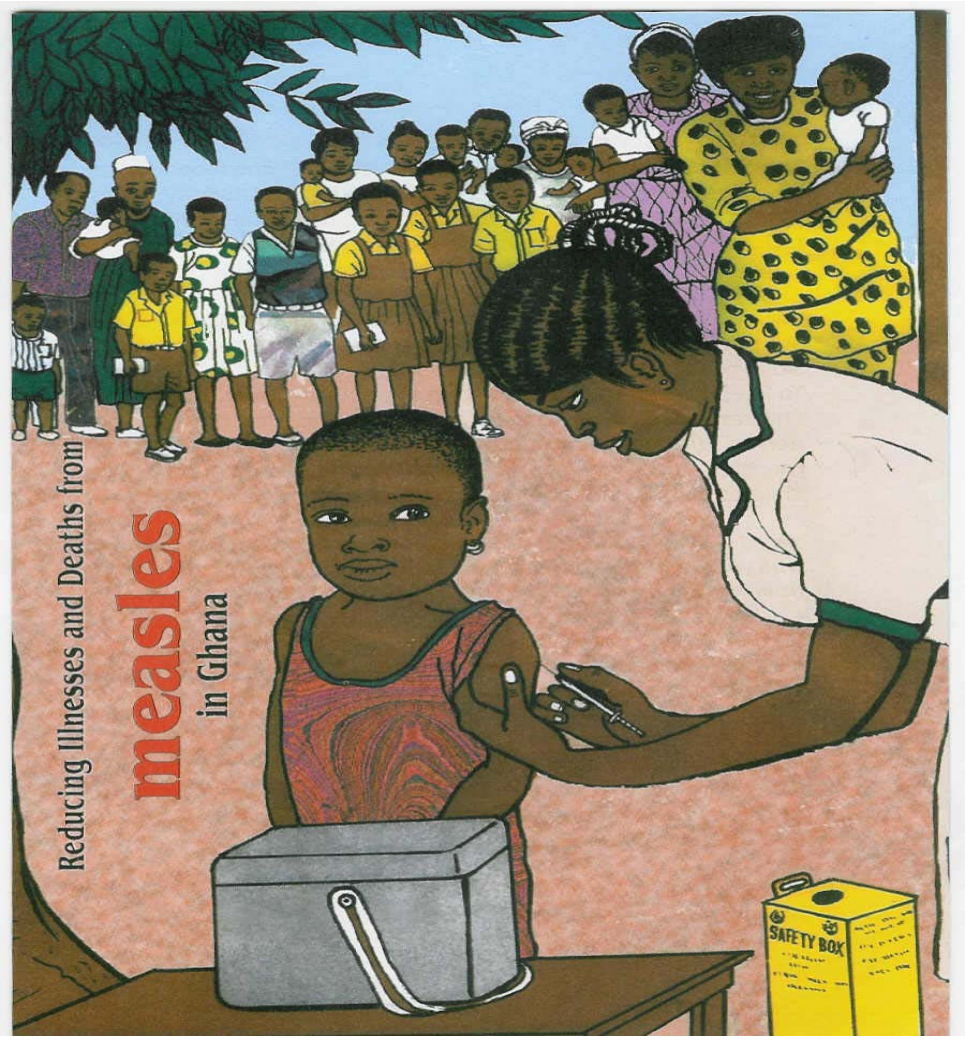
REPORT ON SUPPLEMENTAL MEASLES IMMUNIZATION ACTIVITIES IN GHANA



PROCESS, ACHIEVEMENTS, BEST PRACTICES AND CHALLENGES

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Abbreviations

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Abbreviations

ADS - Auto Disable Syringe

AEFI - Adverse Events following Immunization

AFRO - Africa Regional office

CDC -Centre for Disease Control

DHMT - District Health Management team

DPT - Diphtheria Pertussis Tetanus

EPI - Expanded Program on Immunization

GAVI - Global Alliance for Vaccine Initiative

GHS - Ghana Health Service

GES - Ghana Education Service

Hep B -Hepatitis B

Hib - Haemophillus influenzae type b

ICC - Inter agency coordination

ICP - Inter country Program

IEC - Information, Education and Communication

ITNs - Insecticide treated Nets

JICA -Japan International Cooperation Agency

MOH - Ministry of Health

MNT -Maternal Neonatal Tetanus

RHMT - Regional Health Management team

SIAs – Supplemental Immunization Activities

UNICEF - United Nations Children fund

UNF -United Nations Foundation

WHO - World Health Organization

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Acknowledgments

In acknowledging the successes of National measles campaign, special recognition must be noted of the commitment and dedication of the Ministry of Health and the EPI programme staff for the achievements made. The Ministry of Women and Children Affairs, the Ministry of Education and the Ghana Red Cross also played key roles in social mobilization, through the National, regional and district officers, community members, Head teachers and school children.

Human, financial, technical and material resources were provided by WHO, UNICEF, JICA, CDC, UNF, Red Cross.

We are specially indebted to all health workers who vaccinated 7,826,852 children, all the District health management teams for spearheading the Measles SIAs implementation and making sure that all vaccinators and volunteers had quality training and implemented a campaign of very good quality. The Regional Health Management Teams also played key roles in the areas of training, co-ordinating, monitoring and evaluation of district activities.

WHO Representative' Remarks

Dr. M. O. George,

WHO Representative, Ghana

The World Health Organization is very delighted to be associated with the success of the National Measles vaccination campaign, which was implemented from December 9th-15th 2002. This technical report indicates that out of 7,673,384 children under 15 years of age, 7,826,852 children were vaccinated against measles. The additional experience of integrating ITNs distribution together with Measles vaccination, in Lawra district was also remarkable, an indication that joint interventions could be done effectively.

Measles has been a major vaccine preventable disease with yearly reported cases of 15,000 to 20,000 in Ghana. The success of the campaign is significant as a large number of children are now protected. This is expected to lead towards the achievement of the global goal of reducing measles related deaths by half by 2005.

I would like to express my appreciation to the efforts of the regional and district teams, volunteers in the community and health workers at all levels for the high-level commitment, dedication and hard work, which were observed from the planning to implementation stages of the campaign.

I would also like to recognize the support from our partners, UNICEF, CDC, UNF, Red Cross, JICA, the Ghana Education Services and the District Assemblies who worked closely with WHO under the Measles partnership, to provide the required funds and logistics.

I want to affirm to our partners and all stakeholders that WHO is committed to support Government in its effort to improve immunization services through the Expanded Program on Immunization.

Executive Summary

Measles has been a major cause of morbidity and mortality among children in Ghana. despite an increase in measles vaccination coverage from 24% in 1980 to 84% in 2000. It ranked 2nd to malaria in terms of burden of disease in the 1977 health assessment, accounting for 7.3% of the healthy days of life lost through illness, disability and death. Between 1974-1975, nearly one death in five among children aged 1 month to 5 years in Komfo Anokye Teaching Hospital in Kumasi was associated with measles. A major epidemic occurred in 1985 resulting into 64,557 reported cases. A retrospective review of measles morbidity in three hospitals in Central Region during 1996-2000 indicated 17% of measles cases occurred in children <1 year, 49% in children 1-4 and 34% in children above 5 years. The rise in routine measles immunization coverage in recent times has led to a decline in measles cases in the country

Ghana developed a five-year rolling plan of accelerated control of measles in accordance with the WHO/AFRO EPI 5-year strategic plan (2001-2005), with a focus on reducing measles mortality to near zero. The plan included:

- sustaining increases in the first dose coverage at 9 months to 90%,
- a mass vaccination campaign targeting all children 9 months to 14 years,
- introduction of the case based measles surveillance with laboratory confirmation,
- improved cases management with administration of vitamin A, and
- integration into Vitamin 'A' into routine immunization.

The Ghana Health service started the implementation of the accelerated measles control in December 2001 in Central Region as phase I and used the lessons learnt to scale it up to all the nine remaining Regions in Phase II during December 2002. This technical report aims to summarize the process, achievements, challenges and the way forward.

High level advocacy to reach all children were done using the theme "say no to measles", " let's fight measles". The Minister for Women and Children Affairs represented the President of Ghana, and was joined by the Minister for Health and partners at the national launching.

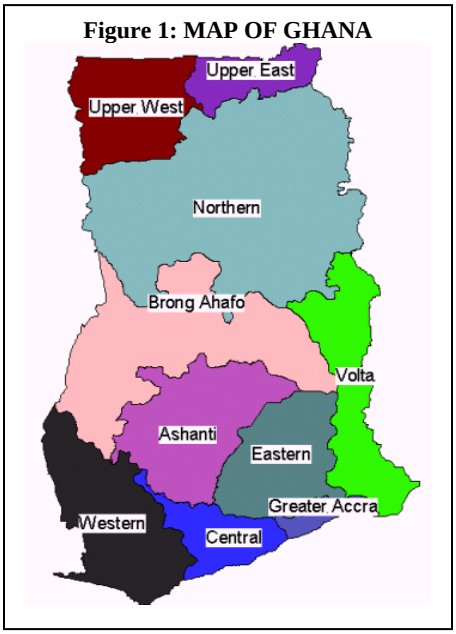
The target population of 7,673,384 included all children aged from 9 months to under 15 years of age. The number of children reached during the December 2002 SIAs in the nine regions was 7,840,156.. In addition to the measles vaccination, ITNs were distributed to caregivers of children under 5 in Lawra district of Upper West region.

CHAPTER 1 INTRODUCTION

1.1 General profile of Ghana

Ghana is located in the West Coast of Africa, bordered in the West by La Cote d'Ivoire, East by Togo, in the North by Burkina Faso and the south by the Atlantic Ocean. The country has a surface area of 200 square km. Ghana has ten administrative regions as shown on the map (figure1), 110 districts and 800 sub-districts.

Figure 1: MAP OF GHANA



The total projected population (2004) of the country, based on the growth rate of 2.6% from the 2000 national population and housing census is 21,079,986. Before the 2000 census, Ghana was using 4% of 1984 projected population as the <1 year target for immunization services. However, the 2000 census suggested that the <1 year target is 2.8%. This has resulted in very high coverage (over 100%) of routine services in more than 90% of the districts in the country over the past years, even though reports from the districts indicate that the expected <1 year target is higher than 2.8%. Because of the inconsistencies in immunization coverage as result of the 2.8% target suggested by the 2000 census, the ICC has advised the national EPI to continue with the use of 4% as the <1 year target until the denominator issue which is still under review is resolved.

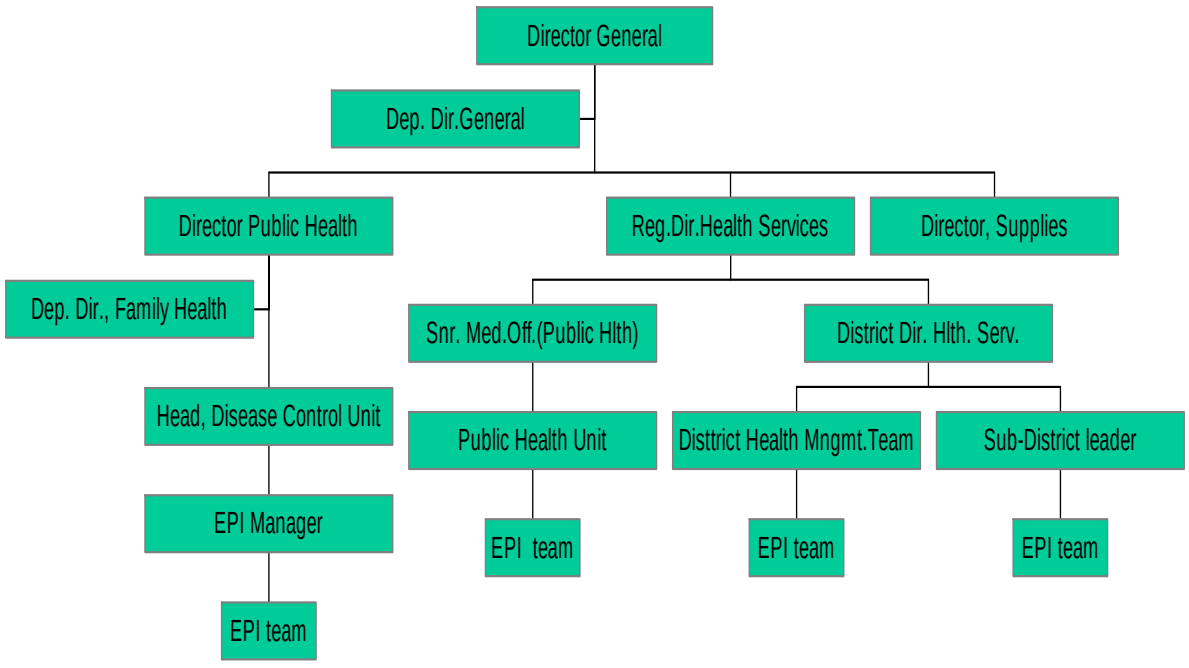
Under the Health Sector Reform Programme, new measures have been instituted to promote decentralization and standardization of levels of health care. The Central Ministry of Health (MoH) is responsible for policy formulation, standard setting, supervision of research and tertiary referral centres as well as external co-operation in the field of health. The Ghana Health Service has been charged to provide decentralized health services through Regional (10) and district (110) health teams. Ghana has more than 2000 Health institutions including Hospitals (10%), Health Centers/posts (45%) and clinics (45%). Nevertheless, Ghana's overall access to health care is estimated at 60% while 40% of the population lives more than 14 km from a health facility.

1.2 Expanded Programme on Immunization (EPI) in Ghana

1.2.1 Organizational structure

With the Government's decentralization and the primary health care policy implemented in the country, every district is mandated to determine its priority health needs and develop appropriate strategies and actions to address these needs. These policies have made district health teams autonomous in planning and implementing their health programmes with regional and national levels playing advocacy, supervision and monitoring roles. Funds allocated from national level go to the districts (although through the regions) but the regions have limited control over the use of the funds by the districts. There are EPI focal points at all levels responsible for the planning and coordination of immunization activities in the country.

Figure 2 illustrates the organizational structure of the health sector with particular emphasis on



EPI coordination and management in the country.

As illustrated in figure 2 above, EPI has a 3-tier management level:

1. At the national level, the Unit is under the Head of Disease Control Unit together with other programmes that come directly under the Directorate of Public Health.

2. At the regional level, EPI service is integrated into the public health system under the leadership of the Regional Director for Health Services. Within the Regional Health management team, the Senior Medical officer supervises the Disease control officers who are responsible for the day-to-day management of immunization programmes in all regions.
3. At district level is the district health management team (DHMT) led by the District Director of Health Services and supported by a team (public health nurses, nutrition technical officers, biostatistics, etc*)* There are designated Disease Control Technical officers who are responsible to the DHMT for EPI activities in the districts. They team up to plan, implement and monitor immunization activities. They collect activity reports form the sub-districts and summarize them for the up-ward transmission on monthly basis. Services at the district level are delivered in an integrated manner including EPI services.

There is an Inter Agency Coordinating Committee (ICC) for EPI and the Polio plus which is an advisory body to the EPI team at the national level since 1998. The Deputy Director-General of the Ghana Health Service chairs the ICC. The ICC membership includes partners and Heads of departments. This is yet to be replicated at the regional and district levels. Regional teams responsible for EPI and Surveillance meet on quarterly basis under the coordination of the National level to review performance and plan the way forward. WHO provides financial technical support for such meetings.

1.2.2 National Immunization Programme Management

The national EPI policy is for each child to be fully immunized and protected against the targeted diseases by 1 year of age. This implies that all children should have received BCG and OPV 0 at birth, 3 doses of DPT (now with HepB and Hib as from 2002) and 3 doses of OPV at 6, 10 and 14 weeks, measles and yellow fever after 9 months of age. In addition, women of children bearing age (15-45) should receive 5 doses of tetanus toxoid within their reproductive period.

The goal of the Programme is to prevent and reduce childhood vaccine preventable diseases and deaths.There is a 5-year strategic plan from which annual plans with the following specific objectives are developed:

- To attain 80% coverage of all antigens by all districts

- To interrupt transmission of Poliomyelitis by the year 2004
- To reduce the morbidity due to measles by 90% and achieve reduction of mortality due to measles by 95% as of 2002 and sustain achievement
- To achieve elimination of maternal and neonatal tetanus (MNT) by 2005

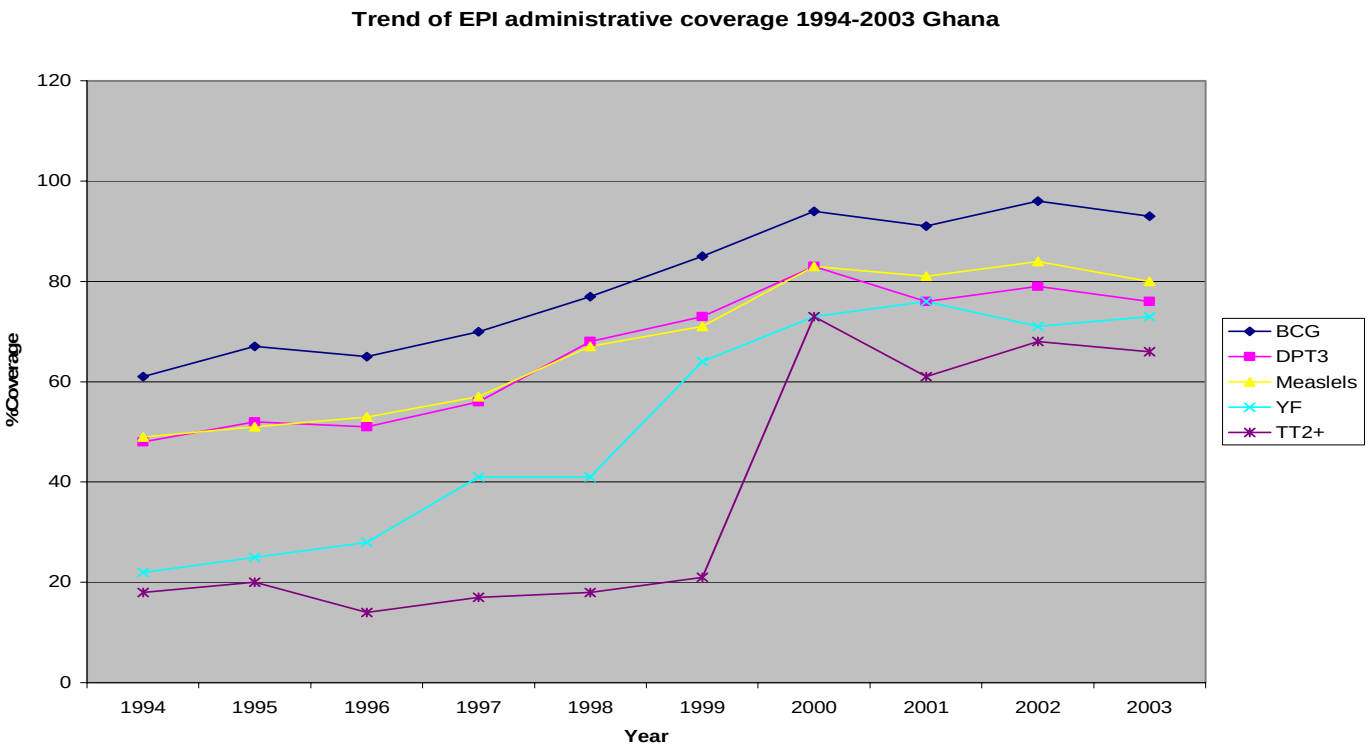
1.2.3 EPI performance

Ghana launched its Immunization Programme in 1978, but it was not until 1985 when the Expanded program on Immunization became effectively operational as a routine immunization system providing all 6 antigens for preventable childhood killer diseases – BCG, DPT, measles and OPV, together with TT for pregnant women in all parts of the country. Before 1985, immunization services were organized on mass campaign basis to respond to specific disease outbreaks.

Ghana is one of the 15 countries in the West African sub-region currently benefiting from 5 year GAVI support to strengthen routine immunization services. The Pentavalent vaccine (DPT-HepB+Hib) was successfully introduced nationwide in Ghana in January 2002. Routine immunization services are provided in all the districts in the country. The variable scope and quality of service provided largely depend on the managerial and technical support provided by the district health management teams to the sub district operational levels. Progress in providing immunization services nationwide is generally commendable in Ghana. About 50% of districts attained ≥ 80% Penta3 antigen coverage in 2002 in line with WHO AFRO's target.

Figure 3 and table 1 below illustrate the immunization coverage and morbidity data respectively for the vaccine preventable diseases for the country from 1994.

Figure 3 : EPI Performance in Ghana (1994 – 2003)



(Source: EPI Unit, Ghana Health Service, using 4% of target under one year, Penta 3 as of 2002)*

Trend of vaccine-preventable diseases in Ghana

Table 1: Reported cases of EPI targeted diseases (Ghana 1994-2003)

Disease	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Notified Measles	34,671	43,177	34,273	37,281	23,335	15,895	23068	13476	12130	46*
Notified Neonatal Tetanus	144	165	105	109	100	78	80	64	62	44
Confirmed Wild Poliovirus	-	-	9	2	23	3	1	0	0	8
Suspected Yellow Fever	79	0	13	6 confirmed	0	0	0	1** confirmed	51 suspected	249 suspected

(Source: National Surveillance unit, Ghana Health Service), * IgM positive,

***** confirmed Patient from Burkina Faso***

1.2.4 Current EPI Challenges in Ghana

Although immunizing children is one of the most cost effective intervention strategies for reducing child mortality and morbidity of which measles is a significant element, much remains to be done to eliminate the effects of vaccine-preventable diseases in developing countries including Ghana. Health infrastructure is characterized by limitation of transport and logistics affecting implementation of some planned activities. Most affected by these are planned outreach services of the routine immunization programme.

Identified barriers to immunization services in the country include the following:

- Inadequate understanding and insufficient demand for immunization by families and communities.
- Limited access to immunization services by communities located in hard-to-reach areas (especially in the districts located in the Volta Lake basin, severe flooding areas, mountainous districts and some communities with difficult terrains).
- Inadequate health staff to provide services to very large and scattered communities.
- Inconsistent and inadequate performance by health workers.
- Insufficient allocation and delayed financial support for immunization services.

Access to immunization services continues to be one of the challenges in Ghana. There is the difficulty of reaching many communities in districts (16 of them) located in the Volta lake basin which are hard-to-reach. Service delivery to these areas is mostly at a great risk and cost. Support and supervisory visits conducted to selected districts in the Volta lake basin show that many island communities are not visited regularly for outreach services because of frequent boat break down and lack of staff.

Some characteristics of the Volta Lake basin include:

- More than forty (40) islands in the Volta Lake basin.
- Major occupations on the islands are fishing and farming.
- Only some of the islands have schools, which offer basic education.
- Lack of health facilities on the islands, health services are provided on outreach basis with few personnel
- Major obstacles to services to the islands are:
    - boat transport is very risky and expensive to manage,
        - the tree stumps in the lake pose significant hazard resulting in frequent damages to the boats and accidents
        - Staff scared to swim, not sure of insurance in case of accidents

Lessons and experiences from service delivery to island communities

- Difficulty reaching many target population due to frequent movement of people
- Inadequate resources for planned activities
- Risk to life on lake –very high
- Unwillingness of staff (female) to travel on lake
- Cost of service –very expensive, requiring external support
- Many health staff not trained on safety measures such as use of life jackets

Many communities in the Northern sector also suffer from access to health care services mostly due to poor roads and inability to travel long distances, inadequate knowledge and non sensitisation of communities regarding the value of immunisations.

On the other hand, the existence of management teams in all 110 districts provides a firm foundation for strengthening routine immunization services to reach every child. In addition, the

accelerated control of vaccine preventable diseases activities provides opportunities for success of measles control in the country.

CHAPTER 2: EPIDEMIOLOGY AND CONTROL OF MEASLES

2.1 Introduction

Measles is ubiquitous, highly infectious disease affecting nearly every person in a given population by adolescence in the absence of immunization programme. Measles is transmitted primarily from person-to-person by large respiratory droplets.

In developed countries, complications occur in 10-15% of cases while in developing countries, up to 75% of cases may have one or more complications. The major causes of high case fatality are pneumonia and diarrhoea. Measles can lead to life long disabilities including blindness, brain damage and deafness. Low Vitamin A status is associated with a higher rate of complication.

2.2 The global situation

Measles is one of the most highly communicable diseases. Essentially everyone acquired measles usually, as a young child during the pre-vaccine era. Droplets or airborne spray from the respiratory tract of infected individuals to mucosa of the upper respiratory tract or the conjunctivae of susceptible individuals transmits the measles virus.

Globally, measles still is one of the leading causes of childhood morbidity and mortality, although the Expanded Program on Immunization has resulted in a dramatic decrease in both morbidity and mortality. The 1997 meeting of Centre for Disease Control in Atlanta concluded that the global measles eradication using the currently available vaccine is technically feasible although programme and financial feasibility were yet to be explored.

The joint UNICEF/WHO proposal for measles control emphasizes that the focus of measles control activities in all countries should be primarily on strengthening routine immunization services.

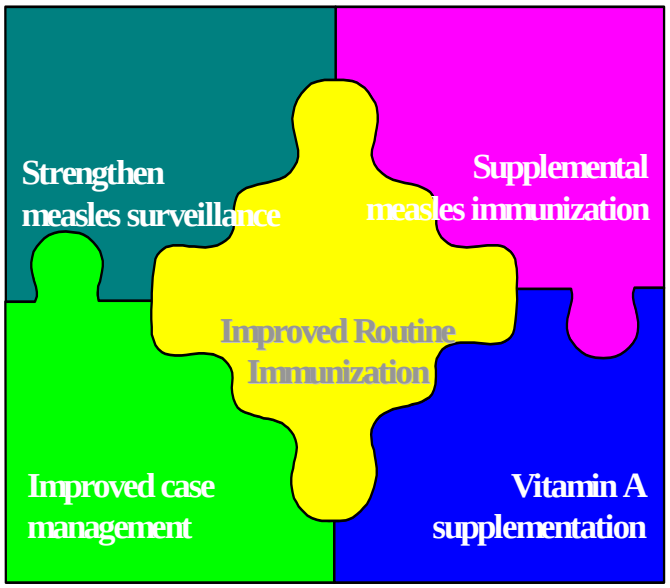
2.3 The African situation

The World Health Organization estimates that measles causes more than half a million deaths each year in Africa. The 1990 Immunization goal of 95% reduction in measles mortality and 90% reduction in morbidity from the pre vaccine era has not been achieved in many African countries especially those in West and Central Africa. The age distribution of cases in almost all African countries is such that at least 50% of measles cases are occurring in children 5 years and older. This age shift determines selection of age group to be targeted for supplemental immunization campaigns.

The 1999-2000 experience of African countries has shown that geographically limited measles supplemental campaigns are not as effective as larger area campaigns, especially those covering the whole country. Nation wide supplemental campaigns in Southern Africa have achieved high coverage and has been very successful in dramatically reducing measles mortality.

2.4 Global measles control strategies

Five complementary strategies are recommended for accelerating measles control or achieving measles elimination. These are (fig4):



- routine immunization,
- supplementary immunization,
- enhanced surveillance,
- vitamin A supplementation and
- adequate case management.

Measles vaccine is highly effective and safe and the major reason for the remaining disease burden is underutilization of the vaccine. A single dose of a live attenuated measles vaccine after 9 months of age, which can be combined with other live vaccines, will induce active immunity in >85% of susceptible individuals. A second dose may increase immunity levels to as high as 99%.

Based on the success of measles elimination strategies developed by the Pan American Health Organization, regional measles elimination goals have been established in the American Region (AMR) by 2000, the European Region (EUR) by 2007, and the Eastern Mediterranean Region (EMR) by 2010.

2.5 Measles control situation in Ghana

The national administrative coverage with measles antigen has been increasing steadily with correspondent decrease in reported number of cases over the years. National coverage, however, has been fluctuating as from 2000 (figure 5). In spite of the observed case reduction, measles remained one of the major causes of childhood illness in Ghana until late 2002. There are still districts with low coverage (< 80%) against measles despite efforts of routine immunization services. There are occasional outbreaks in some areas and health workers respond to these outbreaks with vaccination campaigns. Figure 5 Measles coverage and morbidity graph:

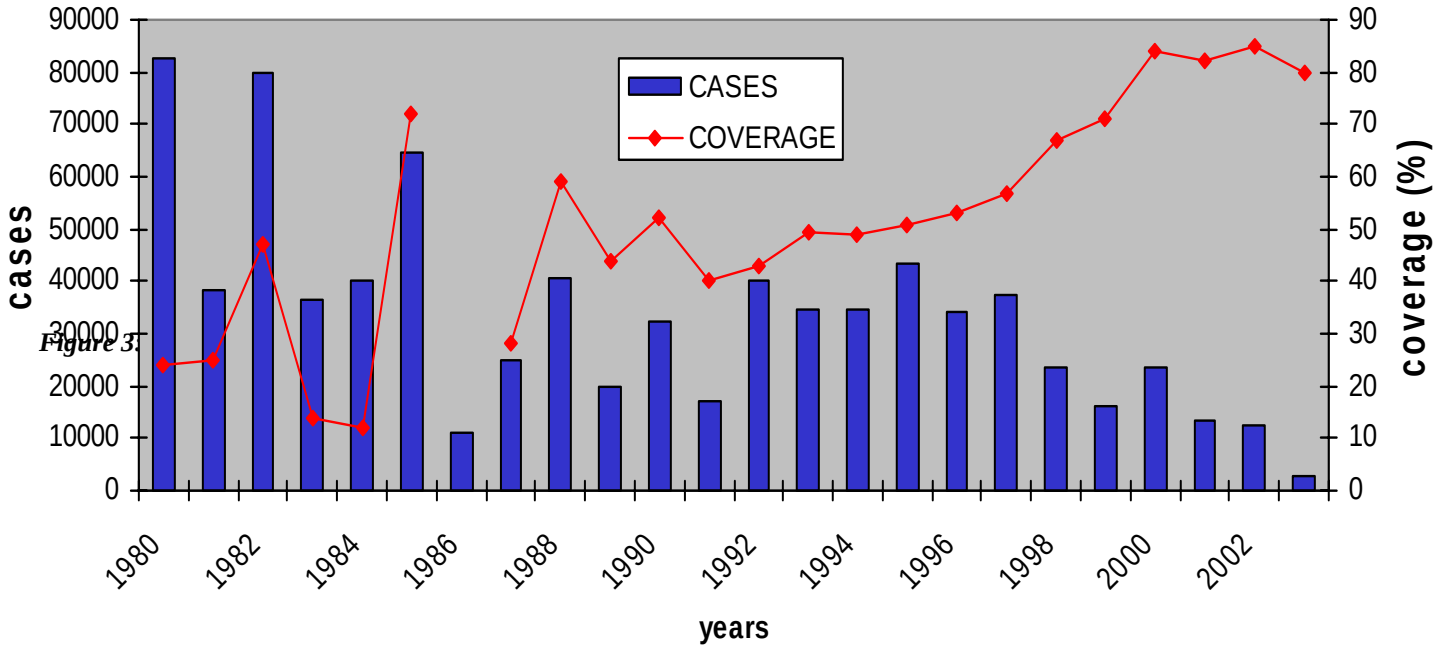


Figure 3:

2.6 Rationale for Supplemental Immunization Activities (SIAs)

Despite the success of EPI globally, measles continues to be the number one killer among the six vaccine-preventable targeted diseases. The WHO estimates that about 67 million cases of measles occur in the developing world, causing over 2 million deaths. It is on record that virtually every unprotected child contracts the disease and in the third world, practically all children are affected before the age of three. Mortality rates are highest in malnourished and very young children who may have case fatality rates of 10% or more.

As earlier stated, routine immunization alone has not been reaching every child in Ghana. In 2003, 29/110 districts had a recorded administrative coverage of <80%, while 81/110 recorded a coverage of 80% and above. Routine immunization activities are limited in hard-to-reach areas such as the districts in the Volta lake basin with many island communities. Due to the limited access to basic health services in these hard-to-reach districts and the poor quality of the few services available, many of the hard-to-reach district account for most of the disease outbreaks which in the majority of cases are not completely investigated and documented.

In addition, there had never been any mass measles campaign in Ghana for the past years 10 years and the surveillance data on measles indicated that the country was at high risk from imminent measles outbreak. Furthermore, records review in the Central region prior to the phase 1 (details in next section) suggested that Ghana was at risk and supplemental immunization was necessary to prevent the anticipated outbreak.

CHAPTER 3: MEASLES SUPPLEMENTAL IMMUNIZATION ACTIVITIES (SIAS)-

3.1 Phase 1: Central Region (December 2001)

3.1.1 Introduction

There is currently a 5-year accelerated measles control strategic plan (2001-2005) which forms part of the national EPI strategic plan for the country.

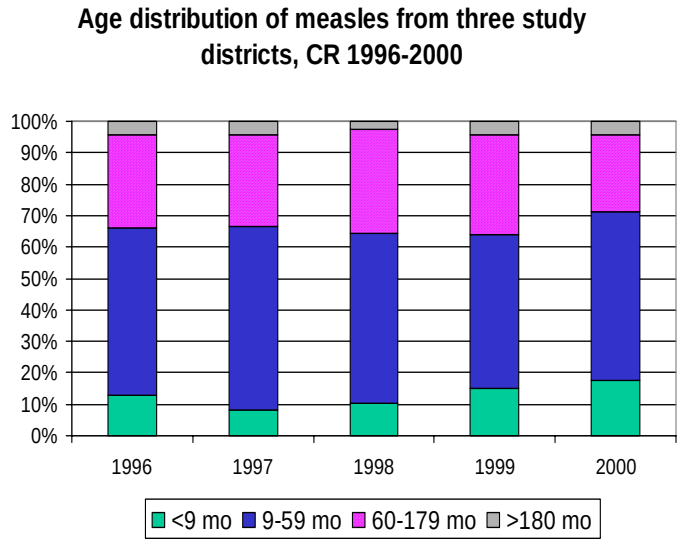
The measles supplemental immunization activities in Ghana were conducted in 2 phases. Phase 1 was conducted in the Central region in December 2001.

Central region is one of the 10 administrative regions in Ghana with a population of 1,627,293 (2001) and has 12 districts. The national objective for phase 1 was to provide experiences and lessons to enable adequate preparations, effective and quality nationwide SIAs planned for 2002. Central region was also chosen for the trial lesson because the region at that time was perceived as heading for suspected measles outbreak based on routine surveillance reports.

3.1.2 Preparatory activities for phase 1 in the Central region.

3.1.2.1 Records review of Epidemiology of measles

Figure 6: Age distribution of measles cases from study districts in the Central region



WHO provided technical support for a situation analysis, to review all measles cases in three district hospitals in the Central region. The hospitals were Assin, Asikuma and Winneba Hospitals. They were chosen because they accounted for most of the measles cases seen in the region. The study reviewed the records of all measles cases reported from 1996 – 2000. It indicated that 66 – 71% of measles cases were in children less than five years. On the other hand, 25-34% of the

reported measles cases were in children aged five to less than fifteen years. This is similar to the pattern observed in other West African Countries. The retrospective review was used to determine the target population of the planned measles SIAs, from 9 months to less than 15 years.

3.1.2.2 Qualitative study on Perception of stakeholders on measles (Formative research)

In addition to the records review of the epidemiology of measles as summarized above, a qualitative study on the perception of parents, opinion leaders, children and service providers on measles was conducted in three other districts – Upper Denkyira, Cape Coast and Gomoa. These three districts were purposely selected to represent the three major ethnic groups – Gomoa, Twi and Fanti. They also represent the three ecological zones in the region – vegetation, coastal and forest zones.

The study was undertaken to determine issues regarding behavior change and communication strategies within the context of specific socio-cultural influences, which affect measles vaccination activities in the area. The findings included the following:

- Even though awareness of the existence of measles is almost universal, it appears participants, (parents, opinion leaders and children) do not know the causes and the modes of transmission.
- Participants also hold the view that measles originates from the stomach, leaves sores in its trail after the rash have manifested externally. They believe measles is better treated with herbs and strong liquor, than the orthodox drugs and expertise, which they know, exist in the hospitals and clinics.
- The study also revealed that participants are exposed to a variety of communication channels and wished that the religious and traditional leaders are also included.

3.1.2.3 Micro planning and Capacity building workshops

Fig 7: Measles micro planning workshop

Micro planning and training workshops were organized for district teams (figure 7). The participants served as facilitators for sub-district micro planning and training workshops. Adequate preparation of the teams was done to ensure injection safety and waste management

Determination of the number of personnel (vaccinating teams, volunteers, supervisors, coordinators) and, required logistics was planned up to the micro level; taking into account the type of communities, where they live and how to reach them with the vaccine. Emphasis was placed on adequate logistics planning for all teams to avoid shortages and mal distribution of logistics and resources. In all 777 Teams were formed with 3,883 Health workers and 5436 Volunteers.

3.1.2.4 Social Mobilization/Advocacy

There was much emphasis on social mobilization and public education to ensure high community participation and coverage of the programme. A comprehensive social mobilization plan was developed in collaboration with the Health Promotion Unit of the Ghana Health service and the Ghana Red Cross society. A number of social mobilization activities were designed and implemented which included the following:

- High political commitment was solicited and attained. Political support for the planning and implementation of the programme towards achieving quality and success was very encouraging at all levels. Health partners and other stakeholders were part and parcel of the programme from design to implementation stage.
- Education materials comprising of posters and leaflets on measles were developed and distributed for public education. Banners were hanged up at vantage points to create public awareness of the programme.

- Electronic media was adequately utilized targeting communities and care takers to encourage their participation in the programme. Press briefing was held for adequate preparation of the Press for wide publicity of the campaign. There were TV and Radio discussion programmes in all languages at national and local FM stations. Phone-in programmes were organized for more explanation to public enquiries.

Fig 8: Regional Launching of measles campaign in Central region at

- Social mobilization at the community level took various forms in relation to the practice and culture of the people in the various traditional areas. In most communities in the southern sector, gong-gong beating (local town criers) in the evening was the most used medium by the chiefs and elders to assemble the people for public announcements and education. In the Northern part of the country, people climbed to the roofs top and made distinctive shouts to assemble people for any public information.
- The Churches and Mosques were not left out in social mobilization and public education programmes. Many organizational groups were used to inform their members as well as the public on the importance of the campaign and the need for all to get involved.
- Volunteers of the Ghana Red Cross society undertook the house-to-house registration and mobilization of target group.
- The Regional Minister launched the phase I programme in the Central region in 2001 at a colourful durbar of chiefs and their elders at Assin Fosu on Thursday 4, December 2001. A large number of parents, students and a cross section of the general public including the WHO Representative attended. The Regional Director for Education sent messages to Schools in the region to collaborate effectively with the programme to ensure success.

Fig 8 above shows the Regional Director of Education for Central region and the WHO representative to Ghana, Dr. Melville George addressing the gathering at the launching ceremony. Below is a section of School children listening attentively.

3.1.2.5 Injection Safety measures and waste management

As well as making preparations for the planning and training workshops, it also became necessary that the waste management component of the programme needed to be organized early to ensure appropriate disposal and management of the large volume of injection waste that would be generated during the campaign. In line with this purpose, support visits were undertaken to the region to assist with the identification of sites for appropriate disposal and management of the waste during the programme. This was to ensure and promote injection safety during the campaign. The district centres were to identify sites for the construction of modern incinerators whilst sub-districts selected sites for the digging of pits in which the waste would be burnt (fig 9 above).

All 65 sub-districts were visited and sensitized to locate appropriate sites for the disposal and management of waste during the mass campaign and after in order to ensure injection safety in the immunization programme.

3.1.2.6 SIAs implementation

Over 960,000 children aged between 9 months and 15 years were expected to be immunized with measles vaccine in the 10 days campaign scheduled from 10-19 December 2001. Three strategies were used during the campaign. Fixed strategy was the main one covering 70% of the target population, the mobile strategy covered 20% and the hard to reach communities accounted for 10%. Figure 10 is the coverage by district during the campaign.

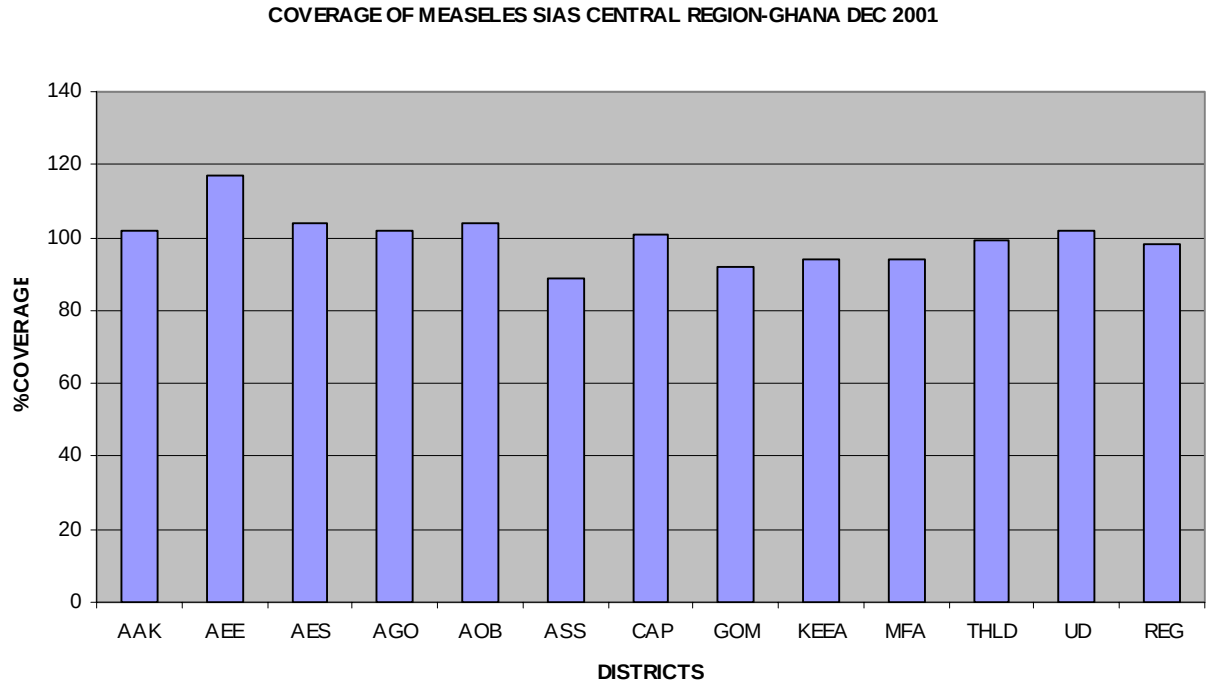


Fig 10: Measles SIA coverage by district in the Central region

3.1.2.7 Monitoring and evaluation

Team supervisors were put in place to supervise 8-10 teams on a daily basis. The team supervisors also conducted rapid assessment to identify missed children and to ensure that vaccination took place as planned..

The supervisors conducted rapid assessments from the 7^{th} -10^{th} day of the campaign. Caretakers of children aged 9-60 months were interviewed from 20 houses in each community from five sub districts, which were selected from six randomly chosen districts. 600 caretakers were interviewed in all. Ninety-eight percent (98%) coverage was achieved. The 2% missed were traced and vaccinated.

Adverse events following immunization (AEFI) were also monitored and teams were put in readiness to take care of any complications when notified.

3.1.2.8 Results and achievements

Figure11 is the graphical illustration of the performance of the 12 districts in the campaign. The regional coverage was 98%. District performance varied from 88% in the Assin district to 118% in Ajumako-Enyan-Esiam district.

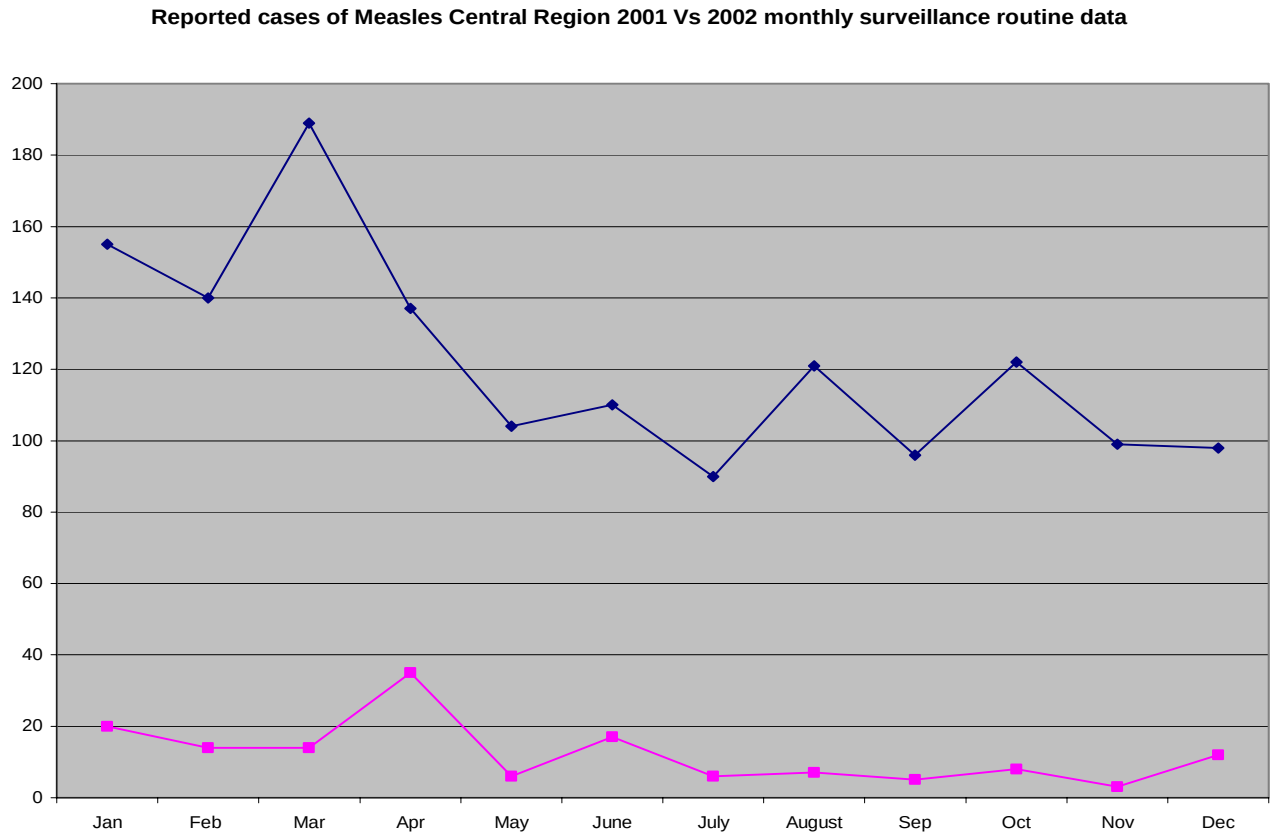
All districts have achieved the expected minimum target of 90% and even beyond except Assin district.

The major benefits from the measles SIAs included the following:

- Revision of injection safety and waste management policy which is not only for immunization but also for the health sector in general.
- Construction of incinerators for waste management
- Provision of a second opportunity of measles vaccination to the target age group to reduce measles mortality and morbidity.

Trend on monthly reported cases of measles comparing case reduction

Figure 11 ***indicates*** the case reduction in Central Region by 90% in 2002 as compared to 2001.



The drastic reduction of cases in 2002 as illustrated in the graph shows how successful and effective the campaign was in the region

3.1.2.9 Best practices

A number of best practices were observed. Notably among them were:

- Partnerships - working with partners such as the Education sector and Red-cross enhanced efforts to reach the target group as planned.
- Formative research- the decision to investigate the perception of the community prior to the SIAs was helpful in designing appropriate strategies and messages to the communities with added value of quality SIAs.
- The rapid assessment - This practice, provided the opportunity to identify any missed child.

Phase II: NATIONAL MEASLES SIAS (DECEMBER 2002)

3.2.1 Preparatory activities

Following the success of phase 1 in the Central region in December 2001, government decided to proceed with phase II in December 2002. The tools used in phase I were revised to standardize planning, training and implementation strategies. WHO country office provided support and technical assistance in the following areas:

- Adaptation of AFRO field guide.
- Template for micro planning
- Tally sheets for recording
- Summary sheets and planning tool.

Three vaccination strategies were adopted – (i) fixed vaccination posts, (ii) mobile teams and (iii) camp out to reach the hard-to-reach communities.

3.2.2. Micro Planning and Capacity building

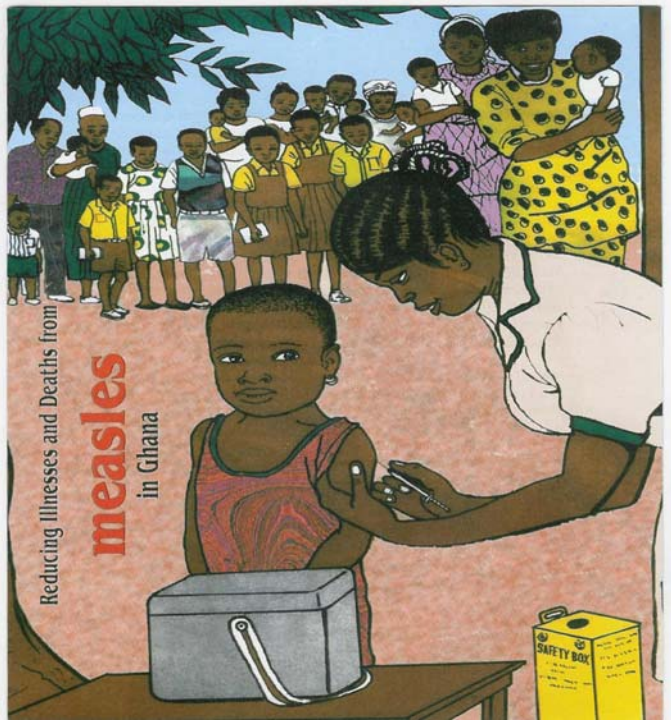
In preparation for quality Measles SIAs, two micro-planning workshops were organized at the national level for regional teams in January and August 2002. The workshops brought together participants from the national level, regional health teams, health education experts, disease control officers, public health and community health nurses. The Central Regional team was at hand to share their practical experience with the participants. The Regional teams were trained on:

- the different strategies to be used (static, mobile and camp out)
- safety of injection, and how to dispose of immunization waste,
- how to organize a campaign,
- how to mobilize the community and public education

Partners such UNICEF and Red Cross were present at the orientation in August. Subsequently sessions were also organized at both regional and district levels.

3.2.3 Social mobilization and advocacy

With the experience from phase 1 in the Central region, much emphasis was placed on social mobilization and public education to ensure high community participation and coverage of the programme. Lessons from the phase 1 were implemented fully in this phase. As expected,



- Political commitment was high. National launching was by the Minister of Women and Children's Affairs on behalf of His Excellency the President of the Republic of Ghana at a colourful durbar of traditional rulers, teachers and school children and people from all walks of life amid drumming and cultural displays on December 5, 2002 in Accra
- Information, education and social mobilization materials comprising of posters and leaflets on measles were developed and distributed extensively for public education. Banners were hung up at vantage points to create public awareness of the programme. Figure 13 is a copy of one of the posters used in the campaign.
- As in phase I, electronic media utilization was intensified to encourage participation in the programme. Press briefing was held for adequate preparation of the Press to promote the campaign.
- Social mobilization at the community level as already described in phase 1, took various forms in relation to the practice and culture of the people in the various traditional areas. In most communities in the southern sector, gong-gong beating (local town criers) in the evening was the most medium used by the chiefs and elders to assemble the people for

public announcements and education. In the Northern part of the country, people climbed to the roof tops and made distinctive shouts to assemble people for any public information.

- The Churches and Mosques played their roles in social mobilization and public education programmes. Many organizational groups were used to inform their members as well as the public on the importance of the campaign and the need for all to get involved.
- Volunteers of the Ghana Red Cross society were used for house-to-house registration and mobilization of the target group.

3.2.4. Injection safety and waste management

Ghana had used Auto-Disable Syringes as far back as 1993 for the EPI. Since then safety boxes of different types have been supplied but with limited use.

Prior to the SIAs common practices in most facilities and immunization centres for waste management included:

- Surface burning on compound.
- Irregular burning
- Recapping after use despite use of AD syringes/needles
- Crude dumping in open pits in major health facilities
- Practices that resulted to sharps scattered around health centres and disposal sites– posing high risk to children and other health hazards to the community.

Efforts to improve injection safety and waste management practices.

To address the injection safety and waste management problems as indicated above, the following measures were put in place:

- Training of staff was conducted to sensitize staff on implications of recapping of used needles and how to address AEFI in case they occur during the campaign.
- Safety boxes supplied by UNICEF were placed at all immunization centres
- Measures to ensure that safety boxes are appropriately burnt in the incinerators or disposed off appropriately where there are no incinerators.
- With financial and technical support from WHO, 110 modern de monfort incinerators were constructed (one in each district). To build local capacity for the construction a 1-week training in incinerator construction was organized for regional estate officers. This was facilitated by ICP/WHO

3.2.5 Efforts to reach communities in hard-to-reach areas

Field operations were full of experiences and challenges for the teams in most of the hard-to-reach communities. One area of great challenge was the unmotorable road network to reach the very remote villages, some of them located in the heart of the forest.

Figure 15: Journey to a community in Kete-Krachi District in the Volta Region

Districts like Juabeso Bia, Kete-Krachi, Nkwanta and a host of others have difficult terrain and very bad roads that are difficult to ply with the slightest rainfall. It was with much pain and sacrifice that teams went to such areas to provide services. Making journeys to some of these areas pose great danger to life as any breakdown of the vehicle in the middle of the journey can be disastrous. Help at these times could be far away and life could be lost.

Another area that poses great risk to life is the journey on the Volta lake to provide services to the island communities. Volta Lake basin spreads across 16 districts located in 5 different regions.These districts have very large number of communities with varied population sizes ranging between 400 to 3000 people. Many of the health staff or team members fear traveling on the lake beacause they have no skills in swimming nor use of life jackets. The Figure 16 on the left is team that is setting off for a session on the island in Afram Plains district in the Eastren region.

On several ocassions, the tree stumbs in the lake as shown in the picutre on the left make holes in the boats and put peoples lives at great risk in the process of service delivery. The teams were however not detered by these dangers and went to all parts of the country to conduct very succesfull measles SIAs with high quality and coverage. Figure 17 is a picutre showing some of the tree stumbs that pose great danger to lake transport in the Volta lake basin.

3.2.6Experiences on the island

Once the team arives on the island, it faces the heculean task of reaching all children in the target group. Some of the island poulations are very large such that the teams spend a lot of time reaching all the communities. In addition, the children are much excited such that maintaining order becomes difficult because for some communities, SIAs are the only periods when they come face-to-face with health workers.

Figure 18 immunization session in an ilsand community in Eastern region.

In general there is excellent cooperation from the communities who respond positvely in receiving the teams and participating in the programme. Figure 18 above shows a community scene in one of the island communites in the Eastern region.

3.2.7 Results

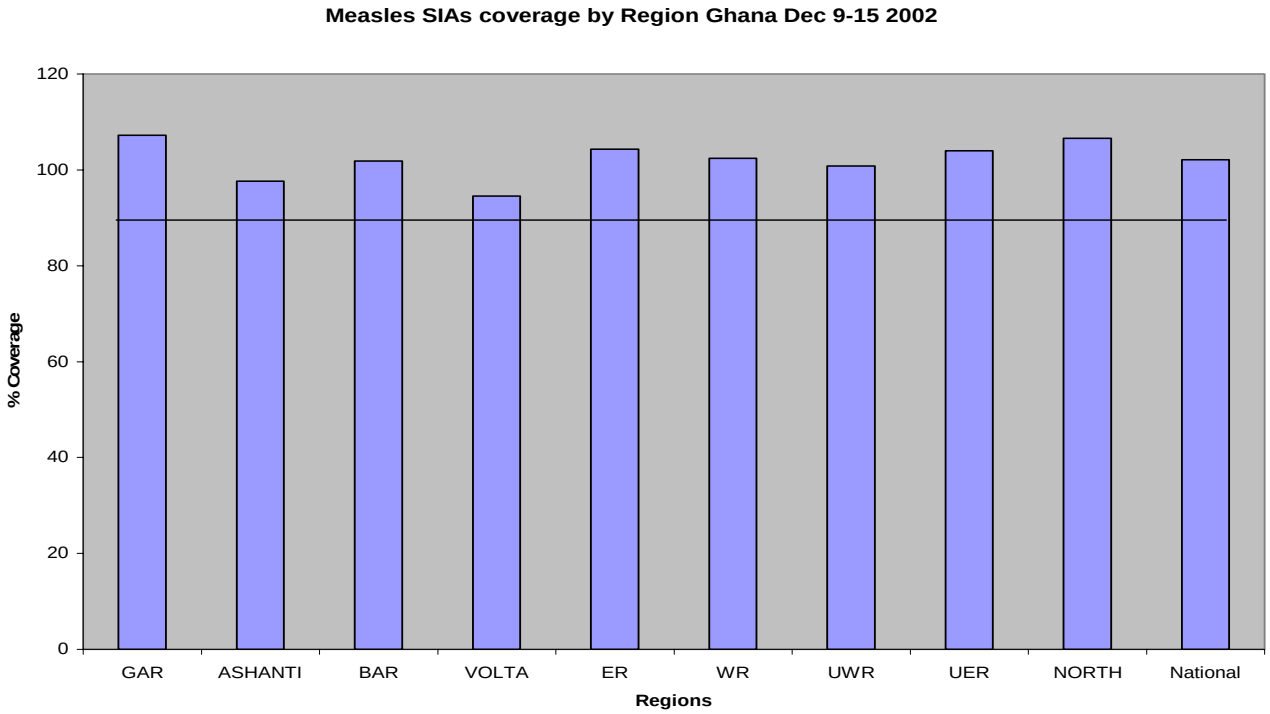


Figure 19 is the graphical illustration of the performance of the regions in the campaign.

A total of 7,673,384 children 9 months to 14 years old were targeted for the Measles SIAs out of which 7,840,156 children received the measles vaccine. The minimum target for each district and sub district was at least 90%. This was achieved in all regions indicating high turn out from the community (fig 19 above). The national coverage was 102%. Regional performance varied from 92% in the Volta region to 105% in the Greater Accra region.

3.2.8 Monitoring of the SIAs

Rapid assessment was conducted from day3 to day 7 of the SIAs. The main objective was to identify missed children for follow up vaccination. The exercise had added value of assessing the performance of the SIA.

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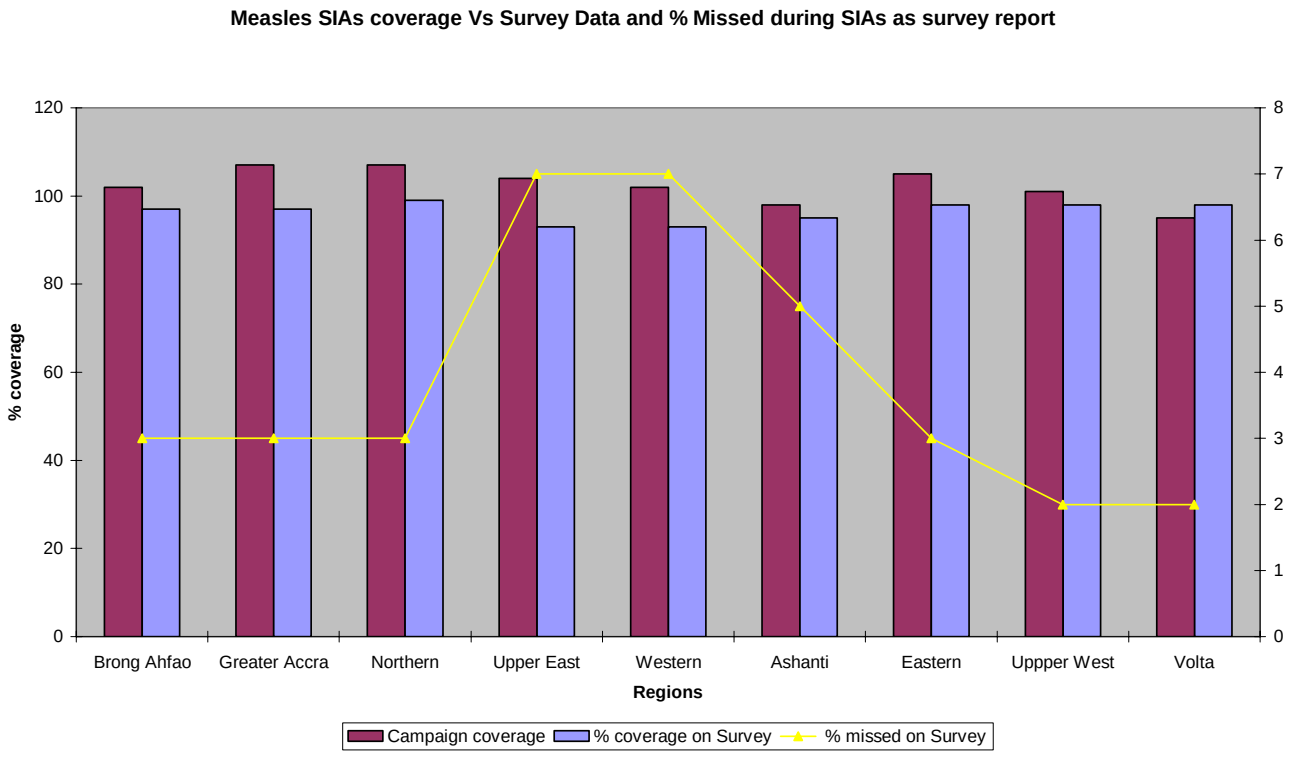


Figure 20: SIAs administrative coverage Vs Survey and missed children by Survey

Figure 20 is the graph of the outcome of the rapid assessment. The assessment was conducted in 10 randomly selected households in each of five communities per sub-districts. Caregivers were interviewed as to whether the children were vaccinated or not during the programme. The results of the assessment were used to validate the records.

In addition to the rapid assessment, there was daily performance monitoring by 7 of the 9 regions who followed the recommendation for quality implementation. This monitoring of performance included an assessment of the number of vaccines and safety boxes used by each sub-districts to determine shortages. In addition a review of the vaccination data to determine the cummulative coverage was also undertaken.
Such daily monitoring of data and logistics by sub-districts in the regions who complied them was really helpful in planning for the next day particularly on logistics distribution. The regions found the electronic format developed for reporting and monitoring performance very useful.

This achievement clearly indicates the highly effective organization, social mobilization and public education, the positive community response to the programme.

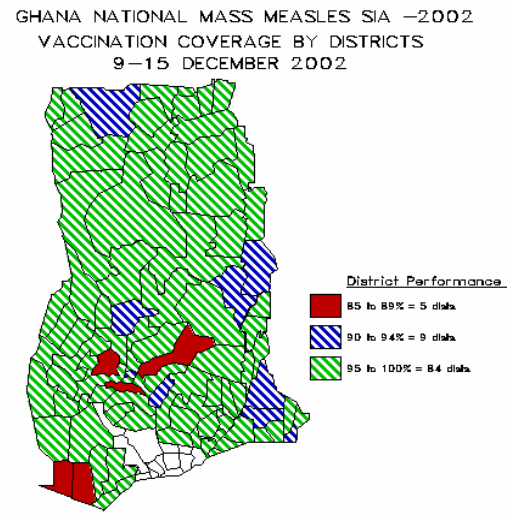


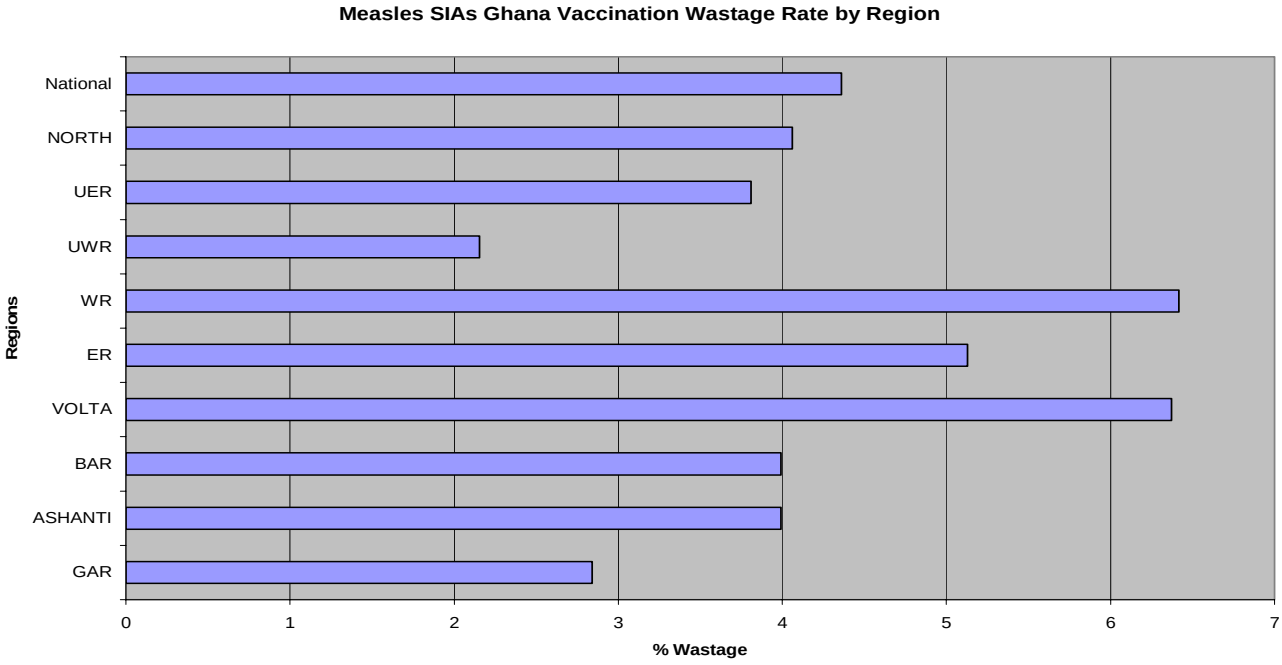
Figure 21 is the map showing the performance of the 98 districts involved in the campaign. The 12 districts in the Central region that were involved in phase I are not included in the map. As can be seen on the map:

- 5 districts recorded coverage between 85-89%
- 14 districts were between 90% and 94%
- 84 district were above 95%

Figure 21: Map of District performance in the campaign

3.2.9 Vaccine wastage during the campaign

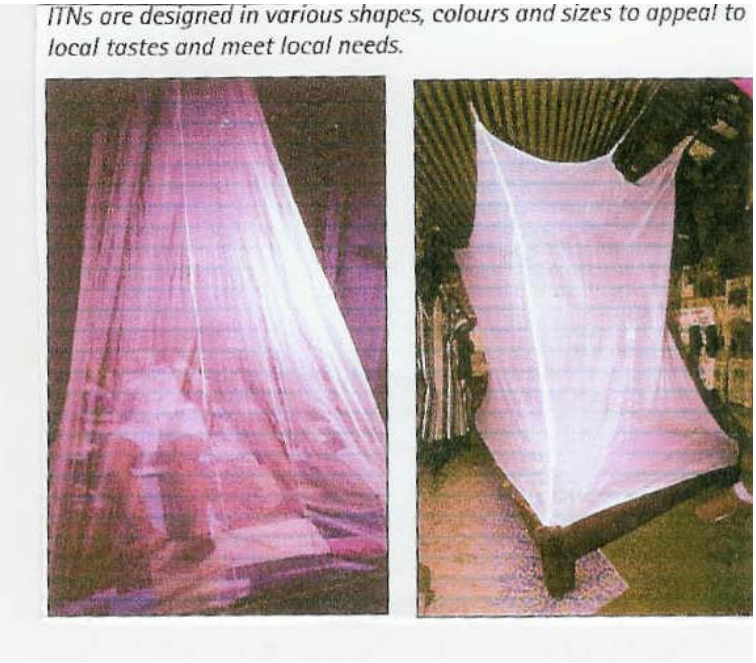
Figure 22 shows vaccine wastage rate by region during the campaign. The overall vaccine wastage rate is about 4% with marked regional and district variations. There was daily monitoring of vaccine wastage by teams and by sub district to ensure efficient use of the vaccine and also be able to take immediate actions in areas where vaccine shortages are envisaged.



3.2.10 Achievements

i. Integration of Measles SIAs with ITN distribution

Since measles and malaria are the two leading causes of childhood mortality in Africa joint interventions against the two diseases using combined strategies was the plan used and implemented in one district as a pilot to obtain lessons for future extension of the programme to other districts. In line with this, the measles SIAs was combined with Insecticide treated nets distribution in Lawra district in Upper West region which has an estimated population of 28,000 under fives. Measles SIAs targeted children 9 months – 14 years while the ITN distribution was to all caretakers who brought children less than five years of age for measles vaccination.


ITNs are designed in various shapes, colours and sizes to appeal to local tastes and meet local needs.

Intensive Social mobilization was coordinated by the regional health promotion unit and the Ghana Red Cross Society. Every house hold was visited by Red Cross volunteers to deliver messages on both the vaccination and the mosquito net distribution prior to the SIAs. A register was used by Ghana Red Cross volunteers to compile the list of all mothers with children less than five years and their care takers prior to the SIAs. This was done with the assistance of the community members. The Ghana Red Cross volunteers assisted with community mobilization and the distribution of the nets. Figure 23 are samples of ITNs distributed. The volunteers also conducted exit interviews among caretakers at the vaccination posts to assess the impact of the volunteers on Social mobilization. The outcome of the bed net distribution in the Lawra district demonstrated that multiple interventions are possible to reach the un-reached via routine services. 14,144 nets were distributed to care takers of under 5 children.

ii. High community participation – Coverage was higher than the expected target due to a massive community response. This is the outcome of the extensive social mobilization and the collaboration of all partners. The target population was 7,673,384 children 9 months to 14 years and coverage was 7,840,156 (102%)- fig 1. Thirty-three cases of Adverse events following immunization (AEFI) were reported but of no significant effects. The campaign cost a total of $3,716, 466 of which $1,351,452 was channeled through WHO country office. The estimated cost per child immunized is $0.47.

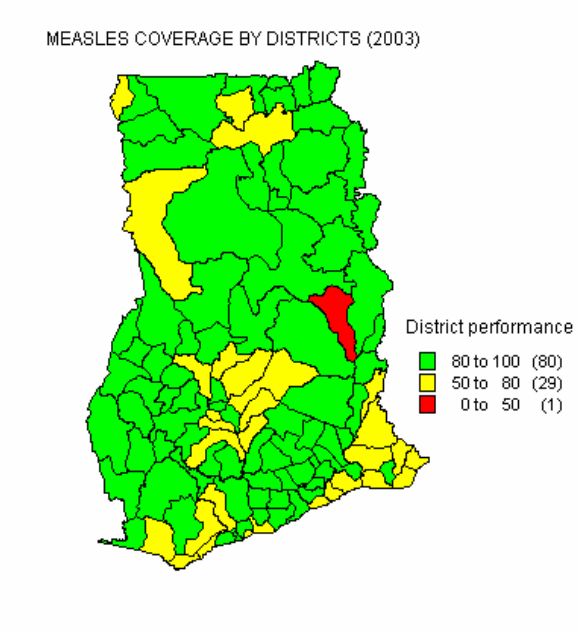
90% case reduction – Data from the Central region where the pilots SIA was organised in 2001 show 90% case reduction of measles in the region. Out of 147 suspected cases reported in 2002, only 6 were measles (Igm+ve).

iii Capacity building through use of local consultants- WHO provided support to recruit and orientate local consultants to support the measles SIAs in hard to reach communities. Their support also established the measles case based surveillance in the country. These local consultants are available and being used to support weak districts.

iv. Improved injection safety mechanisms put in place - Lessons from the measles SIAs show that pits used during national campaigns to dispose off waste can be maintained and effectively used for the disposal and management of waste from routine services (clinical and preventive services) at the health facilities . This practice is contributing effectively to the immunization safety and waste management programme at the sub-district level in Ghana. Although the country has an injection safety plan with support from GAVI to construct incinerators at the hospitals and major health centres, this plan is yet to take off. With experiences from the measles SIAs sub-districts are as at now using pits conveniently and effectively to dispose off waste.

CHAPTER 4 POST MEASLES SIA ACTIVITIES

4.1 Routine measles immunization



Efforts to increase and sustain high coverage for routine immunization for all antigens went on consistently after the national measles campaign. Vaccine supply has been regular and National routine measles coverage for 2003 is 80%.

District performance is illustrated in the map of figure 24.

- 80 districts recorded coverage above 80%.
- 29 districts have coverage between 50 and 80%
- 1 district had coverage below 50%. This district is one of the hard-to-reach districts located in the Volta lake basin with 53 communities on the islands in the lake basin.

4.2 Injection safety and waste management practices

The following measures are implemented to improve injection safety and waste management practices:

- A 3-year injection safety policy and strategic plan by EPI (2003-2005) has been developed. In addition WHO has support a national health care waste management policy by the Ghana Health Services for management of all categories of health care waste.
- EPI is to be supported with GAVI funds to construct 600 additional incinerators in the major health facilities
- Use of safety boxes at all immunization centres is to be promoted.
- Need to have adequate stock of safety boxes regularly.
- Monthly monitoring of AEFI (Monthly report to be produced by districts)
- AFEI case investigation form designed and used by facilities
- Most facilities now use improved pits and burn the waste regularly

Fig 25: Immunization session at district level

On-going activities; injection waste burning& disposal in pits

- AD syringes and needles are now being used for BCG injections. Injection safety assessment conducted in Sept 2003 in 80 randomly selected facilities with support of WHO/HQ. The key findings were:
- *AD syringes are being used in all health facilities surveyed*
- *Very minimal recapping mostly in clinical sessions*
- *No re-use of syringes and needles at any facility*
- *Risk to injection very minimal to both client and service provider*
- *Waste disposal practices need to be improved*
- AEFI being monitored

4.2.1 Achievements

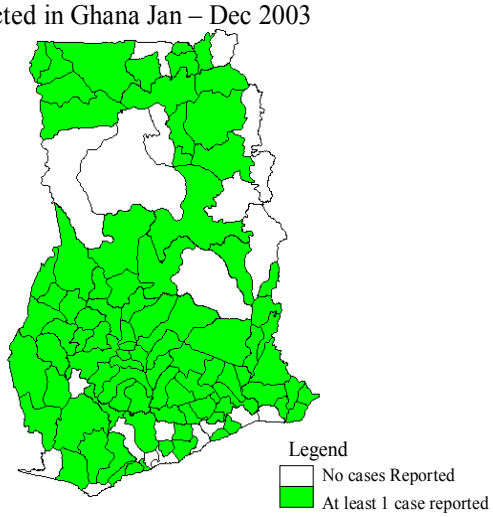
- Injection safety practices has improved for immunization activities but not much for clinical services – for which safety boxes are not being used
- Waste disposal is now improving as much emphasis is now placed on the use of pits for burning at the sub-district facilities

4.2.2 Challenges

- A joint exercise by WHO Country Office and the Estate management unit of the Ghana Health Service was undertaken to improve on the utilization of existing de monfort incinerators. The team made recommendations for modification in the construction and fabrication of components of existing incinerators. This is being implemented.
- Action on construction of new incinerators has been temporally suspended to ensure that existing incinerators are adequately used by the health facilities according to stated guidelines.
- A survey on emission of dioxins and furans from the existing incinerators has been conducted by GHS with support of WHO in collaboration with the Environmental Protection Agency and Atomic Energy Commission.
- A search is on going for a local manufacture for the supply of refractory materials for the construction of new incinerators.
- Availability of refractory materials from local sources as envisaged. This could be cheaper
- Availability of safety boxes for clinical services (95% of injection waste are of medical source)
- Active participation of local authority agencies in decent waste disposal and management practices

4.3 Measles Surveillance

Fig 27: Districts reporting at least one suspected case of measles w Specimen collected in Ghana Jan – Dec 2003



Case based measles surveillance was initiated immediately after the measles SIAs. This was facilitated by using local Consultants and WHO officers to conduct clinician sensitization in regions. They also provided training to all Health workers used for the SIAs. The country achieved 82% of districts reporting at least 1 suspected case with lab specimen and morbidity reduction of more than 97% as compared to previous years. Refer to map above, tables 2 and graph (fig 28) below for impact in 2003.

Summary Table 2 of Measles Surveillance performance indicator, Ghana Jan-Dec 2003		
Indicator	Target	Achievement
Each reported/suspected measles has blood specimen collected after SIAs	80%	81%
Proportion of Districts at least one suspected caase of measles with blood specimen taken in a year	80%	82%
Blood specimen arrive at Public Health Lab within 7 days of collection	80%	90%
Proportion of suspected cases IgM positive	<10%	4%

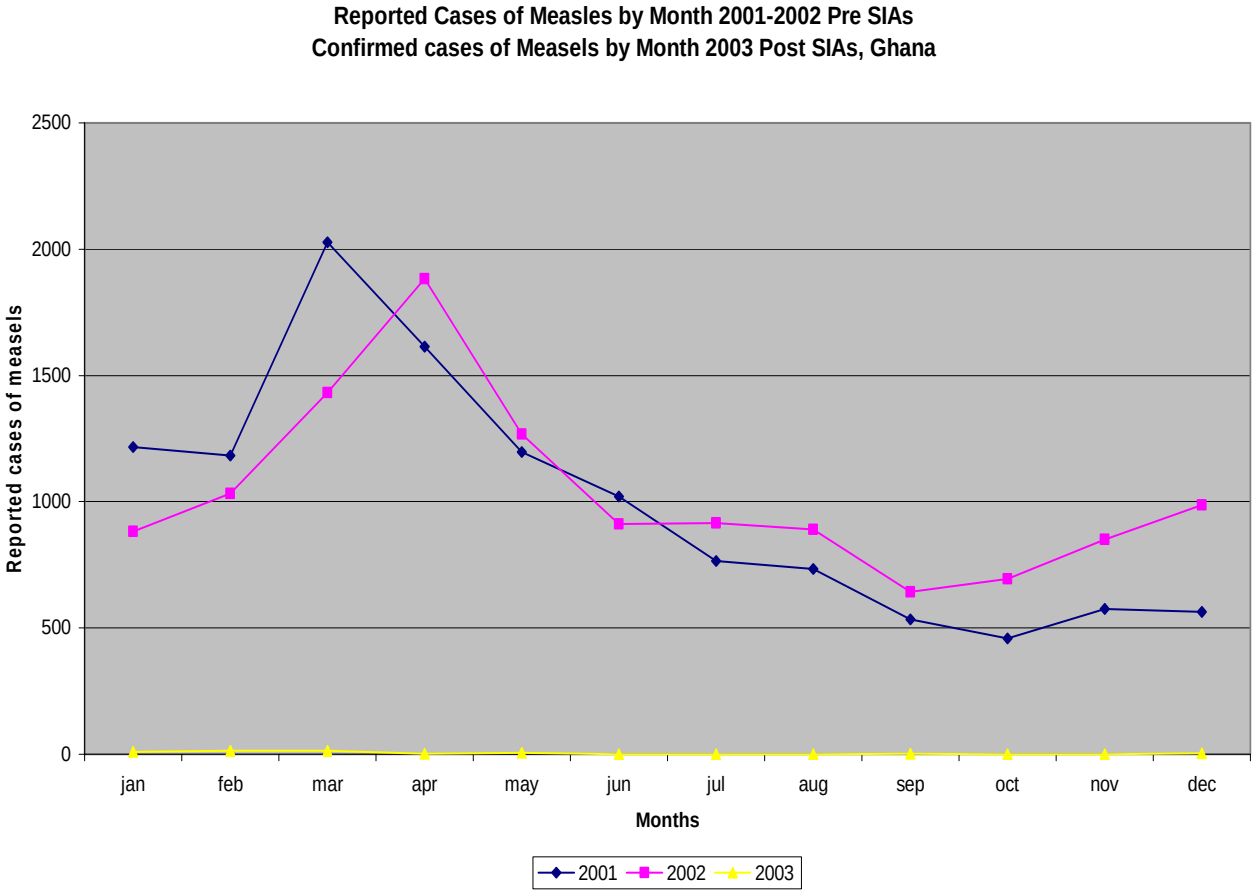


Table 3

Timeliness of Specimen bt. Collection and Arrival at the lab by Region Jan-Dec,2003			
Region	**Reported Cases**	**Specimen arriving in the lab Timeliness (within 7 dys of collection)**	**% of Specimen Arriving Timeliness**
Ashanti	480	460	96
Brong Ahafo	125	121	97
Central	51	42	82
Eastern	161	154	96
Greater Accra	105	100	95
Northern	28	21	75
Upper East	31	28	90
Upper West	20	19	95
Volta	120	113	94
Western	37	25	68
Ghana	1158	1083	94

4.4 Recommendations

Ghana has demonstrated a successful quality Supplemental immunization activities to accelerate the control of measles. The activities from planning to implementation and post implementation monitoring through surveillance has indicated significant reduction of measles as compared to pre SIAs.

4.5 Way forward

Sustaining the routine high coverage against measles by vaccinating children at 9 months of age in all the districts is the backbone where the accelerated control of measles rides on. The follow up SIAs is planned for 2005-2006 which should be guided by the case based measles surveillance data and applying the lessons learnt to coordinate and implement quality SIAs.