sight Day since 2014 is UNIVERSAL EYE HEALTH. This theme is set to continue till 2019 where the goal of Global Action Plan 2014 to 2019 will be achieved. The call to action for WSD 2016 year was #STRONGER TOGETHER.

Universal Eye Health is defined as "ensuring that all people have access to needed promotive, preventive, curative and rehabilitative eye health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services". This means, all people should enjoy access to the best quality health care without risk of impoverishment.

#Stronger together emphasizes the need for partnerships, collaboration and teamwork. IAPB urges countries to focus on all the stakeholders who are important for successful delivery of eye care - eye care professionals, health managers, donor partners, media, family, patients, disability groups, etc. so that together we can reduce the burden of blindness and visual impairment in Ghana. World Sight Day 2016 fell on 13th October and Ghana joined the international community to mark the Day. NECU organized press training for selected media houses to highlight eye health issues in the country. This event stimulated discussions on eye health on some radio and TV stations to educate the general public on prevention of avoidable blindness.

School Health Integrated Programming (SHIP) at Denkyembour District, Eastern Region

The School Health Integrated Programming (SHIP) is a programme that uses the school health platform to offer school health services in an integrated manner. The programme is being implemented in Ghana, Senegal, Ethiopia and Cambodia by the Partnership for Child

Development (PCD) and Sight savers (SS) in collaboration with the respective governments. The programme started with a scoping mission and preparations meeting to discuss the extent and components of the programme and how they align with existing government programmes. A national capacity building and planning workshop followed this. The programme took off on the 29th September 2016 through to October. It involved eye screening, ear screening, intellectual deficiency screening and de-worming exercise. All pupils in all the sixty (60) public basic schools in the Denkyembour District were involved. The Eye Care Unit's contribution to the project was in the eye screening exercise and involved,

1) Training of Trainers,
2) Visiting the schools to examine pupils that had been identified with eye conditions by the teachers,
3) Examining those referred to the base clinic at Akwatia, the district capital, and also
4) Dispensing of medication and spectacles to pupils who needed them etc.

Pupils were encouraged to come to the base clinic with their parents and their National Health Insurance card if any. A total of 262 pupils were seen at the base clinic in Akwatia. Various eye conditions were seen during the exercise; among them were Allergy (127 cases), Amblyopia, Cataract and Glaucoma Suspect. Others were, Esotropia, Retinal Scar and Low vision (1 case each). The rest were, Refractive Error (53 cases), and Specifically Vernal Conjunctivitis (3 cases). As at 28th December 2016 seventy-three (73) pupils had been attended to at the Optical dispensing section of the eye clinic. Out of these, twenty (20) pupils had their spectacles dispensed to them whilst the others are in various stages of completion.

This exercise strengthened ECU's collaboration with other stakeholders in the district, most importantly the Education Unit. It is hoped that this newfound relationship will be sustained and incorporated as a working model for other districts to emulate.

Ghana Blindness and Visual Impairment Study (BVIS) Report Meetings

The core group made up of officers from Eye Care Unit, GHS, Ghana Statistical Service (GSS) and Operation Eye Sight Universal (OEU) met four (4) times during the year. The meetings helped to complete a preliminary report, which has been submitted to the Ghana College of Physicians and Surgeon (GCP&S) for review. The study is a partnership between GHS, GCP&S, GSS and the private initiatives- Standard Chartered Bank, "Seeing is Believing" Phase V, Swiss Red Cross and OEU.

Preliminary Report of the Ghana Blindness and Visual Impairment Study

From the preliminary report of the 2015 Ghana Blindness and Visual Impairment Study (GBVIS), the prevalence of blindness in Ghana is 0.74% (over 190,000 are blind in Ghana). The prevalence of blindness amongst those aged 50 years and above is 4.0% and increases with

increasing age up to 19.12% in those aged 80 years and above. Males were more affected than females. Four out of five blind Ghanaians are blind from causes, which could have been avoided such as cataract. The major causes of blindness are untreated cataract 54.8%, Glaucoma 19.4%, Posterior segment disease including diabetic retinopathy 12.9% and corneal related causes 11.2%. For the people who were blind from cataract, 43% were unaware that cataract could be treated by surgery. The major causes of low vision are Refractive Error 44.4%. Sadly, of the people with refractive error who need to wear spectacles in Ghana, only 5% were using their glasses. About 95% of Ghanaians who must use spectacles to correct their vision do not use spectacles.

Low Vision Service

The annual low vision eye screening at the two schools for the blind the country (Akropong and Wa) resumed this year with support from Ghana Health Service (GHS). This exercise had not been conducted since the cessation of support from Christoffel Blindenmission (CBM), a German international NGO in 2009. The objective of the screening in the schools for the blind to identify children with treatable cataract and low vision needs and support them. A team led by the National Low Vision Manager at the Eye Care Unit, conducted the exercise in Wa School for the Blind between 16th and 20th November 2016. A total of 205 students were seen. Out of this number 24 had low vision, 181 were found to be blind, but 25 students were absent at the time of the exercise.

Management plan

A total of 38 students were identified and referred. They were placed in two groups. Group one were those who needed optical low vision devices like magnifiers, spectacle magnifiers and telescopes. Thirteen students were identified and referred to a private optical centre for further assessment for low vision devices. The optometrist in charge of the facility expressed interest in giving them the devices for free. The students who can see well with the devices will be advised and encouraged to join the sighted learners in the regular stream where there are Special Education Resource teachers.

Group two comprised twenty-five (25) students who had cataract. They were referred to see an Ophthalmologist. The referral was made open because parents should be informed so that they can send their ward to any Ophthalmologist nearer them since students come from different locations in the country. After the cataract surgery, those who will have normal vision will be advised and encouraged to go back to the normal stream to continue with their education.

8.8 Clinical Laboratory

Training twenty (20) staff followed the assessment from the selected facilities on how to use these devices. Twenty (20) devices and Information and Communication Technology (ICT) were distributed among the facilities for use. Assessing Diagnostic Capacity and Laboratory Services

in Ghana. By collective effort of US CDC, PEPFAR, SCMS, USAID and CLU-ICD-GHS, an assessment of diagnostic services, sample referral network and laboratory supply chain capacity was carried out in eighty-nine (89) health facilities.

Findings – capacity to conduct basic and essential tests for diagnosing and monitoring diseases of public health concern and importance exist; Internal Quality Control System and External Quality Assessment (EQA) and Quality Assurance (QA) also exist. However, laboratory service financing is inadequate; and no clinical and public health laboratories within MoH/GHS are externally accredited. LAB OTSS 12 in malaria diagnostics (microscopy and Rapid Diagnostic Testing) was carried out in 211 selected health facilities across the country in 2016. Malaria Diagnostics Refresher Training (MDRT) was carried out in all the ten (10) regions of Ghana. Overall, more than 600 Medical Lab Scientists in both public and private health facilities were trained on malaria parasite identification and counting. Five laboratory staff (Microscopists) from National (ICD and NMCP), two regional hospitals (Greater Accra, and Eastern regions, and Methodist Hospital, Wenchi in the Brong-Ahafo region) went for External Competency Assessment in Malaria Microscopy (ECAMM) in Kenya. After going through the assessment two persons were awarded with World Health Organisation level 1microscopist, two other level 2 and the other level 3 microscopists.

8.9 Physiotherapy

Six (6) regional physiotherapy departments are now using OPD client's appointment system, which has help to reduce outpatients waiting time.
The physiotherapy unit collaborated with Church of Jesus Christ of Latter-day Saints to distribute (200) two hundred wheelchairs to persons with disability in Central, Eastern, Volta, Greater Accra and Brong Ahafo regions as part of ICD/GHS cooperate social responsibility

8.10 Pharmaceutical Services

Standard Treatment Guidelines and Essential Medicines List Review
Stakeholder sensitization meetings had been carried out in various selected regions. In addition to clinical and economic evaluation to rationalize the listing of medicines, evidence summary mechanisms had been applied to listed medicines. Report On The Review Of The Standards For Pharmaceutical Care For Public Health Facilities 2002 And Its Standard Operative Procedure Held At The Miklin Hotel –4-11-2016, Accra.

The draft document, combining the Standards of Pharmaceutical Care (SPC) and the Standard Operative Procedure (SOP), now called the Standards and Practice Guidelines for Pharmaceutical Care is a policy document defining the roles, activities and responsibilities in providing standardized pharmaceutical care in all healthcare institutions in Ghana. It provides

guidelines on various aspects of pharmaceutical services and job descriptions for the various grades and cadres of pharmacy personnel.

Stakeholders of the Pharmaceutical sector, comprising of the representatives of the Ghana College of Postgraduate Pharmacist, Directors of Pharmacies of the four teaching hospitals, Regional Deputy Directors of Pharmaceutical Services, National Drug Information Service, the Food and Drug Authority, WHO, Pharmacy Council, Psychiatric hospitals, Community Practice Pharmacists Association, the Chief Director of the Ministry of Health, TAMD met with the objective to get the contribution of participants and to make inputs into the document based on observations and experiences in the various regions being conscious that all inputs align with current trends and international best practices in line with the MOH objectives and goals.

Operational Research Into The Revolving Drug Fund State Of Ghana's Revolving Drug Fund
Operational research conducted in all the regions concluded that the Revolving Drug Fund of most facilities was steadily increasing with the exception a few facilities which were experiencing dwindling net-worth. Metropolitan Hospital was actually experiencing negative net-worth. Data on net-worth of Teaching Hospitals was scanty.

Development of the Focused Medicines list
A two-day stakeholder meeting was organized at the Forest Hotel, Dodowa, attended by all the Regional Pharmacists, RMS managers, representatives of the Procurement and Supply Directorate of the Ministry of Health and the office of the Chief Pharmacist. Work was done on the development of the Focused Medicines list for procurement under the Supply Chain master plan. Regional Deputy Directors of pharmaceutical Services and Managers of RMS sent list of medicines to be purchased under focused Medicines List. The list was discussed and developed into reference master list.

Rational Use of Medicines
The WHO core indicators were adopted for use in the country, which includes average number of drugs per encounter, % of generic prescribing, the percentage of encounters with antibiotic prescribed and others as shown in the table below:

Table 38: Rationale use of Medicines indicators for 2016

	Average number of medicines per encounter	Percentage of encounters with an antibiotic prescribed	Percentage of encounters with an injection prescribed	Percentage of medicines prescribed by generic name	Percentage of medicines prescribed from an EML
Ghana	2.7	44.6	13.9	82.4	88.9
Ashanti	3.4	54.2	26.9	67.3	82.8
Brong	0.87	22	6	100.3	107.7

Ahafo					
Central	3.2	70.8	19.1	69.8	86.2
Eastern	2.8	47.6	15.4	75.7	97.9
Greater Accra	2.8	47.5	13.1	86.7	90.8
Northern	3.8	55	9	92.9	99.2
Upper East	2.6	72.5	15.7	91.1	110.1
Upper West	3.3	62	24	72.1	57.7
Volta	3.2	35.6	9.5	78	76.1
Western	3.1	60.3	17.5	92.4	92.6

8.11 Clinical Services

(a) Emergency trainings

All regional hospitals have functional emergency terms that have been trained. 60% of district hospitals were also trained. Seven regions (Greater Accra, Northern, Volta, Brong-Ahafo, Eastern, Upper East and Upper West regions) trained regional teams in emergency response. Eastern Region trained 26 district hospitals. Emergency Triage and Assessment AND Treatment (ETAT) training is still on-going in the northern region. In collaboration with ICD, sidHARTe project has trained 50 staff in emergency response in the Upper East region. Two regions have planned quarterly drills for emergency preparedness in the regional hospitals (Eastern and Western regions.)

(b) Specialist Outreach

Ranges of services for the outreach are ophthalmology, obstetrics and gynaecology, psychiatry, eye care and oral health services. Outreach services are being decentralized to reduce cost. Clinical supervisors involving a mix of specialist have been appointed to supervise and support these facilities. Medical Officers were appointed to support selected health centres. The priorities were hospitals without specialist. Example Upper West regions in obstetrics and Gynaecology.

CHAPTER NINE

9 COMMUNITY-BASED HEALTH PLANNNG AND SERVICES

The Ministry of Health launched the new CHPS policy and did some dissemination at the National level and some Regional capitals. The Ghana Health Service during the year under review developed the implementation guideline to ensure uniformity of CHPS roll out in the country. The CHPS policy was disseminated in all the regions. Functional CHPS zones increased from 3951 in 2015 to 4,400 in 2016. Ashanti Region and Western recorded the highest increase in functional CHPS for the year under review with Greater Accra recording the least increase.

Figure 72: Trend of functional CHPS in Ghana from 2012 – 2016

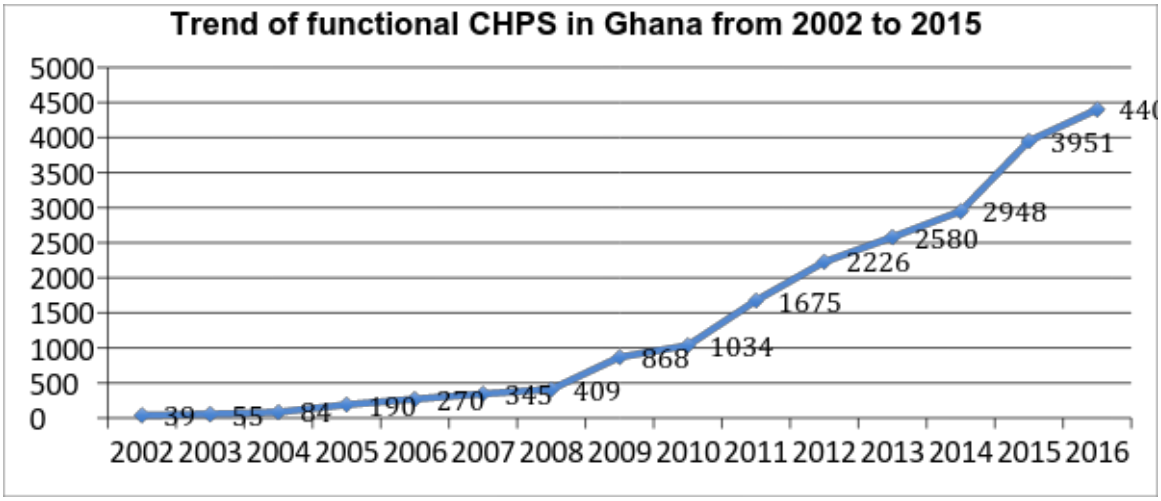


Table 39: CHPS progress by Regions 2016

Region	# Districts	# Sub-districts	# Electoral Areas	# Demarcated CHPS Zones	# Functioning CHPS Zones	# CHPS Zones With Cpds	% Functional CHPS Zones
AR	30	148	1010	1108	1008	145	91.0
BAR	27	131	786	765	558	185	72.9
CR	20	56	691	519	255	225	49.1
ER	26	170	849	883	628	338	71.1
GAR	16	62	364	941	276	49	29.3
NR	26	130	705	430	291	160	67.7
UER	13	91	451	334	281	196	84.1
UWR	11	59	293	283	218	210	77.0
VR	25	116	638	649	408	199	62.9
WR	22	89	664	636	477	310	75.0

Total	216	1,052	6,451	6,548	4,400	2,017	67.2

CHPS contribution to the overall service delivery continues to improve. In 2016, CHPS contributed 8.5% to the total OPD compared to 8.1% in 2015. Upper East had 16% of their OPD coming from CHPS. CHPS contributed 38.9% to Penta 3 immunization coverage in 2016 compared to 36% in 2015. In Eastern Region CHPS contributed as much 59.7% to their Penta 3 coverage. CHPS contribution to total family planning acceptors was over 25% with the highest of 47.9 % recorded by ER and least of 9.7% by GAR.

Table 40: CHPS contribution to selected service delivery 2016

REGION	OPD	ANC	FP	DELIVERY	PENTA 3	PNC <=48HOURS
Ashanti	1.6	3.9	17.9	1.3	28.3	1.7
Brong Ahafo	11.2	6.6	26.5	2.4	42.3	6.3
Central	9.7	10.8	30.4	3.8	29.9	9.5
Eastern	10.4	20.8	47.9	5.8	59.7	17.6
Greater Accra	0.9	2.9	9.8	0.7	23.6	1.5
Northern	12.1	23.9	27.3	8.6	42.2	19.8
Upper East	16.0	27.4	40.0	11.8	48.1	13.8
Upper West	15.4	34.7	38.5	8.1	47.2	12.6
Volta	8.6	13.6	38.1	4.0	44.3	14.4
Western	11.5	15.2	40.5	6.6	52.8	12.0
GHANA	8.5	12.6	25.9	4.2	38.9	9.9

CHAPTER TEN

10 CHALLENGES AND RECOMMENDED MITIGATIVE

Challenges	Way Forward
Objective One	
Slow roll out of CHPS	Train Regions and Districts on implementation guidelines for the new CHPS policy.
	Provide operational funds from MCHNP, DFID and other funds for CHPS implementation in the CHPS zones.
	Advocate for District Assemblies to invest in providing infrastructure for CHPS
Inequity in the distribution of some essential f	Implement staffing norms
Objective Two	
No GOG funding for goods and services **Inflexible funding due to earmarked donor funds**	Advocate for more flexible funding. Promote integrated planning and implementation.
Weak financial management at the sub-district level	Provide Financial Management Training at all levels especially for the sub-district level
Delayed reimbursement of claims submitted to NHIA by health Facilities	Advocate for 50% percentage front-loading of claims submitted before vetting and approval processes are done.
	Capitation roll-out
No GOG funding for goods and services **Inflexible funding due to earmarked donor funds**	Advocate for more flexible funding. Promote integrated planning and implementation.
Weak financial management at the sub-district level	Provide Financial Management Training at all levels especially for the sub-district level
Delayed reimbursement of claims submitted to NHIA by health Facilities	Advocate for 50% percentage front-loading of claims submitted before vetting and approval processes are done.
Objective Three	
Inequitable distribution of health staff especially midwives and doctors. **Inadequate support service staff**	Continue the implementation of the staffing norm to ensure equitable distribution of health staff. Advocate for the replacement of retired staff and recruitment of more support staff.
Inadequate • **Logistics, medicines and supplies** • **Equipment, transport**	Explore the renting of medical equipment to support service delivery. Implement schedule delivery of medical commodities. Advocate for the provision of vehicles for districts
Inequitable distribution of health staff especially midwives and doctors. **Inadequate support service staff**	Continue the implementation of the staffing norm to ensure equitable distribution of health staff. Advocate for the replacement of retired staff and recruitment of more support staff.
Inadequate guidance on handling of medical records	Advocate for the MOH to finalize and sign off the medical records policy, print and disseminate for use

Challenges	Way Forward
Incomplete data collection and reporting on logistic (LMIS) continued to be a setback.	Scale up implementation of LMIS Ensure availability of affordable quality health commodities
Unpaid Outstanding Certificates & Claims due Contractors & Consultants **Uncompleted / Suspended Health Projects**	Advocate for payment of outstanding certificates Prioritize capital investment budget to complete projects
Inadequate guidance on handling of medical records	Advocate for the MOH to finalize and sign off the medical records policy, print and disseminate for use
Incomplete data collection and reporting on logistic (LMIS) continued to be a setback.	Scale up implementation of LMIS Ensure availability of affordable quality health commodities
Objective Four	
Inadequate numbers of dieticians to manage clients with diet related diseases **Lack of some Key Specialties Dermatologist, Emergency Physicians, E.N.T, Ophthalmologist etc. in Regional Hospitals**	Collaborate with HRD for financial clearance for employment. Collaborate through the ODG with the Ghana College. Attract more specialists from teaching Hospitals into the Service.
Frequent shortage of psychotropic medicines leading to non-adherence and relapse	Headquarters to collaborate with MHA and MoH to facilitate the procurement process.
Poor integration of mental health into primary health care	Support the deployment of community mental health nurses in districts
Objective Five	
Dwindling support for EPI	Advocate for dedicated (ring fenced) government funding for vaccine procurement
Inadequate EMONC equipment	Distribute procured equipment to all facilities and assess gaps left
Inadequate skills in EMONC	Identify and trained doctors and midwives in EMONC
Increase in maternal deaths, especially in Teaching Hospitals	Improve peripheral facilities capacities to manage obstetric emergencies
	Mentorship of district hospitals by Teaching Hospitals consultants
	Support the improvement and expansion of facilities in the Teaching Hospitals
Objective Six	
Late detection of outbreaks at some districts	Training on IDSR / RRT
Lack of secured funds for PHEs	Advocacy; More Proposals
Low detection rate of selected priority diseases	Work with regions - case search
Low EID – EMTCT	Work with regions and FHD to integrate the service to improve EID
Increasing MDR	Improve TB Case Management and TB Case management
High numbers of children left out of EPI in urban areas.	Implement Reaching Every Child (REC) Strategy
GAVI Graduation	Advocacy for GOG take over
Reduced Global Fund support	Look for alternate funding source
Non-adherence to counterpart funding arrangements	Advocacy
Poor disease surveillance and response at the district level	IDSR outbreak investigations and response training
Management of Non-communicable diseases not prioritized.	Implement the non-communicable diseases policy. Intensify BCC on NCDs in our hospitals and provide preventive services (advise on diet and exercise Improve case management of NCDs.

ANNEX

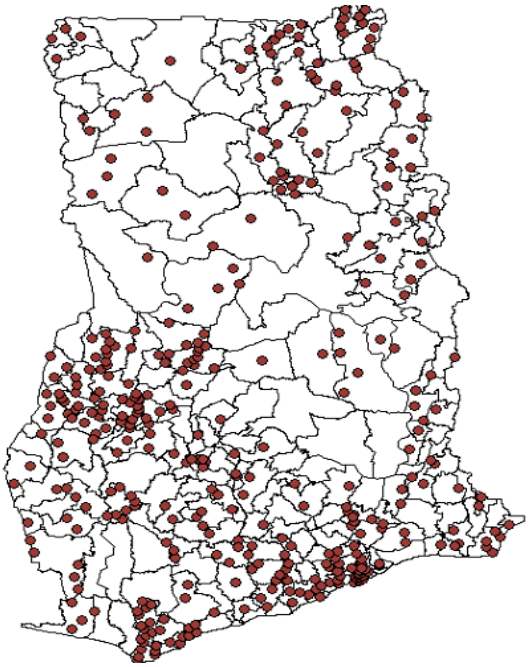
A1 Performance of Regional Internal Audit Units

Region	Total Marks Scored				Total Marks 12/12	Rank
	Annual plan (3/3)	Functional ARIC (3/3)	Submission of report (3/3)	Audit coverage (3/3)		
Upper East	3	2.5	3	2.5	11	1st
Northern	3	1.5	3	2.5	10	2nd
Western	3	2.5	1.5	2.5	9.5	3rd
Eastern	3	1	3	2	9	4th
Volta	3	1.5	1.5	2.5	8.5	5th
Ashanti	3	2	1.5	2	8.5	5th
Upper West	3	2	1.5	2	8.5	5th
Brong Ahafo	3	2	1.5	2	8.5	5th
Greater Accra	3	0.5	1.5	2.5	7.5	6th
Central	3	2	1.5	1	7.5	6th

A2 AFP Surveillance Quality Standards

Completeness of reporting
At least **80%** of expected routine (weekly or monthly) AFP surveillance reports should be received **on time**, including **zero reports** where no AFP cases are seen. The distribution of reporting sites should be representative of the **geography** and **demography** of the country
Sensitivity of surveillance
At least **one** case of non-polio AFP should be detected annually per **100 000** population aged less than 15 years. In endemic regions, to ensure even higher sensitivity, this rate should be **two** per 100 000.
Completeness of case investigation
• All AFP cases should have a full clinical and virological investigation with at least 80% of AFP cases having 'adequate' stool specimens collected • 'Adequate' stool specimens are two stool specimens of sufficient quantity for laboratory analysis, collected at least 24 hours apart, within 14 days after the onset of paralysis, and arriving in the laboratory by reverse cold chain and with proper documentation

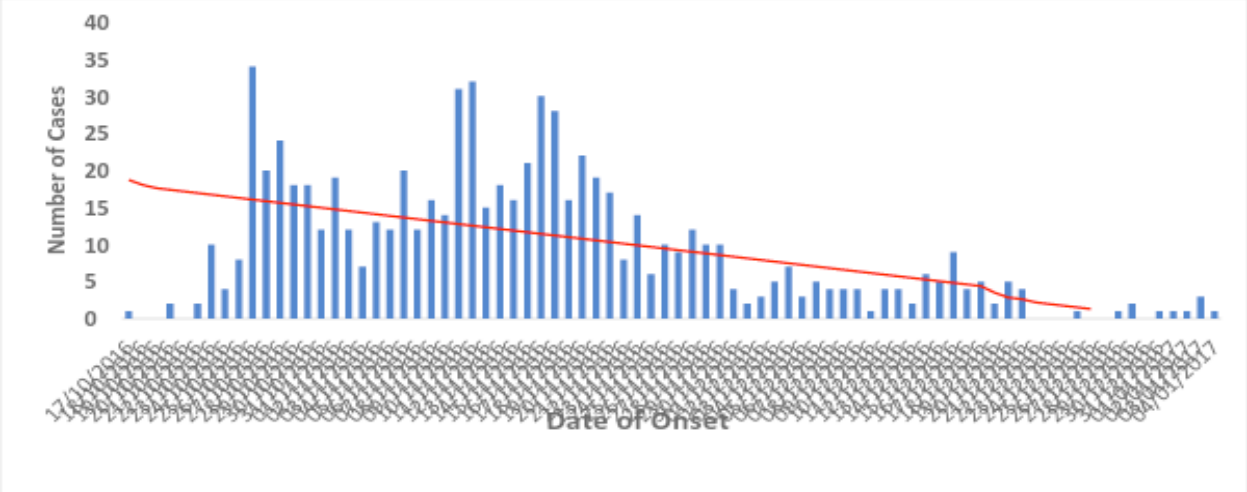
A3 Distribution of AFP Cases by District, 2016



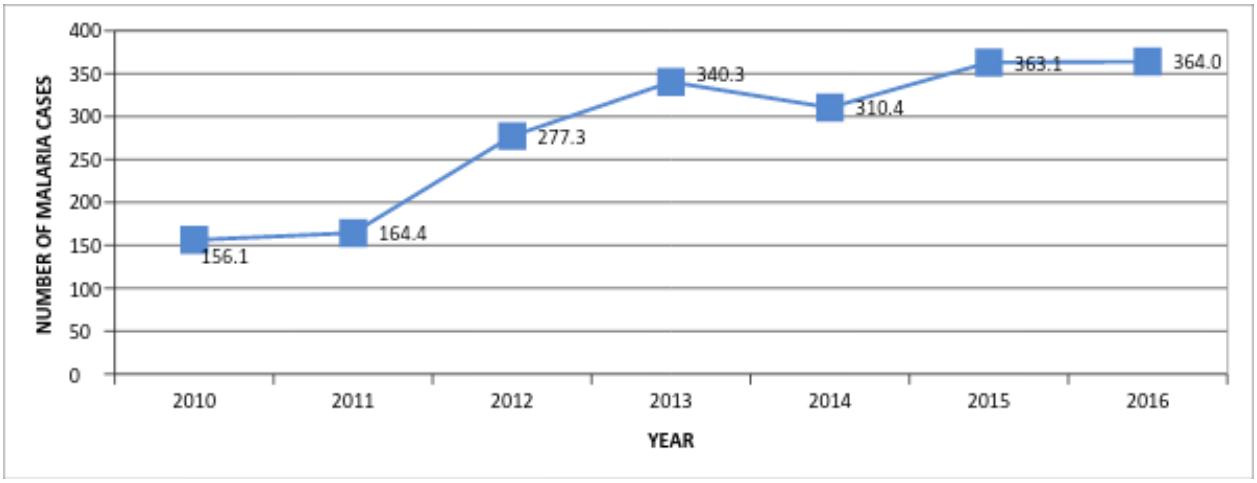
Expected Performance Indicators /Targets (Annually)

- 80% districts to report at least one suspected case of measles in a year
- 80% of reported cases with blood specimen after mass campaign,
- 80% of blood specimens arrive at PHRL within 7 days of collection
- 100% outbreaks investigated and reported with line-listing
- Less than 10% suspected cases investigated, confirmed IgM positive after SIA

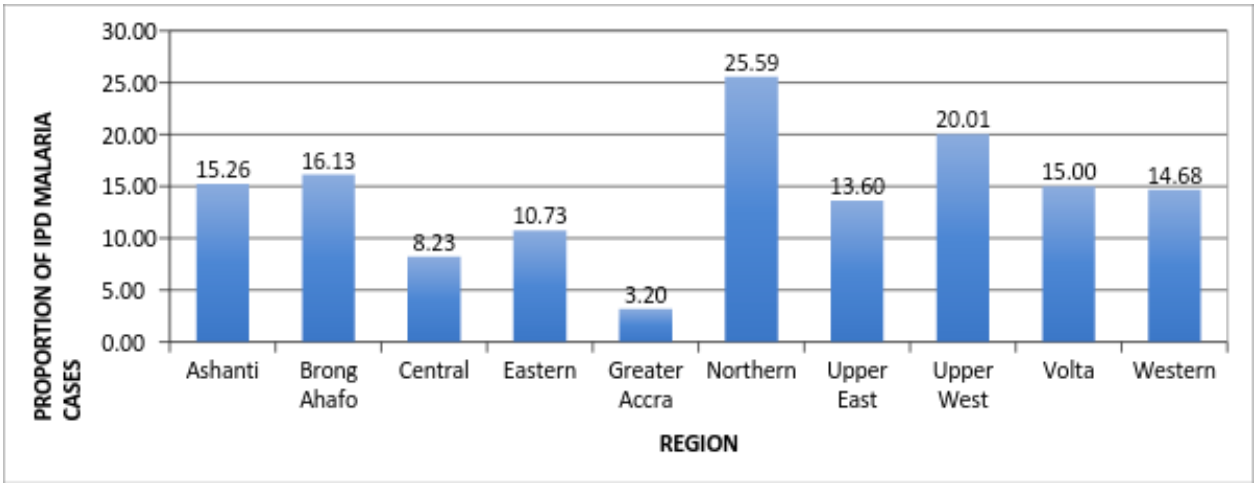
A4 Epicurve of Cholera Cases by date of onset, Central Region, Oct-Dec 2016



A5 Suspected Malaria Cases per 1000 Population (2010-2016)

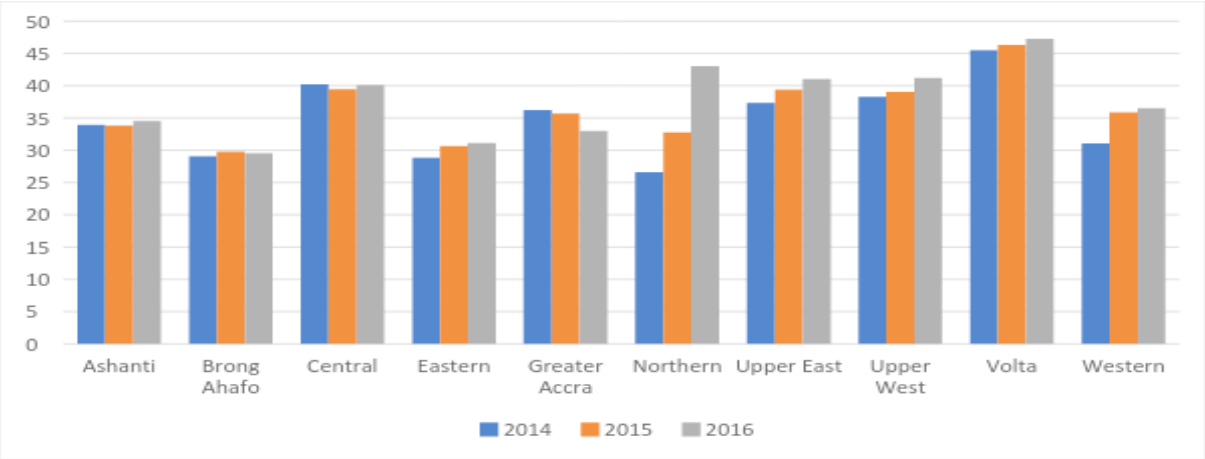


A6 In-patient Malaria Cases per 1000 Population by Region 2016

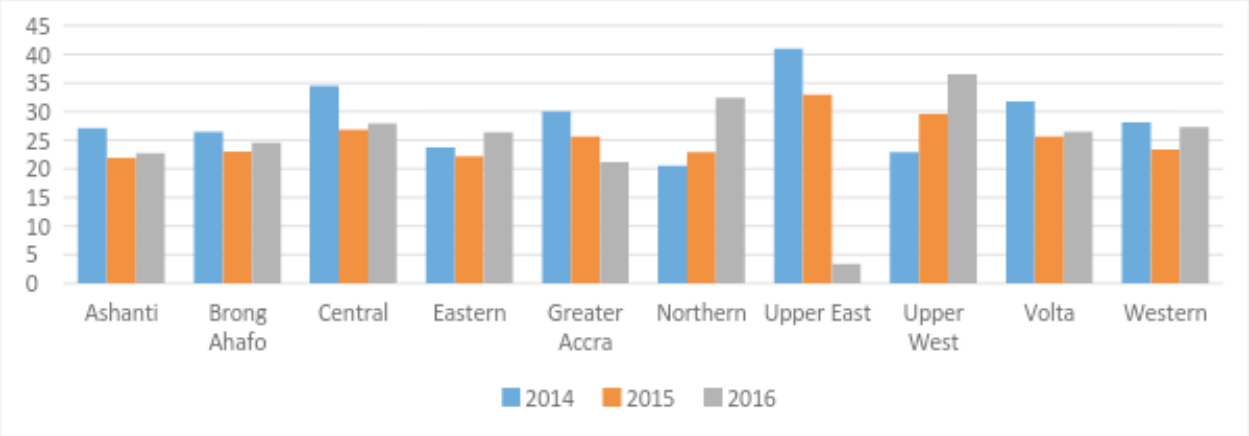


A7 Malaria Deaths per 100,000 Population, 2011-2016

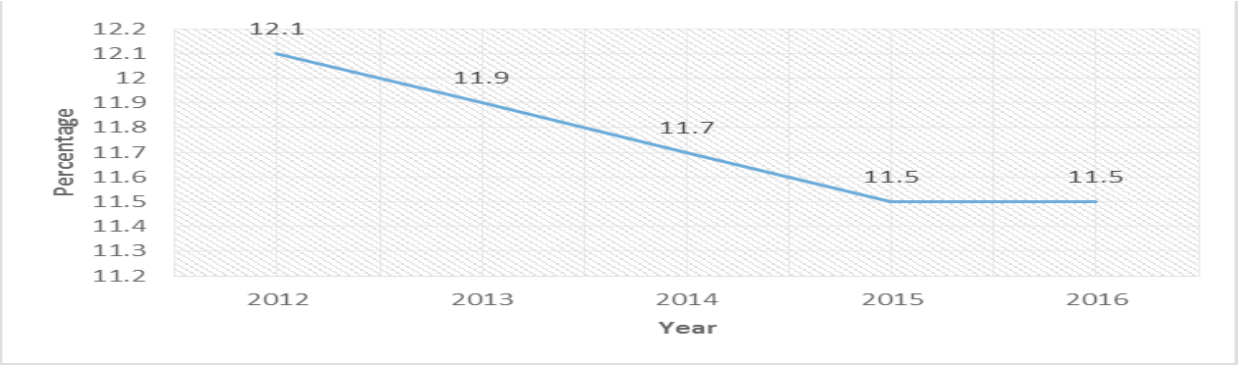
A8 Anaemia among ANC Registrants by Region 2014 – 2016



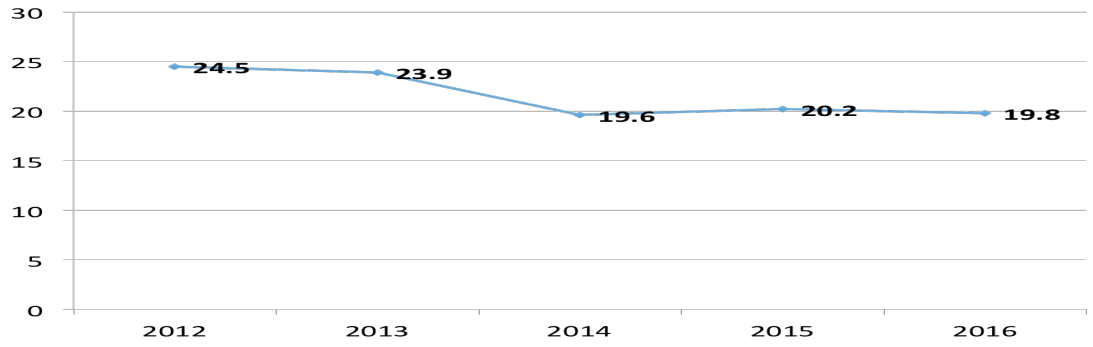
A9 Anaemia among Pregnant women at 36 weeks by region, 2012-2016



A10 Percentage of Adolescent pregnancies (10-19 years) with skilled attendant births 2012-2016



A11 Institutional All-cause Mortality Rate Ghana, 2012 - 2016



A12 Top 10 causes of Admissions, 2015-2016

	2015		2016	
1	**Cyesis**	328443	**Malaria**	164845
2	**Encephalopathy**	111371	**Anaemia**	49391
3	**Arthritis**	79218	**Gastroenteritis**	38390
4	**Septicaemia**	78690	**Hypertension**	33154
5	**Jaundice**	67008	**Sepsis**	31147
6	**Bleeding**	46376	**Pneumonia**	27802
7	**Antepartum haemorrhage**	37006	**UTI**	21119
8	**Malaria**	22462	**RTI**	16180
9	**Wound**	15907	**Abortion**	14349
10	**Pneumothorax**	13917	**Septicaemia**	14226
	All other Diseases	358676	**All other Diseases**	667815

A13 Top ten causes of mortality among admitted patients, 2015 - 2016

	2015		2016	
1	**Pneumonia**	1084	**Cerebrovascular Accident**	1440
2	**Anaemia**	909	**Pneumonia**	1354
3	**HIV**	786	**Septicaemia shock**	2025
4	**Malaria**	604	**HIV**	1042
5	**Congestive Cardiac Failure**	585	**Anaemia**	933
6	**Sepsis**	558	**Congestive cardiac failure**	679
7	**Respiratory distress syndrome**	518	**Hypertension**	588
8	**Respiratory failure**	518	**Liver diseases**	573
9	**Liver diseases**	459	**Diabetes**	429
10	**Encephalopathy**	302	**Birth asphyxia**	405
	All other Diseases	8358	**All other Diseases**	7885

A 14 Sector Budget Support to the Health Sector

	FUND TYPE	OPENING BAL (01.01.16)	YTD INFLOWS	YTD OUTFLOWS	CLOSING BAL (31.12.2016)
1	MAF - DANIDA	(17,672.51)	5,275,000.00	5,275,805.61	(18,478.12)
2	MAF - EU	-	1,186,494.00	155,785.38	1,030,708.62
3	MCHNP - DFID	-	7,252,070.00	8,877,463.00	(1,625,393.00)
4	Health Fund Capital	349,462.69		116,093.43	233,369.26
5	GHS HQ Expenses (2014.2015)	(92,735.84)			(92,735.84)
6	End of Year 2014 activities.	(64,976.60)			(64,976.60)
7	End of Year 2015 activities.	(96,746.89)	15,000.00	9,425.86	(91,172.75)
	TOTAL	**77,330.85**	**13,728,564.00**	**14,434,573.28**	**(628,678.43)**

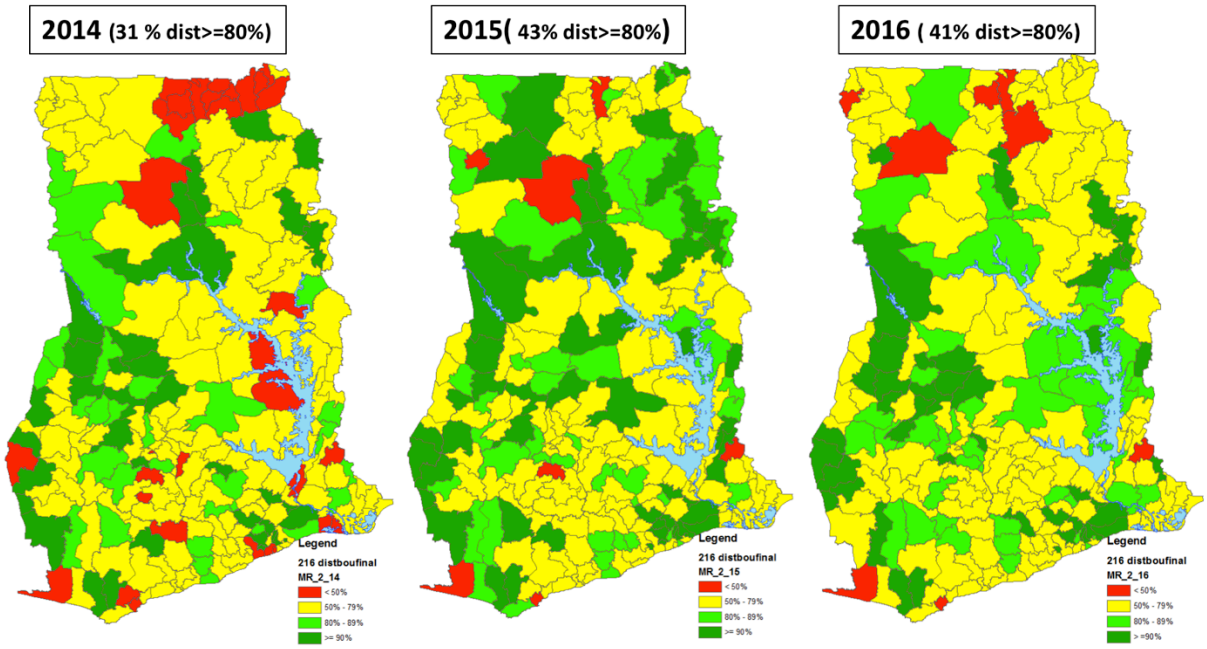
A15 Donor Support to the Health Sector

	FUND TYPE	OPENING BAL (01.01.16) (GHS)	YTD INFLOWS (GHS)	YTD OUTFLOWS	CLOSING BAL (31.12.2016)
1	GAVI HSS 2.1	2,874,938.86		1,388,502.78	1,486,436.08
2	GAVI HSS 2.2	-	13,037,963.84	1,440,954.00	11,597,009.84
3	WB / MCHNP	1,230,248.82	17,797,371.71	17,896,799.30	1,130,821.23
4	UNICEF	1,068,888.82	4,268,061.51	3,079,820.04	2,257,130.29
5	UNFPA	71,629.03	1,077,820.38	1,018,777.51	130,671.90
6	PATH	45,209.21	262,765.81	306,236.04	1,738.98
7	GAIN	220,537.51	-	-	220,537.51
8	GLOBAL FUND /LMIS	384,085.24	-	384,085.00	0.24
9	WAHO	33,743.98	483,743.24	300,185.00	217,302.22
10	JICA	-	231,400.00	231,400.00	-
11	PALLADIUM / GHARH	638,199.34	238,023.72	731,454.27	144,768.79
12	SIDHARTE	-	658,406.25	635,120.63	23,285.62)
13	ENI FOUNDATION	-	126,549.56	124,619.00	1,930.56
14	BLOOMBERG	-	627,936.90	334,000.68	293,936.22
15	WHO/E-tracker	-	236,330.00	109,870.00	126,460.00
16	OTHERS	713,780.90	224,800.00	453,886.96	484,693.94
	TOTAL	**7,281,261.71**	**39,271,172.92**	**28,435,711.21**	**18,116,723.42**

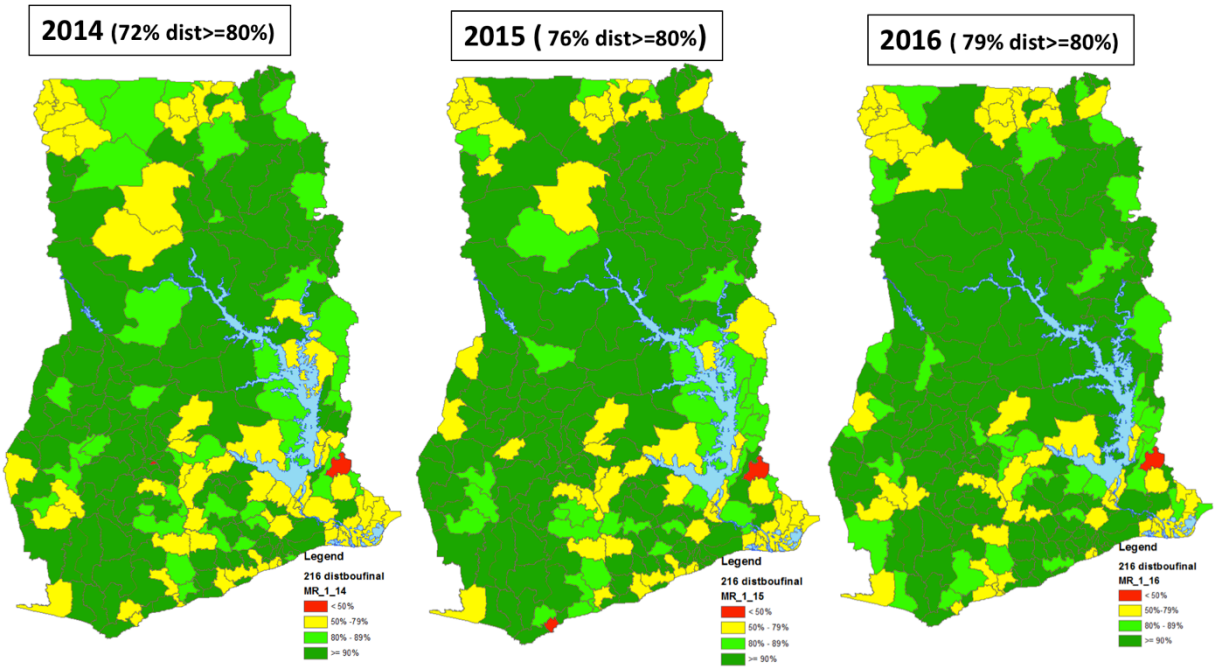
A16 TB TREATMENT ANALYSIS, 2010 - 2015

Treatment results of patients who were registered (in numbers)								
Year	**Tot NSP**	**Cured**	**Treatment Completed**	**Died**	**Failure**	**Default**	**Transfer Out**	**Evaluated**
2010	7656	5786	763	553	107	228	110	7547
2011	7623	5752	816	584	99	191	123	7565
2012	7097	5290	865	520	116	221	59	7071
2013	7301	5412	949	549	133	225	20	7288
2014	7676	5755	1003	540	148	224	19	7689
2015	7776	5809	959	586	134	205	23	7716

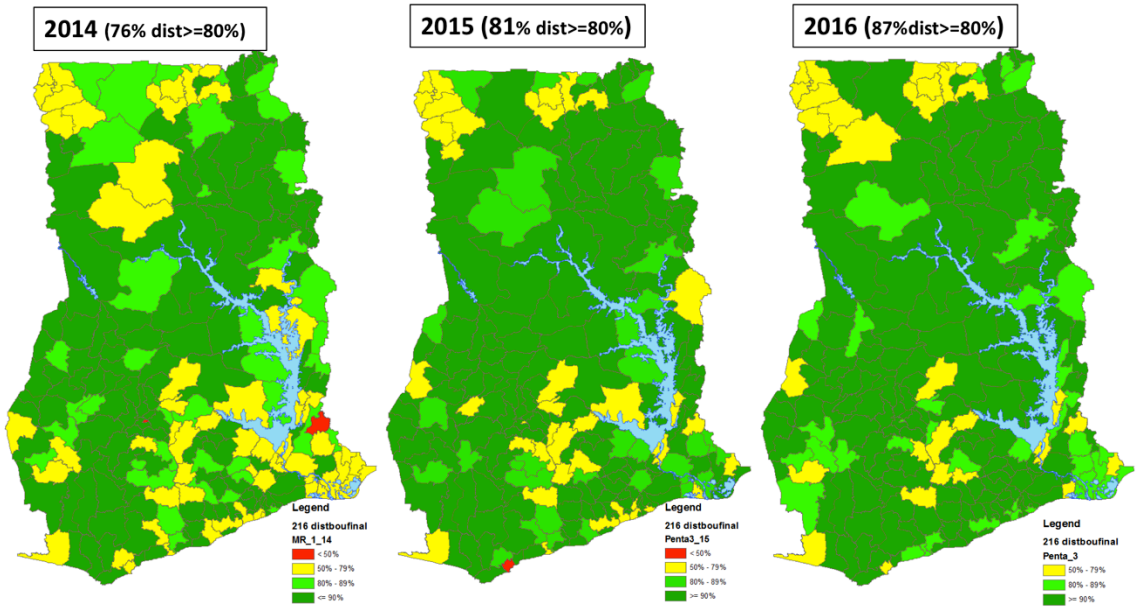
A17. Trends in Measles-Rubella 2 Coverage by district, 2014-2016



A18 Trends in Measles-Rubella 1 Coverage by district, 2014-2016



A19 Trends in Penta3 Coverage by district, 2014-2016



A20 Unimmunized children 2016 using Penta 3