

# AIDS in Ghana

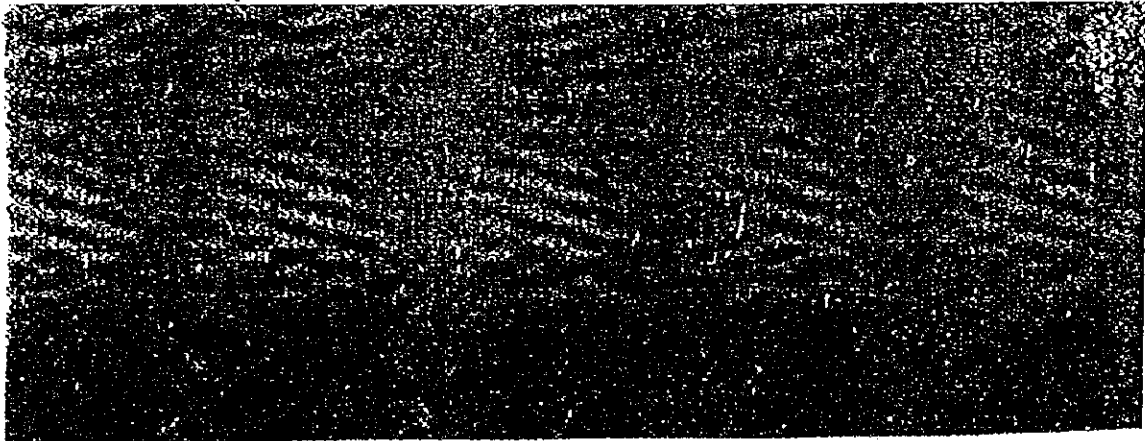
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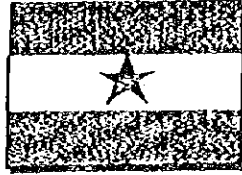
Background

Projections

Impacts

Interventions





National AIDS/STD Control Programme  
Ministry of Health



## Acknowledgements

AIDS in Ghana was developed by

- Dr. Emil Asamoah-Odei  
Programme Manager  
National AIDS/STD Control Programme  
Accra.
- Dr. Phyllis Antwi  
Lecturer  
School of Public Health  
University of Ghana  
Legon.
- Mr. Donald W. Dickerson  
Chief of Party  
Family Planning and Health Project/Futures Group  
USAID  
Accra.

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For additional information of AIDS in Ghana contact the following address.

The Programme Manager  
National AIDS/STD Control Programme  
Disease Control Unit  
P O. Box 2848  
Accra, Ghana

Accra  
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## I. Introduction

The first cases of the Acquired Immune Deficiency Syndrome (AIDS) in the world were reported in 1981. Since that time the world has seen an illness that appeared at first to be largely confined to homosexual men and drug injectors in developed countries become a pandemic affecting millions of men, women and children on all continents.

As at the end of 1994, WHO estimated that around 18 million adult men and women and about 1.5 million children have been infected with the human immunodeficiency virus (HIV) since the beginning of the pandemic. It further projects that by the year 2000 a total of 30 to 40 million people will have been infected, and that there will be 10 million adult AIDS cases.

In countries where heterosexual transmission predominates, men and women are affected in approximately equal numbers. About one-third of all babies born of women infected with HIV are themselves infected and eventually die. By the year 2000, there will be 5-10 million AIDS orphans. These are children who do not receive the virus from their mothers but are orphaned when their parents die of AIDS.

## II. Background

In Ghana about 15,000 cases of AIDS have been reported to the Ministry of Health as at the end of 1994. These reported AIDS cases represent only the visible part of the epidemic. However, there is much more to the epidemic than the number of reported cases.

### *The HIV/AIDS Pyramid*

Many AIDS cases are usually not reported for several reasons. These include

- Some people never seek hospital care for AIDS.
- Some doctors may not want to record a diagnosis of AIDS because of the stigma attached to AIDS
- Some people with HIV infection may die of other diseases before they are ever diagnosed of having AIDS
- Some rural health care facilities may not have the capacity to test for HIV infection.

The actual number of AIDS cases in the country is not known. It is, however, estimated that the officially reported cases represent less than 50% of all cases of AIDS that have occurred in this country, and that more than 40,000 cases have actually occurred.

AIDS cases are only the tip of the pyramid. Many more people are infected with HIV, the virus that causes AIDS. It is estimated that at the end of 1994, a cumulative total of almost 400,000 Ghanaians had been infected with HIV. Most of these people do not know they are infected. They have no symptoms at all. However, all of them are capable of passing on the AIDS virus to others.

# The HIV/AIDS Pyramid

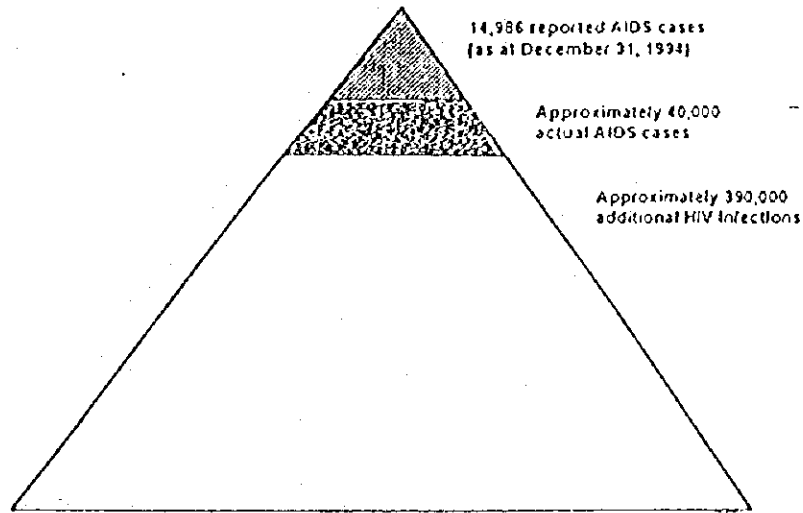


Figure 1

## Regional Distribution of AIDS Cases

AIDS cases have been reported from all parts of the country. As can be seen in figure 2, the majority of cases have been reported from the Ashanti and Eastern regions which together have over 50% of the reported cases. Ashanti region has reported almost 5000 AIDS cases while more than 3000 cases of AIDS have been reported in Eastern region. Greater Accra, Brong Ahafo, Western and Central regions each has reported more than 1000 cases.

## Reported AIDS Cases by Region

as at December 31, 1994

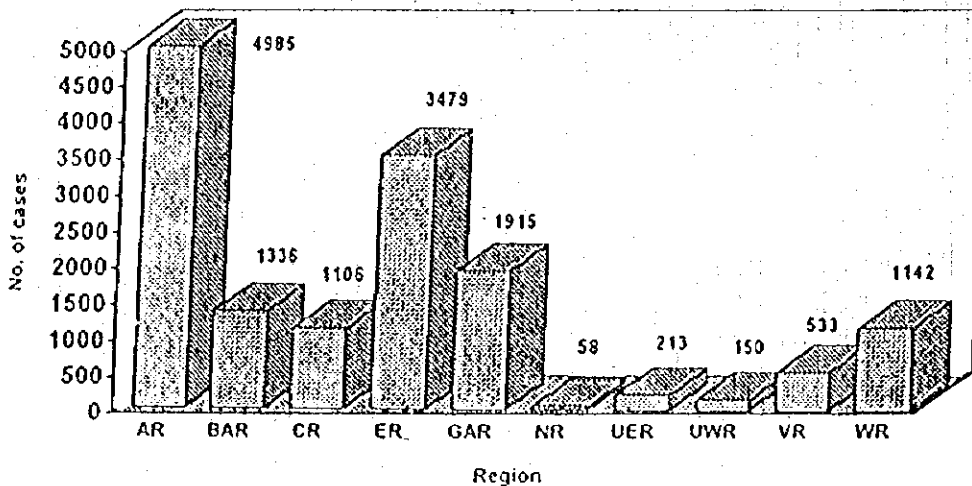


Figure 2

### Age and Sex Distribution of AIDS Cases

Almost 90% of all reported AIDS cases occur in adults between the ages 20 and 49 years. Since this is the most economically productive group of the population, the resultant deaths constitute an important economic burden. This is also the age group when investments in education are just beginning to pay off. These deaths also have important consequences for children since most people in this age group are raising young children.

### Reported AIDS Cases by Age and Sex (as at December 31, 1994)

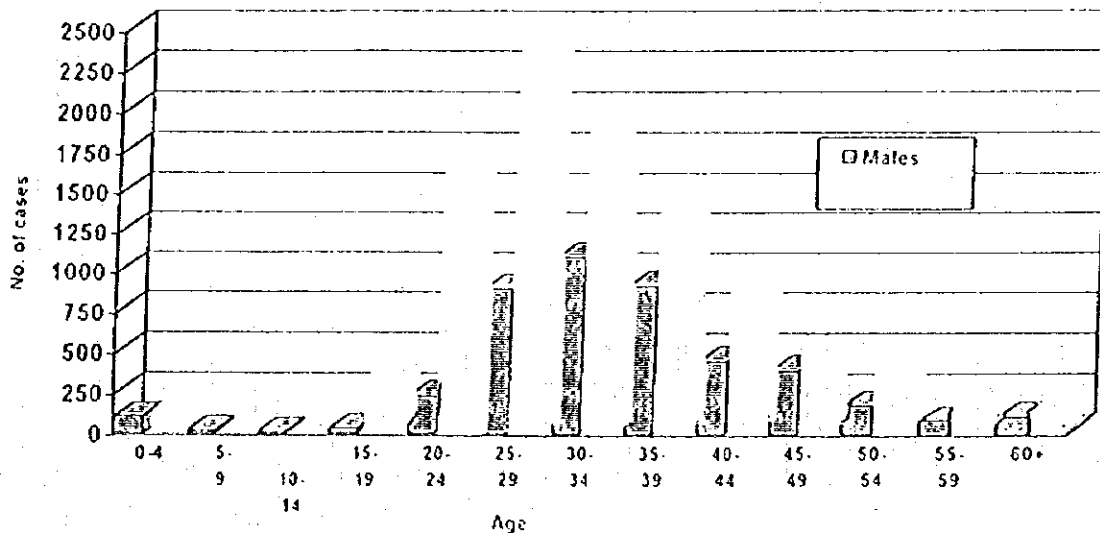


Figure 3

From figure 3, the following remarks can be made about AIDS in Ghana:

- There is a preponderance of females among the reported AIDS cases
- The peak ages for AIDS cases is 25-29 for females and 30-34 for males. This indicates that females are getting infected at an earlier age than males
- The absence of many AIDS cases in the 5-14 year old age group disproves two common misconceptions, HIV is not transmitted by mosquitoes or casual contact

### Transmission Mechanisms

AIDS is essentially a sexually transmitted disease (STD) which, like some other STDs, can also be transmitted through blood. This transmission may be through the transfusion of infected blood or blood products or through the use of non-sterile injection equipment. Less than 10% of HIV transmission in Ghana is due to blood as there is almost universal screening of blood (blood screening is not available in some small hospitals however). The AIDS virus can also be transmitted from an infected woman to her foetus or infant.

# HIV Transmission Modes

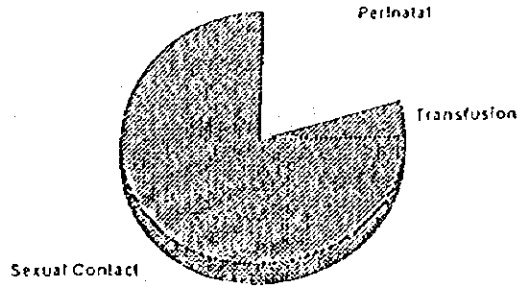


Figure 4

## *Incubation Period*

A person does not develop AIDS as soon as he or she becomes infected with HIV. There is a lengthy incubation period. On average, a person does not develop AIDS until 5 to 10 years after becoming infected. For a large part of this period, the person may not have any symptoms and, therefore, may not be aware that he or she is infected. This contributes to the spread of HIV, since the person can transmit the infection to others without realising it. The amount of time from when a person develops full-blown AIDS until death is usually about one year.

## HIV Incubation Period (Adults)

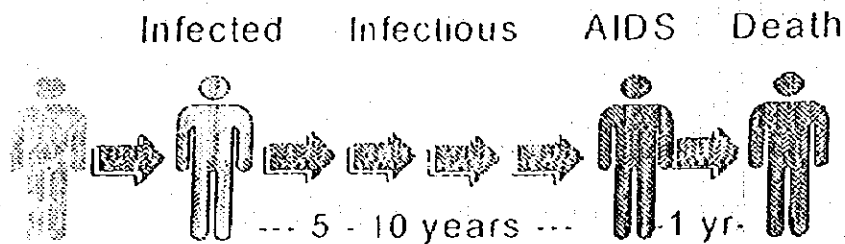


Figure 5



For children, the incubation period is much shorter. Most children who are infected at birth develop AIDS and die within two years.

### Sentinel Surveillance Results

The Ministry of Health has instituted a sentinel surveillance system that provides the basis for estimating the extent of HIV infection. The sentinel surveillance system operates in 22 sites around the country. All these sites, except for two, are ante-natal clinics, where pregnant women go for care during pregnancy. The other two sites are STD clinics in Kumasi and Accra.

The confirmed<sup>1</sup> results for 1994 show that in most of the antenatal sites<sup>2</sup>, the proportion of pregnant women who are HIV positive is between 2-4%. The lowest rates of HIV prevalence, 1%, was found in two sites, Tamale and Nalerigu. In one particular area, Agomanya, the prevalence was almost 10% (figure 6). Using the sentinel surveillance data and adjusting it to be representative of the total population, it is estimated that there are about 390,000 people in Ghana with HIV infection.

HIV Prevalence at Sentinel Sites: 1994  
(Ante-Natal Clinics)

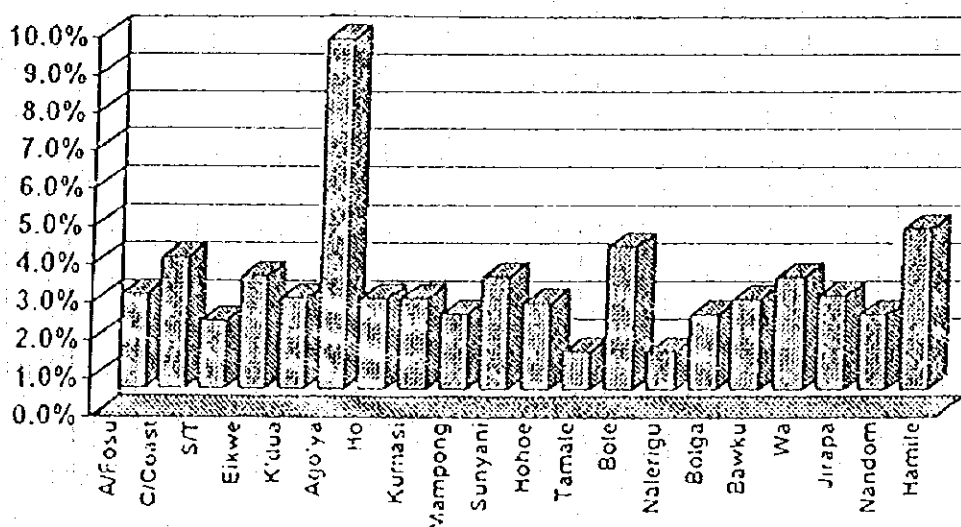


Figure 6

Discussing trends in HIV infection is difficult. In figure 7, comparable, screened (but unconfirmed) data are presented for 6 sentinel surveillance sites, Koforidua, Agomanya, Kumasi, Sunyani, Jirapa and Wa, for the years 1992 and 1994 (1991

<sup>1</sup> The design of the 1994 sentinel surveillance study represents an improvement over the previous studies in that the sites were chosen from all of the 10 regions and all positive results were confirmed by the Public Health Reference Laboratory.

<sup>2</sup> Work was successfully completed in 20 of the 22 ANC sites and 1 of the 2 STD sites.

data is also presented for Sunyani).<sup>3</sup> In 4 of the 6 sites, prevalence seems to be declining while in Jirapa and Wa, HIV prevalence in 1994 was higher than in 1992. One cannot draw any meaningful conclusions from these results

### Comparison of HIV Prevalence at Sentinel Sites (Screened Results)

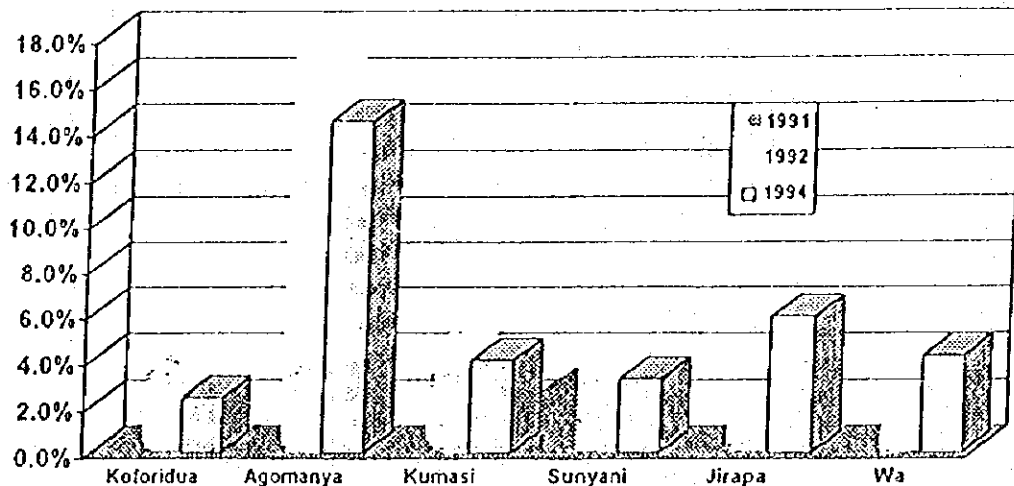


Figure 7

#### *Current Estimates of HIV Prevalence*

HIV probably started to spread in Ghana in the early to mid-1980s. The first cases of AIDS were detected in Ghana in 1986. One commonly used measure of the extent of HIV in a population is adult prevalence, that is, the percentage of adults over 15 years of age who are infected with HIV. In 1986, HIV prevalence in Ghana was still very low. The National AIDS Control Programme (NACP) estimated that by 1990, however, adult prevalence had risen to 2.5%. Based on the results of the 1994 sentinel surveillance study, the NACP estimates that the 1994 prevalence rate is around 4%.

<sup>3</sup> In the previous years, screened results from the sentinel sites were not confirmed. Therefore, no comparison of confirmed results can be made. There is also reason to believe that the screened results for 1994 are more accurate than in previous years because of increased, updated training, continuous supply of reagents and regular supervisory and monitoring visits. Furthermore, some of the reagents used in 1992 were more sensitive which could have resulted in more false positives.

### III. Projections

In order to project the number of new infections in the future, it is necessary to make an assumption about how rapidly HIV will continue to spread. The spread of HIV depends on many factors such as sexual practices, condom usage, and screening of blood, to name a few. How fast and how far HIV spreads in the future will depend on the success of control and prevention activities in all of these areas.

#### *Projected HIV Prevalence*

Prevalence is increasing in Ghana and one might assume that it will continue to rise over the next several years. In 1994, the NACP estimated that adult HIV prevalence was about 4% although, as shown above in figure 6, there are areas in the country where the estimated prevalence is almost 10%. Most of the sentinel sites, however, show a prevalence of between 2%-4%. By way of comparison, the HIV prevalence rate among pregnant women in selected West African cities for the 1991/92 time period, shown in figure 8, varies from 0.3% in Dakar, Senegal to almost 15% in Abidjan, Cote d'Ivoire<sup>4</sup>.

HIV Prevalence among Pregnant Women  
in Selected West African Cities  
(1991/1992)

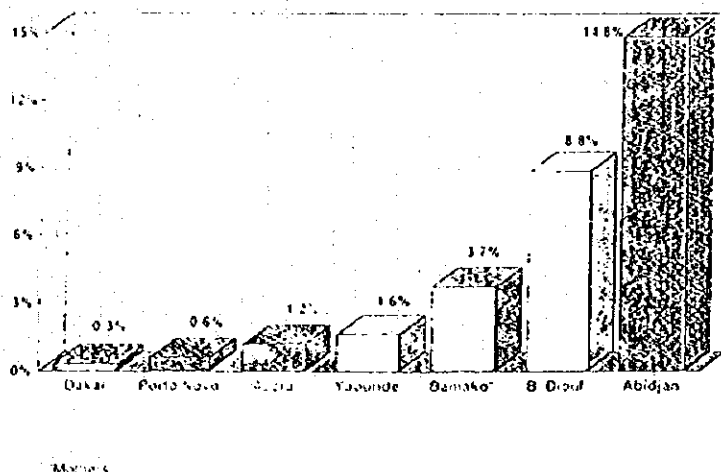


Figure 8

From the present trend, it is estimated that the prevalence of HIV will continue to rise to a level of about 8% in 2005 and remain more or less stable until 2010. (This estimate is on the conservative side.)

<sup>4</sup> U.S. Bureau of the Census, Health Studies Branch, Center for International Research, Seroprevalence Levels by Country: December, 1993, Research Note No. 11, December, 1993

With a rise in HIV prevalence to 6.5% by the year 2000 and 8% by 2005, the number of adult Ghanaians infected with HIV will rise from the almost 400,000 estimated cases in 1994 to 750,000 by the year 2000 and 1,250,000 by the year 2010. The number of new AIDS cases would increase to almost 62,000 by the year 2000 and 113,000 by the year 2010.

## Projected Number of People Infected with HIV

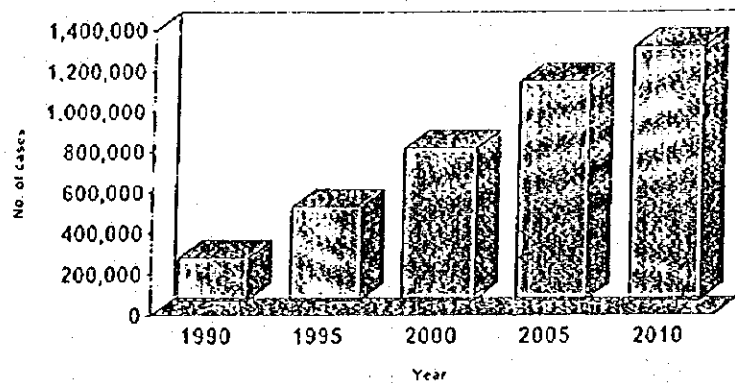


Figure 9

### *Population Size and Growth*

The increased deaths attributable to AIDS will have a significant impact on the population size. Population growth, however, will continue at a high level. The following population projection (figure 10) illustrates this point. This projection is based on the median population projection used by the Population Impact Project's RAPID model.

In this projection, the total fertility rate (the average number of births per woman during her lifetime) falls from the 1993 level of about 5.5 to 4.7 by the year 2000 and 3.8 by the year 2010. Furthermore, it assumes that mortality from all causes other than AIDS continues to decline so that life expectancy would increase from about 56 years in 1990 to 67 by the year 2010 if there were no AIDS deaths.

With no AIDS, the population would increase from over 16 million this year (1995) to about 19.79 million by 2000 and 25.89 million by 2010. The growth rate of the population would be 2.6% per year in 2010.

With AIDS, the population would be 19.46 million in 2000, a difference of 330,000. This difference would be 1.35 million by 2010. Thus, the combined impact of AIDS deaths and fewer births because of a smaller reproductive age population would result in over 1.35 million fewer people by 2010. In spite of this, however, the population would be growing at a rate of 2.2% per year.

## Total Population

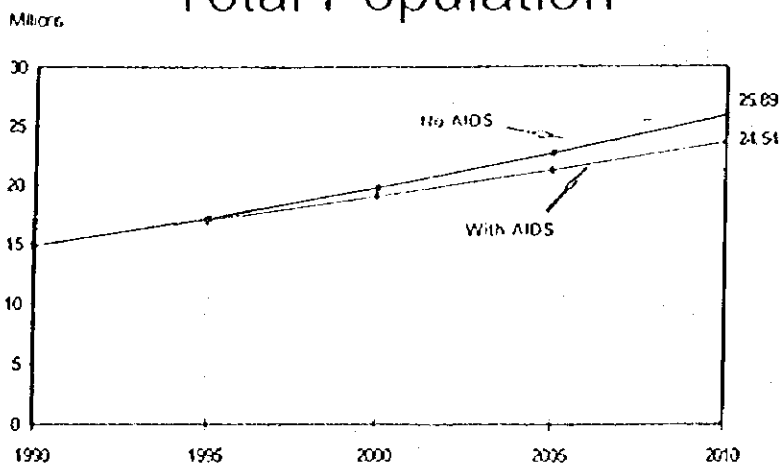


Figure 10

AIDS will therefore have a significant impact on population size, but the population will still be growing at a relatively rapid rate. The growth rate of the population will be less because of AIDS, but will still be 2.2% in 2010, implying a doubling time for the population of only about 30 years. Changes in the total fertility rate will have much more impact on the population growth rate than will AIDS deaths.

### Adult Death Rate

AIDS deaths will have a differential impact on different age groups of the population. Infants and young adults will be the most affected groups. Without AIDS, the annual number of deaths among young adults (ages 15-49) would increase slowly from the present estimated 62,000 to 63,000 by 2010. However, AIDS will dramatically increase that number, more than doubling it to 132,000 per year by 2010. This rapid increase in young adult deaths would have serious consequences for economic and social development.

### Annual Number of Deaths of Without AIDS (63,000) Young Adults (15-49) by 2010

With AIDS (132,000)

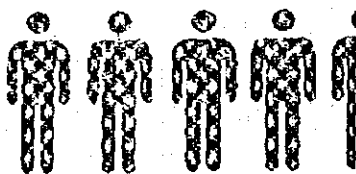


Figure 11

#### IV. The Social and Economic Impacts of AIDS

AIDS, more than any other disease, has the potential to destabilise the fabric of society, since it mainly affects those in the reproductive ages, usually the bread-winners.

The household is usually the first unit to suffer. Because transmission is principally through sexual contact or from mother to child, often more than one member of a household will be affected. The family will have to adapt and cope if members fall ill. Relatives and other family members will have to handle domestic and agricultural tasks of the sick person while colleagues will have to take on his or her work responsibilities.

The death of an adult invariably leads to far-reaching changes in the structure of the household. Children may be fostered, a surviving spouse may move out or, in some cases, even remarry and grandparents will take on new roles raising children or caring for sick persons. Already this is happening in some parts of the country.

##### *AIDS Orphans*

One of the worst impacts of AIDS deaths in young adults is an increase in the number of orphans. An AIDS orphan is defined as a child under the age of 15 who has lost his or her mother to AIDS. With this definition, the number of AIDS orphans in this country is estimated to increase over the years to about 160,000 by the year 2000. Coping with such a large number of orphans will lead to a tremendous strain on social systems.

### AIDS Orphans

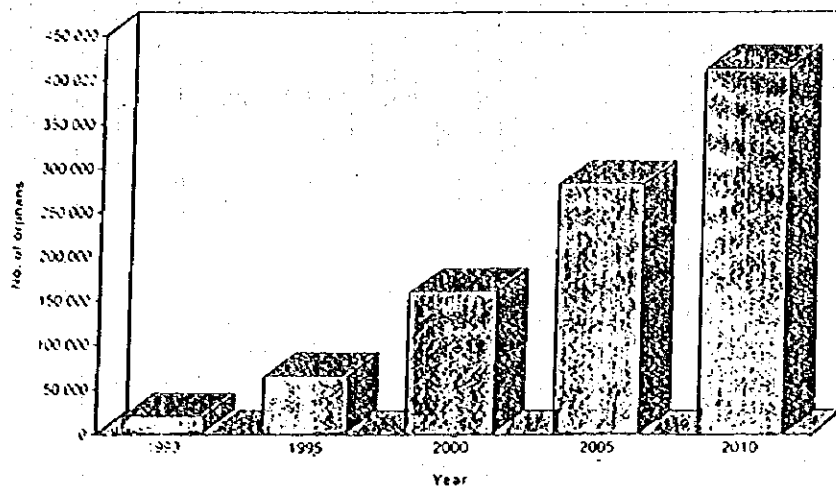


Figure 12

AIDS orphans may be deprived of proper care, supervision and parental guidance at a critical period in their lives, before they develop their own survival skills

At the family level, there will be an increased burden and stress on the extended family which will try to care for these orphans. Many grandparents will be left to care for young children. Some families may even be headed by children as young as 10-12 years old as is already happening in some parts of East Africa.

At the community and national level, there will be an increased burden on society to provide services for these children, including orphanages, health care and schools. Some of these children may not have adequate health care and schooling, increasing the burden on society in future years. These children are often obliged to stop their formal education prematurely due to lack of resources, or forced to provide care for their families, or to earn a living. A World Bank study in Tanzania found that children who have lost their mothers to AIDS have markedly lower enrolment rates and, once enrolled, spend fewer hours in school than children with two living parents. There may also be an increase in the number of urban street children.

These are real challenges for any community, including ours, especially in these days of economic difficulties and structural adjustment.

### *Women and AIDS*

Although, on a global level, most of the early reported HIV infections were men, women have been infected with HIV since the beginning of the pandemic. In Ghana, however, many more women than men were infected throughout the history of the epidemic. As stated earlier, at December 31, 1994, women constituted the majority of reported AIDS cases in all age groups except the 5-9 age group. New AIDS cases in women are expected to rise to almost 32,000 by the year 2000 and almost 60,000 by 2010 (figure 13).

Estimated New AIDS Cases in Women

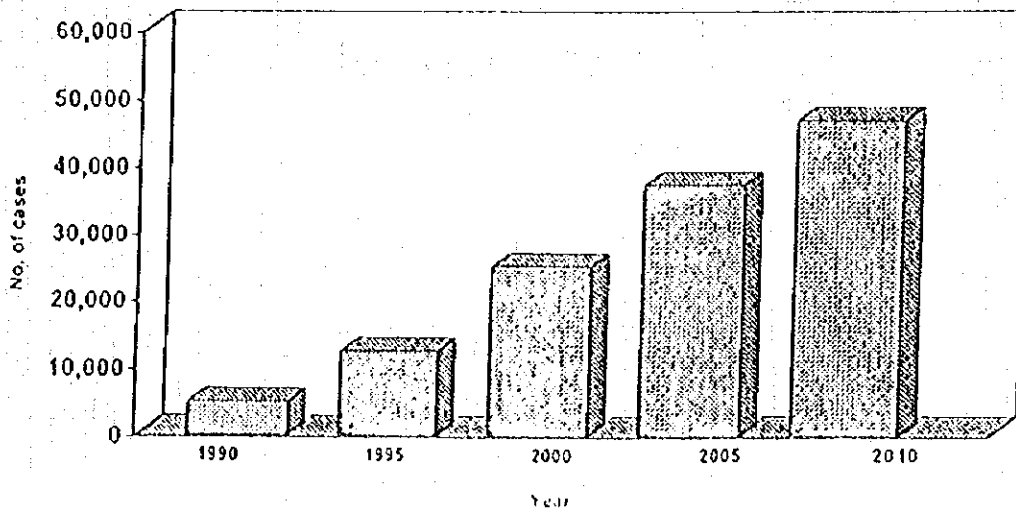


Figure 13

This gender difference results from several factors. First, women are more biologically vulnerable than men to sexually transmitted diseases, including HIV infection. Furthermore, STDs which bring on recognisable symptoms in men, are often asymptomatic in women and therefore remain untreated. In fact, according to the findings of the 1993 Ghana Demographic and Health Survey (GDHS), only 54% of all women interviewed and 34% of women with no education have ever heard of a STD other than AIDS. A related factor is the relative lack of services designed to meet women's needs. Finally, women are more vulnerable than men due to their status in society, including social and cultural expectations about their sexuality.

Women by virtue of their traditional role in society as care-givers carry a greater burden in terms of the social and cultural impact of the pandemic. Over 45% of female respondents in the 1993 GDHS reported that if a relative was suffering from AIDS, they would want that person cared for by a family member. This responsibility will likely fall more fully on women who may themselves be infected with HIV.

#### *Childhood Deaths*

AIDS also affects child survival. It is estimated that about 30-40 percent of babies born to infected mothers will also be infected with HIV. Most of these babies will develop AIDS and die within two years. Few will survive past the age of five.

AIDS could soon become the major cause of child death, worse than other major causes such as measles and malaria. For, example, the annual number of child deaths due to measles and malaria is estimated to range between 5,000 and 11,000 through the year 2010 whilst those due to AIDS could reach almost 18,000 over the same period (figure 14).

Estimated Annual Number of  
Childhood Deaths

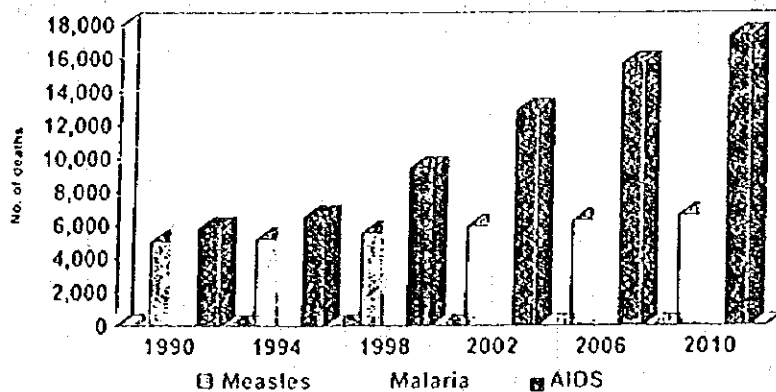


Figure 14



The increasing number of child deaths due to AIDS threatens to reverse many of the recent gains of child survival programmes

- The infant mortality rate is the number of infants who die during the first year of life per 1000 live births. The 1988 Ghana Demographic and Health Survey (GDHS) found infant mortality to be 77. The 1993 GDHS found this rate to be 66. Without AIDS, the infant mortality rate might be expected to decline to about 40 by 2010. However, with AIDS, it would only decline to about 45 by the same year.
- The under-5 mortality rate is the number of children who die before reaching their fifth birthday per 1000 live births. In 1988, the GDHS reported the rate as 155 while in 1993 it was found to have decreased to 119. Without AIDS, it might be expected to decline to around 51 by 2010. However, with AIDS, this rate would be around 75 in 2010.

#### *Demand for Health Services*

The growing number of people with AIDS and AIDS-related complications will severely strain the health infrastructure. One way to quantify this increased demand for health services can be illustrated by looking at hospital beds. Not all people with AIDS will seek hospital care. But for those that do, the average length of stay is considerably longer than for most diseases. Using estimated AIDS cases in 1994, figure 16 shows that as much as 20% of all hospital beds in the country would have been occupied by patients with HIV-related disease. As the epidemic grows, so will the hospital bed requirements. By the year 2000, almost half of all hospital beds would be required for HIV/AIDS persons. By 2010, over 90% of all hospital beds would be occupied by AIDS patients.

### Hospital Bed Utilisation

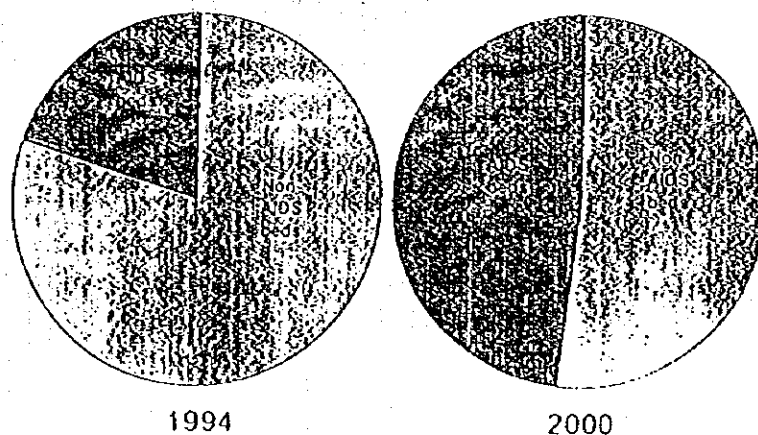


Figure 15

This would leave an insufficient number of beds for patients for all other causes. Therefore AIDS must be controlled or it will seriously affect the provision of health services.

### *HIV and Tuberculosis*

The potential interaction between HIV infection and other infectious diseases is of great clinical and public health concern. The most significant interaction is with tuberculosis.

Efforts to control TB have been put in place over the past few years. In spite of this, the number of TB cases has been rising. This is due to the spread of HIV infection. HIV weakens the immune system of otherwise healthy adults. Many adults carry a latent TB infection which is suppressed by a healthy immune system. When that immune system is weakened by HIV, it can no longer control the TB infection and overt TB can develop.

In the absence of HIV, the number of new TB infections would be limited to about 0.2% of the population. This would result in 20,000-30,000 new TB cases each year.

## Estimated New Adult Cases of Tuberculosis

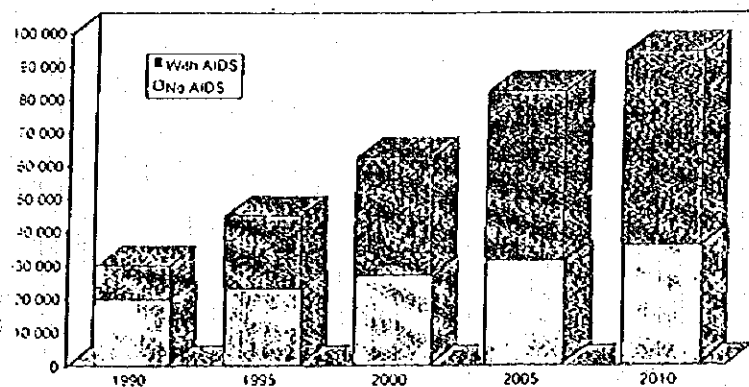


Figure.16

With AIDS, a number of new TB cases will develop. If the assumption is made that, among people with both HIV and latent TB infections, 10% develop TB each year, then as can be seen in figure 16, the additional number of TB cases due to HIV infection would be about 36,000 by the year 2000. Even this is likely to be an underestimate since these new cases may transmit the disease to others

The impact of HIV infection on tuberculosis is a serious problem because TB is infectious through casual contact. It threatens to vastly increase the risk of

tuberculosis for the entire population. Also, drug-resistant strains of TB are appearing, making it much more difficult and expensive to treat TB.

### Cost of AIDS

The cost to individuals, families, and society of treating manifestations of HIV/AIDS in any particular case will vary with the marked differences in signs and symptoms, and length and severity of illness among various patients. People with HIV infection may seek treatment for HIV-related symptoms such as cough, fever, diarrhoea, oral sores and skin problems, or for opportunistic infections such as tuberculosis and fungal infections of the throat and oesophagus. As people with HIV infection and related diseases progress from asymptomatic infection through episodic illnesses of varying severity to eventual death, their corresponding health care and social support needs increase. Ghanaians feel that these increased needs should be met by the government. Almost 38% of respondents in the 1993 GDHS believe that a government organisation should care for relatives suffering from AIDS while almost 40% believe that the most important thing that the government should do for people who have AIDS is to provide them with free medical treatment.

## AIDS Treatment Costs

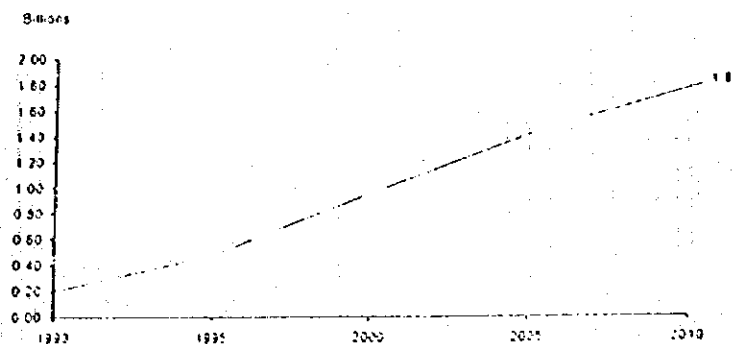


Figure 17

Information is lacking for calculating costs for the spectrum of conditions associated with HIV/AIDS. Some attempts have been made to determine these costs, but efforts have mostly been directed at costs of in-patient treatment in hospitals. Much less is known about costs of out-patient treatment and medications. Little is known about the cost of home-based services. Still less is known about the value of the services provided by family members, lovers, friends and others in support of the terminally ill person's basic activities of daily living. Though such supportive care is generally not classified as personal health service, it requires diversion of economic resources.

that substitute for long-term institutional care or home-based care by health professionals.

A recent study done in Korle-Bu estimated the in-hospital, lifetime cost of treating one AIDS patient to be about 100,000 cedis. Even assuming a relatively small percentage of AIDS patients seeking hospital care (20% in urban areas, 10% in rural areas), it is estimated that over 200 million cedis was spent on in-hospital costs for AIDS patients.

If this expenditure remains constant, then, as shown in figure 17, the total hospital cost for AIDS care would increase to about 1 billion cedis by the year 2000 and 1.82 billion by the year 2010. This would amount to almost 4% of public expenditures for health care by the year 2000. Again, this represents only the in-hospital costs. Clearly, this would place a tremendous burden on the public health system to provide adequate care for AIDS patients and still try to meet all the other health needs of the population. This situation will also have serious consequences on the proposed Health Insurance scheme being developed in the country. At a large bank in Zambia, for example, life insurance payments rose threefold between 1991 and 1992, largely due to HIV/AIDS related causes.<sup>5</sup>

#### *Economic Impact of AIDS on the Nation*

AIDS will have an impact on the economic development of the country in a number of ways. Although the actual impact of AIDS on the rate of growth of the Gross Domestic Product (GDP) is difficult to estimate, simulations carried out by the World Bank indicate that growth in GDP per capita in Sub-Saharan African countries may decline on average by about 0.6 percentage points

The loss of young adults in their most productive years of life will certainly affect overall economic output. If AIDS is more prevalent among the economic elite, who are the best educated people with the highest paying jobs, then the impact would be much larger than the absolute number of AIDS deaths would indicate. It is also important to consider how the private costs of AIDS will be paid. These costs include expenditures for medical care, drugs, funeral expenses, etc. If most of these extra expenditures are financed out of savings then the reduction in investment could lead to a significant reduction in economic growth.

The economic impacts are likely to be larger in some sectors than others. Certainly health care and insurance are likely to be significantly affected. Sectors that employ young, sexually active men who are away from their families for long periods of time may be severely affected. This may include men in the armed forces, transportation, mining and extension services. Some evidence of this phenomenon already exists in the large number of AIDS cases being reported in the Adansi West District (which includes Obuasi, home of Ashanti Goldfields Corporation).

Studies in South Africa, Zambia and Zimbabwe suggest that absenteeism and fatigue on the job resulting from AIDS-related illnesses may be even more costly

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<sup>5</sup> Roberts, Matthew, p. 4.

than the eventual deaths of employees. An in-depth analysis of five Kenyan companies found that AIDS is already costing an average of \$45 per employee annually, or about 3% of company profits. If the spread of HIV/AIDS infection progresses as predicted in Kenya, within the next 10 years the average annual cost will rise to over \$120 per employee or 8% of company profits.<sup>6</sup> Initial estimates from work done in a few companies in this country indicate that the costs involved may not be very different from those in East Africa.

The Food and Agriculture Organisation (FAO) estimates that the AIDS epidemic has become so serious that it threatens to hurt agricultural production and cause food shortages, although the actual impacts on agriculture are likely to vary by agricultural system. In rainy areas, where a variety of crops are planted throughout the year, families can cope relatively well with the loss of a few labourers. They may reduce the area cultivated and cut back on the number of crops planted, but may still be able produce an adequate amount of food. In dry areas, where farming depends on one or two crops that must be planted and harvested at specific times of the year, the impacts are likely to be more severe. In these areas the loss of a few workers at the crucial periods of planting and harvesting can significantly reduce the size of the harvest. The loss of labour force because of AIDS could make it difficult for families to feed themselves.

A loss of agricultural labour is likely to cause farmers to switch to less labour-intensive crops. In many cases this may mean switching from export crops to food crops. Thus, AIDS could affect the production of cash crops as well as food crops.

<sup>6</sup> Roberts, Matthew p 4

## V. Interventions to Slow the Spread of AIDS

There is as yet no vaccine to protect people against HIV infection or a drug to cure individuals already infected with HIV. However, much is known about how to prevent the spread of HIV through sexual intercourse and blood transfusion. It is vital to put that knowledge to work in order to slow the spread of the virus and thereby minimise the enormous personal and socio-economic costs resulting from the pandemic.

### *Strategies to Slow HIV Transmission*

The impact of AIDS will be very severe in Ghana if HIV infection continues to spread at its current rate. Fortunately, there are actions that can be taken to slow the spread of HIV (figure 18).

- To avoid infection through blood transfusion, the blood supply needs to be made as safe as possible. This means screening blood through laboratory tests and screening potential blood donors through interviews in order to reject as donors those that have a high probability of being infected.
- To reduce perinatal transmission, it is important that young women know whether or not they are infected. If they are they may wish to use family planning to avoid pregnancies. Counselling needs to be available for couples to help them understand the results of the HIV test and the choices facing them.
- The major mode of transmission is through heterosexual contact. People can protect themselves by avoiding sexual contact with multiple partners. The use of condoms can also reduce the risk of acquiring HIV infection. Since the presence of a sexually transmitted disease can increase the chances of acquiring HIV during unprotected contacts, programmes to control STDs can also help reduce the number of new infections.

## HIV Transmission Modes and Methods of Prevention

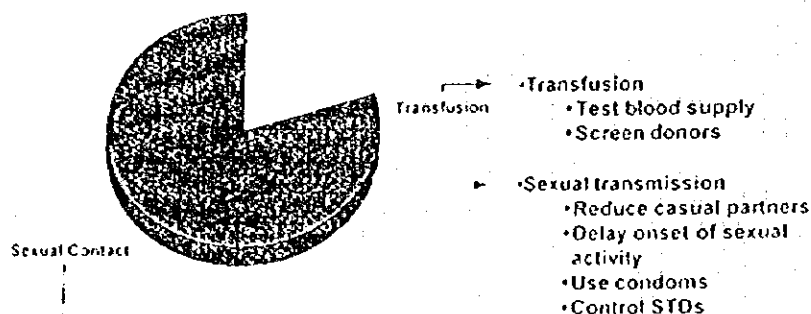


Figure 18

### *The Effects of Interventions*

There has been much research world-wide to discover the best ways to slow the spread of HIV. These activities include information, education and counselling programs; testing; condom promotion and availability and STD control.

The potential impact of successful interventions can be illustrated using computer modelling. The following information, presented in figure 19, was developed using two different models to show the expected impact of interventions in a typical urban setting.<sup>7</sup> In these illustrations, it is assumed that adult HIV prevalence would increase to 20 percent with no interventions.

## Expected Effects of AIDS Interventions

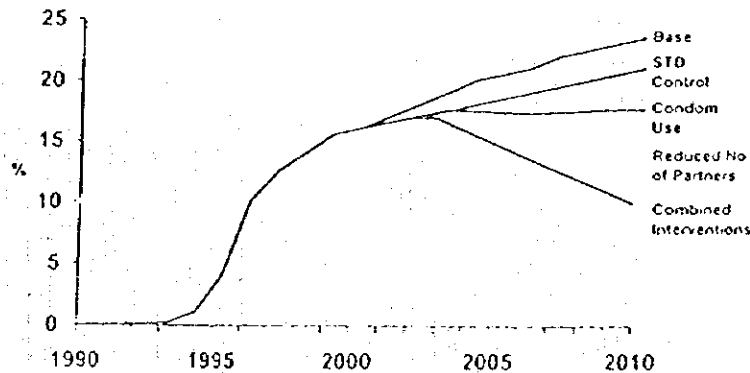


Figure 19

Reduction in number of sexual partners. The first intervention focuses on encouraging people to remain faithful to a single partner. This could be done through a combination of mass media messages, counselling and education programs. It is assumed that the result will lead to a reduction of 50 percent in the number of men who visit prostitutes, a 25 percent reduction in the number of casual sexual contacts and a doubling of the average duration of casual relationships. If these interventions are implemented when prevalence has reached about 15 percent, the result would be a 35 percent reduction in prevalence after 10 years. This would be an important reduction in the spread of HIV, but not by itself a complete solution.

The interventions are based on model intervention programs being developed by the Global Programme on AIDS of the World Health Organisation.

**Promotion and availability of condoms.** The second intervention is to promote condoms through mass media, counselling and education and also to increase the availability of condoms through expanded public distribution, social marketing, programmes with prostitutes and programmes in the workplace. This illustration assumes that condom use increases to 70 percent for prostitutes and to 13 percent in contacts between men and their casual girl friends. Under these assumptions, prevalence would be reduced by 25 percent after 10 years.

**STD control.** The next intervention focuses on controlling the spread of sexually transmitted diseases such as syphilis and gonorrhoea. This intervention involves improved services to detect and treat STDs. However, it should be noted that a full STD program would also include condom promotion and education. It is assumed that through this intervention 30 percent of all STD episodes are correctly treated. The result would be a 10 percent reduction in HIV prevalence after 10 years.

**Combined intervention.** Each of the interventions described above can make an important contribution to controlling the spread of HIV. However, none by itself solves the problem completely. A much larger effect can be achieved by implementing all the interventions together. In the case illustrated here, combining the interventions would reduce HIV prevalence by 50 percent within 10 years. It is important to implement combined interventions in order to reach the maximum number of people. Some people will respond to one intervention while others will respond to another.

**Treatment and vaccines.** There is no known cure for AIDS. There are several drugs that are approved for the treatment of people with HIV infection or AIDS. However, the effectiveness of these drugs is primarily limited to combating opportunistic infections that arise because of the weakened immune system. They do not cure the HIV infection or prevent AIDS. Research on vaccines continues in many laboratories around the world. Trials of vaccines may begin this year. However, most scientists believe that vaccines are not likely to be ready for mass use before the year 2000. Even once vaccines are available there will be problems in producing large quantities and delivering the vaccine to large numbers of people. Therefore, it does not appear that vaccines or drugs will contribute much to the fight against AIDS in the next several years.

There are three important lessons to be learned concerning interventions.

1. Pilot tests have shown that interventions can be successful in significantly reducing the spread of HIV.
2. We do not yet have much experience with applying interventions successfully on a nation-wide scale
3. It is important to intervene in many different ways in order to reach the largest possible number of people and have the maximum impact



### *What is being Done in Ghana*

The AIDS Control Programme in Ghana is one of the programmes co-ordinated by the Disease Control Unit of the Ministry of Health.

The programme developed a five-year medium term plan (MTP) for the period 1989-1993 that described the objectives, strategies and activities for the prevention and control of the disease.

When the MTP ended in 1993, a national workshop was organised in June 1994 with the view of arriving at a consensus on the nature of the current and future epidemic, its determinants and its impact.

Agreement was reached on the objectives, strategies and interventions to deal with the current and future epidemic as well as emerging issues notably the socio-economic impact of the disease.

The earlier medium term plan focused on:

- (a) preventing sexual transmission
- (b) preventing infection through blood transfusion and unsafe medical practices, and
- (c) the reduction of the impact of the disease on affected individuals, their families and the community at large.

Among the accomplishments realised in the effort to prevent and control AIDS in Ghana include the following:

- A high level of awareness of AIDS exists in the country although this level of awareness has not been translated into the desired level of positive sexual behaviour or positive attitude towards HIV/AIDS.
- Affordable condoms are now available throughout the country through both public and private sector outlets.
- The existing MOH management structure has been strengthened at the national and regional levels and to some extent at the district level to deal with the AIDS problem. This has been achieved through the development of guidelines, training of staff, and provision of equipment to the regions.
- An HIV/AIDS epidemiological surveillance system has been put in place to measure the magnitude of the AIDS problem and to monitor trends.
- A counselling system now exists at both the regional and district levels to provide psycho-social support to HIV seropositive persons, persons with AIDS and their relatives.
- The management of STDs has been strengthened through the development of guidelines and training of staff.
- Ninety to ninety-five percent of all of the blood transfused in the country is screened for HIV.

- Some sector ministries and NGOs have been mobilised to integrate HIV/AIDS prevention and control into their activities

#### *What Needs to be Done*

During the consensus workshop it was agreed that actions should be taken to slow the spread of HIV in Ghana and to avert the serious social and economic consequences that would result from a continued AIDS epidemic.

It was recognised that much is being done presently to care for people with HIV infection and AIDS and also educate the general public about the dangers of AIDS. Despite these efforts, HIV is still spreading rapidly in most parts of Ghana. For the prevention efforts to succeed, a number of issues need to be addressed. Among them are:

Promoting safer and responsible sexual behaviour which among other things should include the proper use of condoms and its acceptance by the general public and mutual fidelity among couples. All channels should be used to deliver these messages. According to the 1993 GDHS, almost 60% of respondents received their AIDS information from the radio and 32% from the television. After friends or relatives, these are the two most important sources of information about AIDS. Only 18% of the respondents received their information from health workers. This is perhaps not surprising as the 1993 Situation Analysis of Family Planning Service Delivery Points in Ghana showed that whereas 93% of FP clients would be willing to discuss AIDS with a nurse, only 44% of providers surveyed were willing to provide information and counselling on AIDS to FP clients.

Promoting early diagnosis and adequate treatment of STDs and periodically reviewing the essential drug list to include appropriate and effective drugs taking into consideration emerging resistance to the common drugs.

Incorporating effective family life education with school curricula and out of school youth programmes to inform young people about how they can protect themselves from AIDS/STDs.

Developing policies that provide an enabling environment for AIDS prevention and control that also protect the human rights of affected individuals, e.g. non-discrimination and confidentiality of information on HIV infected individuals. Such actions are extremely important in light of the findings from the 1993 GDHS which show that 33% of women and 41% of men interviewed believe that AIDS sufferers should be quarantined, while 10% of women and 9% of men think that they should be killed.

Educating employers to use the skills of HIV/AIDS persons to the maximum as long as possible. This should include retraining of employees where necessary and appropriate use of their services.

Adoption of a multisectoral approach. AIDS/STD programmes require action, support and resources not only from the Ministry of Health, but also

from other sector ministries and NGOs. Whereas the National AIDS/STD Programme has developed a good working relationship with some sector ministries and NGOs, the latter still look up to MOH for financial resources. These sectors/institutions must be encouraged to plan, allocate resources and implement AIDS/STD control activities in their relevant areas of operation. Focal persons for AIDS/STD activities should be designated for these sectors and trained. The role of MOH will be to provide technical leadership, co-ordination, monitoring and evaluation of activities implemented by the various sectors and institutions.

**Strengthening of the National Advisory Council on AIDS.** AIDS/STD is a major health problem. However, the consequences of AIDS go far beyond the illness and death of those who are infected. Just as AIDS affects other sectors, the policies of other sectors can enhance or hinder AIDS/STD prevention and care activities. A programme for AIDS/STD prevention and care requires support, co-operation and action from many groups in both public and private sectors. A high level multisectoral national committee is usually the most effective way to achieve this goal.

**Strengthening the Health Sector.** The health sector needs to be strengthened to enable it to provide technical leadership and guidance, and provide clinical care to persons with HIV/AIDS. Staff at all levels will have to be provided with the skills and knowledge to enable them to integrate AIDS/STD prevention activities into the primary health care programme.

The health information system and the health laboratory services will need to be strengthened to allow for the collection of a meaningful series of confirmed results in support of the sentinel surveillance system. This will provide program managers and policy makers with the relevant information they need to make informed decisions.

Specific interventions that would help to reduce the incidence of HIV infection in women include:

Increasing the access to and utilisation of appropriate services by women through the funding of interventions that educate women to recognise signs and symptoms of STDs and to seek appropriate health care services.

Reducing the stigmatisation and blaming of women for HIV infection by ensuring that laws and policies do not contribute to the stigmatisation of women with HIV (e.g. arresting prostitutes and mandatory testing of prostitutes for HIV).

Reviewing the existing laws and policies in terms of their impact on women's status and health (e.g. those regarding income, property, inheritance, access to credit).

Increasing girls' access to education including access to scholarships and other financial assistance. The 1993 GDHS shows that awareness of AIDS

and knowledge of how AIDS is transmitted rises with the level of education of the women. For example, while 85% of all women know that AIDS is sexually transmitted, only 72% of women with no education know this. Over 90% of women with primary education or higher know that AIDS is sexually transmitted.

Providing support to programmes and interventions to assist women who provide foster care to children as a result of AIDS and other diseases.

Developing a broad intersectoral approach to home care with an emphasis on support for programmes that promote the sharing by men and women of the care-giving role.

Reviewing the impact of prostitution-related laws and regulations on the ability of HIV/AIDS and STDs prevention intervention projects to operate effectively.

And, most importantly:

Stronger political commitment by leaders at the national, regional and district levels. Currently it is estimated that approximately 80% of MOH non-personnel expenditures for AIDS/STD control activities are funded by external donors. More financial and human resources need to be committed by Central Government through its annual budget estimates for AIDS/STD prevention and control activities.

Ministers of State, parliamentarians, religious and traditional leaders, other policy makers and opinion leaders can help place AIDS/STD prevention and control prominently in the public agenda. These leaders should seize every opportunity to inform and educate the public on AIDS/STD, and must ensure that whatever policies they develop provide an enabling environment for AIDS/STD control.

With the district being the focus of implementation of all programmes, including health, District Assemblies should include AIDS/STD control in their developmental plans and allocate resources for programme activities.

## Technical Annex

### *I. Demographic and Prevalence Projections*

**Population Projections:** The population projections used for this analysis are based on the median population projection used by the Population Impact Project's RAPID model.

**Prevalence estimates:** calculated from fitting a curve to the following prevalence estimates from NACP:

1985	0.0%
1988	0.7%
1990	2.5%
2005	8.0%

### *II. Base data and assumptions*

**Percent distribution of new adult HIV infections by sex.** From 1990 HIV data (NACP); assumed constant over projection period

**Percent of AIDS cases reported.** 45% (NACP estimates).

**AIDS orphans:** AIDS orphans are defined as children under the age of 15 who have lost their mother to AIDS. The number of AIDS orphans between 1986 (the start year of the epidemic) and 1990 was calculated based on the age breakdown of the adult female AIDS cases between 1986 and 1989 (from NACP/EPID, for the purposes of this calculation, it is assumed that an AIDS patient dies after 1 year), a 45% reporting rate of AIDS cases, and the average number of living children per women by 5-year age group (1988 DHS). This will result in an overstatement in the number of orphans because the average number of living children is not reported by age.

**Number of adults and number of HIV+ adults 1986-1994.** Calculated using the census figure in 1984 and the base year projection from PIP in 1990. The intervening years were calculated using an exponential extrapolation. Data for 1991-1994 are drawn from the population projections. The prevalence figures discussed above were used to calculate the number of HIV+ adults.

**Health budget and growth rate of the budget.** In 1990, the health budget was 20,242,600,000 cedis (PPME). The growth rate of the budget over the past several years has averaged about 7%. A growth rate of 3% is assumed for the projection.

**Number of hospital beds.** 11,040 in 1990 (PPME). This number is assumed to remain constant over the projection period.

**Lifetime cost of treating one AIDS patient.** Estimated to be 107,287 cedis based on the average cost of treating AIDS patients in Korle-Bu who were discharged or died in April, 1994 multiplied by the average number of times and AIDS patient will be hospitalised before dying (17 times based on a World Bank study)<sup>1</sup>

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<sup>1</sup> World Bank, World Development Report 1993, Washington, DC, June 1993

**Bed days per AIDS patient** Estimated to be 213 based on the average number of days AIDS patients in Korle-Bu who were discharged or died in April, 1994 spent in Korle-Bu multiplied by the average number of times and AIDS patient will be hospitalised before dying (17 times based on a World Bank study)

**Percent of AIDS patients hospitalised.** Assumed to be 20% in the urban areas and 10% in the rural areas in 1990. These numbers are assumed to remain constant throughout the projection period.

**Disease case rates:**

#### Measles

Proportion of children 0-4 vaccinated:	0.760 (NACP)
Vaccine efficacy:	0.800 (from CDC estimates)
Proportion susceptible children getting measles by age 5	1.000
Case fatality rate	0.024 (NACP)

#### Malaria

Case rate for children 0-4	3	(Average number of episodes/year. CDC estimates this to be between 1.25 and 5 for SSA)
Case fatality rate for children 0-4	0.0014	(Proportion of disease episodes that end in death. CDC calculates 0.5%-1% of episodes are severe and life-threatening and that there is 15%-20% mortality in these cases, therefore fatality rate is between 0.00075 and 0.002. The mid-point is 0.0014)

#### Tuberculosis

Incidence rate without HIV	2.400	AIM default values based on African data
Percent of HIV+ with TB latent infection	50.00	
Percent of HIV+ and TB+ adults developing overt TB per year	10.00	

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⑨ EXPANDED PROGRAM ON IMMUNIZATION

*In case of reply  
the number and the  
date of this letter  
should be quoted*



DISEASE CONTROL UNIT  
MINISTRY OF HEALTH  
P.O. BOX 2848  
ACCRA

February 6, 1997

REPUBLIC OF GHANA

My Ref No. ....  
Your Ref No. ....

THE RESIDENT REPRESENTATIVE  
JICA  
ACCRA

THRO'  
THE DIRECTOR, PHD  
MINISTRY OF HEALTH  
ACCRA.

Dear Sir,

RE: EXPANDED PROGRAM ON IMMUNIZATION

We refer to your letter JICA/GA/92 Vol.4/43 dated 13th January 1997. Should you need any extra information we will be willing to provide it.

We thank you very much for your support.

DR. CORNELIA A. ATSYOR  
EPI/CDD PROGRAM MANAGER

cc: UNICEF Representative  
Attention: Dr. Jama Gulaid

Head, Disease Control Unit, MOH, Accra

External Aid Coordinator, MOH, Accra



## 1.0 REVIEW OF INFECTIOUS DISEASES

### 1.1 Acute Poliomyelitis

The graph of acute poliomyelitis shows a decreased trend in incidence. However, there is considerable under reporting of cases. The minimum number of reported acute flaccid paralysis should be about 100 per year in Ghana. The average number of reported cases of polio is 30 per year. With the introduction of National Immunization Days geared towards polio eradication by the year 2000, we will be expecting an initial rise in number of cases (as a result of improvement in the AFP surveillance) followed later by a decline in the number.

### 1.2 Pertussis: (Whooping Cough)

The incidence of whooping cough is also showing a downward trend with peaks occurring in 1987, 1989 and 1992.

### 1.3 Measles:

Measles incidence shows an endemic pattern with a two-year cycle epidemic since 1988. The peak number of cases in the epidemic declined from 1988 to 1990 but showed an upward trend from 1990 onwards. Outbreaks occur throughout the country every year and affects mainly the under one year group. Immunization coverage would be stepped up using the high risk approach throughout the country.

### 1.4 Tuberculosis

Tuberculosis incidence is increasing rapidly presenting a mixed picture as a result of drug resistance to the Tb bacillus and partly as a result of HIV infection.

### 1.5 Neonatal Tetanus

The incidence of the total tetanus (adult and neonates) cases is declining. However, neonatal incidence rate has risen rapidly since its reporting was separated from total tetanus reporting in 1993. This rapid rise is mainly due to improvement in the reporting system and rather than an actual increase in the number of cases.

### 1.6 Diphtheria

The number of cases reported is very low. From 1991 to 1995 the incidence is less than 0.1% per 100,000 population and therefore a public health problem in Ghana.

## 2.0 IMMUNIZATION COVERAGE (1991-1995) - See graph:

### 2.1. BCG

BCG coverage increased from 56% in 1991 to 67% in 1995 showing an increase of 20%.

### 2.2 DPT3

DPT3 coverage increased from 40% to 52%.

### 2.3 OPV3

OPV3 coverage also increased from 40% to 51%.

### 2.4 Measles:

Measles increase from 40% to 55% from 1991-1995

## 3.0 Mortality Rate

Under five and infant mortality rates are showing downward trends a result of child survival activities such as EPI infant mortality rate declined from 82 deaths per 1000 live birth in 1974-1978 to 66 deaths per 1000 live birth in 1989-1993. The under 5 mortality rate declined from 157 deaths per live birth in 1974-1978 to 119 deaths per 1000 live birth. (Demographic and Health Survey 1993)

## 4.0 Evaluation

Four evaluations were done covering the whole country from 1989 to 1996. These are:

1. Primary Health Care/Expanded Program on Immunization Review - 1989
2. Primary Health Care/Expanded Program on Immunization Review - 1992
3. Demographic and Health survey 1993
4. Assessment of the Mid Decade Goal 1996

All except 3 were conducted by the Ministry of Health in collaboration with WHO and UNICEF.

Evaluation on EPI showed improving immunization coverage and drop out rates. See Table below

## 4.1

## RESULT OF FOUR EPI EVALUATION

VACCINE	1989 <sup>1</sup>	1992 <sup>2</sup>	DHS 1993 <sup>3</sup>	1996 <sup>4</sup>
BCG	41.2	86	80.1	70
DPT3	22.7	41	57.3	55
OPV3	23.7	40	57.1	55
MEASLES	38.6	30	59.6	46
TT2+	13.9			64
FULLY IMMUNIZED	15	21	42.9	42
DROP OUT RATE				
DPT1-3	51	31.4	28	-
OPV 1-3	52	31.9	28	-
TT2+	46.4	-	-	-

1. Primary Health Care/Expanded Program on Immunization Survey, Ministry of Health/UNICEF/WHO. Ghana, 1989
2. Primary Health Care/Expanded Program on Immunization Survey, Ministry of Health/UNICEF/WHO. Ghana, 1992
3. Demographic and Health Survey, Statistical Services Department, Ghana, 1993.
4. Assessment of the Mid Decade Goals. Ministry of Health/UNICEF. Ghana, 1996

5.0 SITUATION OF THE VEHICLES, REFRIGERATORS ETC UNDER JICA'S ASSISTANCE

Table below shows the items donated under Japan multi bi Cooperation with UNICEF. The Vaccine, refrigerators, syringes, needles and vehicles had been distributed to the regions. Some of the vehicles had been kept at the national level for monitoring and evaluation of EPI.

ITEMS DONATED BY J I C A 1991 - 1995

FISCAL YEAR	ITEMS	NUMBER	SOURCE OF SUPPLY
1991	Refrigerator	20	JICA
	Icepack Refrigerator	20	
Iceline Refrigerator	30		
Solar Refrigerator	15		
Vehicle	3		
Total ( in million Yen)		43.72	
1992	Vaccine (BCG)	20,000 (v)	JICA
	Vaccine (Measles)	30,000 (v)	
	Refrigerator	3	
	Solar Refrigerator	2	
	Vehicle Cold Van	2	
	Vehicle (4WD)	3	
		69.46	
1993	Vaccine (Yellow Fever)	100,000(D)	JICA
	Vaccine (Hepatitis B)	50,000(D)	
	Syringe (EPI)	1,960,000	
	(5ml)	60,000	
	(BCG)	500,000	
	Refrigerator	50	
	Refrigerator & Icepack Freezer	30	
	Vaccine Thermometer	500	
		58.87	
1994	Vaccine (Yellow Fever)	100,000(D)	UNICEF
	Vaccine (Hepatitis B)	50,000(D)	
	Syringes & Needles	1,200,000	
	Refrigerator - Solar	20	
	Vehicle (4 ton truck)	2	
		53.70	
1995	Vaccine (Yellow Fever)	100,000(D)	UNICEF
	Vaccine (Hepatitis B)	50,000(D)	
	Syringe (Disposable)	1,000,000	
	(5ml)	100,000	
	(BCG)	700,000	
	Refrigerator - Solar	20	
	Vehicle (WD)	2	
Vaccine Carries	2,000		
		40.00	

## 5.1 STATUS OF DONATED ITEMS

### 5.1.1 Vehicles

All the eight vehicles donated to the Ministry are in good conditions except one which was involved in an accident and was beyond repairs. These vehicles were distributed to the regions and the national level for monitoring and implementing EPI activities.

### 5.1.2 Cold Chain

Four cold vans have been donated by JICA to the program and they are all kept at the national level.

Two of these cold vans are 5 years old and so they are used on short journeys, to cart vaccines from the airport to the national cold room. On average, 60 trips are made per year to transport vaccines from the airport to the national cold room.

The two new cold vans are used to transport vaccines from the national cold room to the 10 regional cold stores on a quarterly basis. An average of six trips are made every year to the regions.

### 5.1.3 Solar Refrigerators

A total of fifty seven solar refrigerators had been donated by JICA and had been installed throughout the regions for EPI vaccine storage. They had been installed at sites with the following characteristics.

- No electricity
- Difficulty in procuring other sources of energy such as gas and kerosene

### 5.1.4 other Refrigerators

Refrigerators had been distributed to all the 10 regions to support EPI activities.

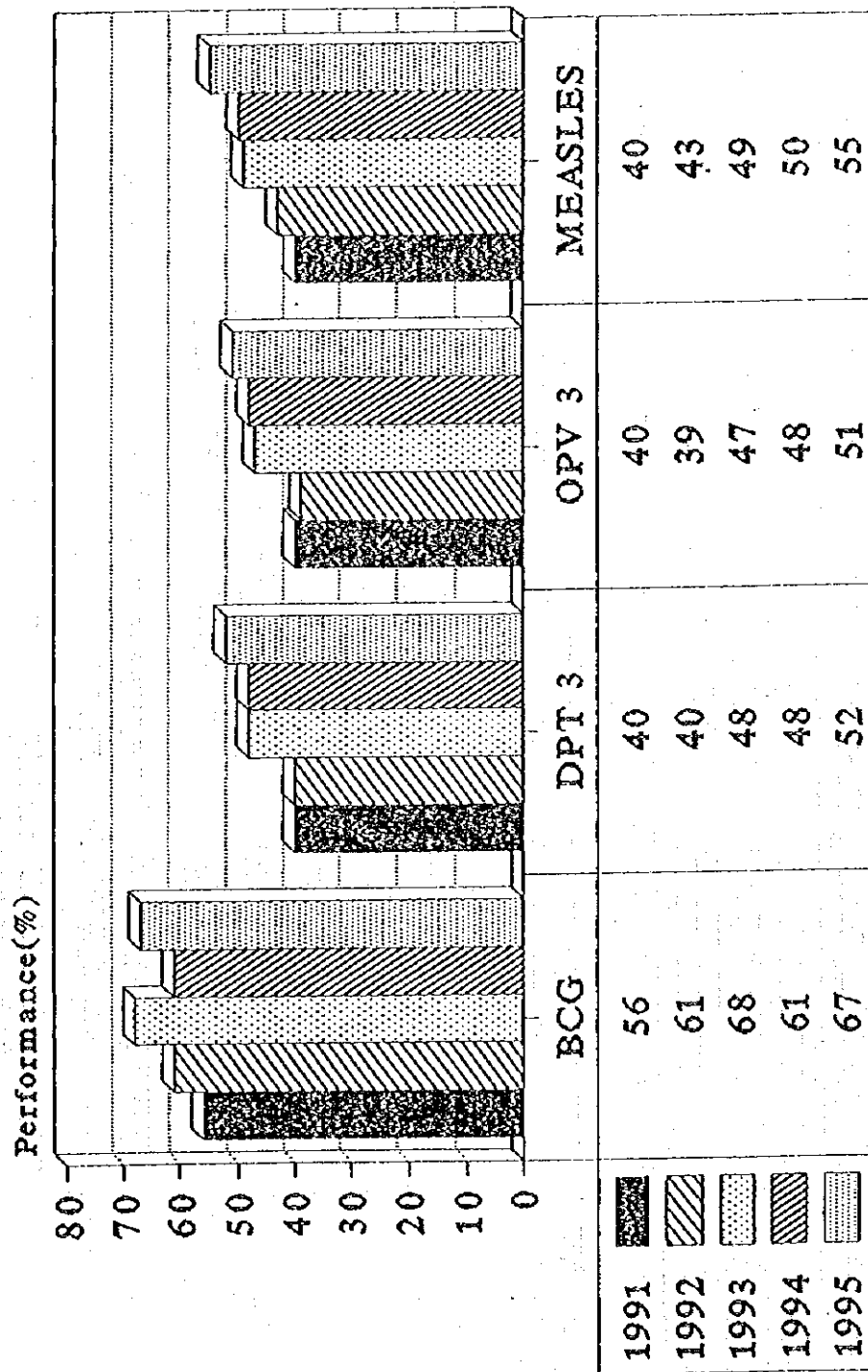
### 5.1.5 Syringes and Needles

JICA supports most of the EPI syringes and needles annual requirement. These are also distributed to all the regions.

## 6.0 NEWS ITEM ON JICA'S DONATION TO UNICEF

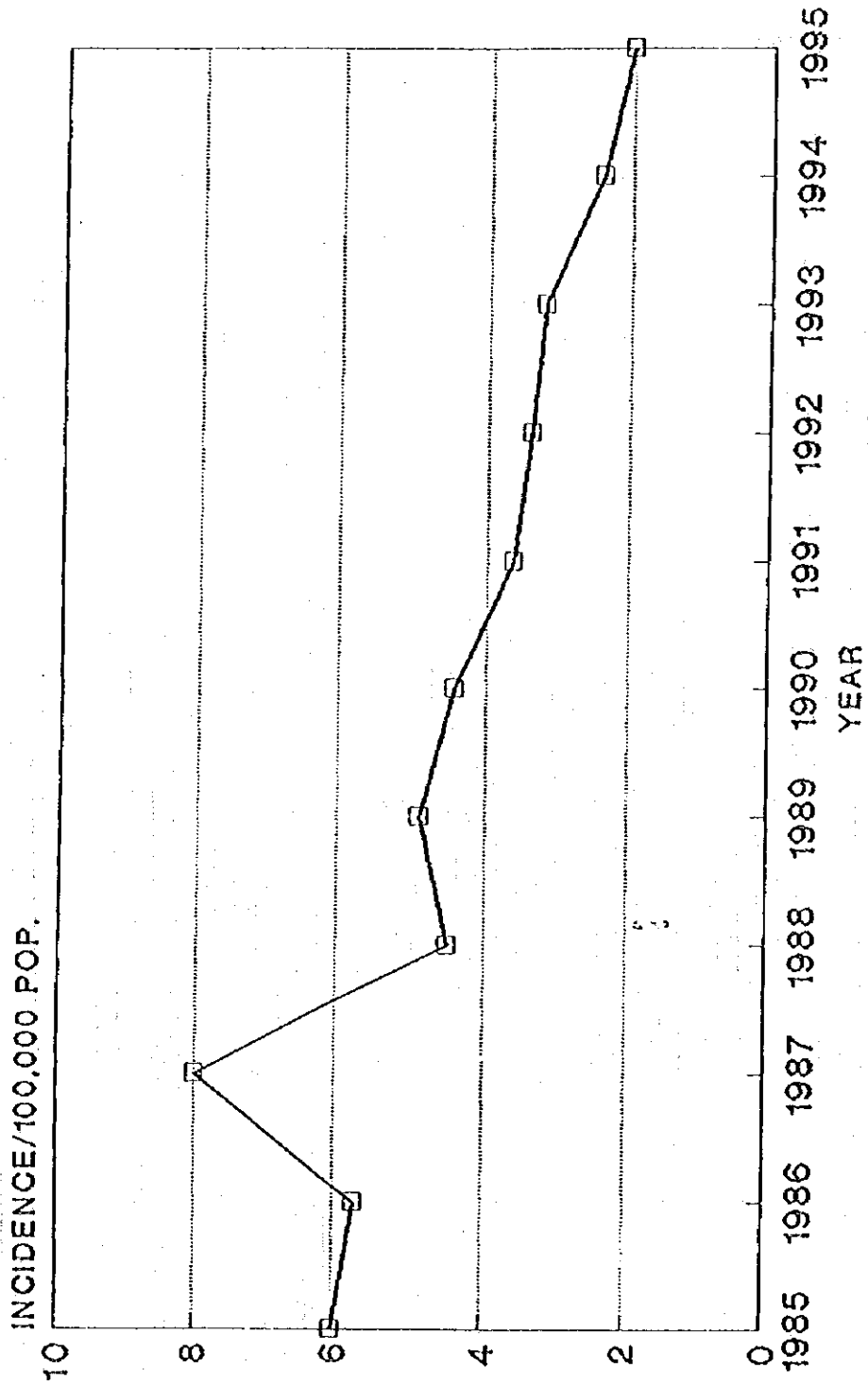
Handing over ceremonies had been performed with press coverage for the JICA donated items. For example in 1995, the two refrigerated cold vans, some cold chain equipments were handed over at a ceremony held in the Ministry of Health headquarters. In attendance were the Minister for Health and his staff as well as delegation from the Japanese Embassy and JICA.

# Immunization Performance in Children 0-11 months. 1991 - 1995

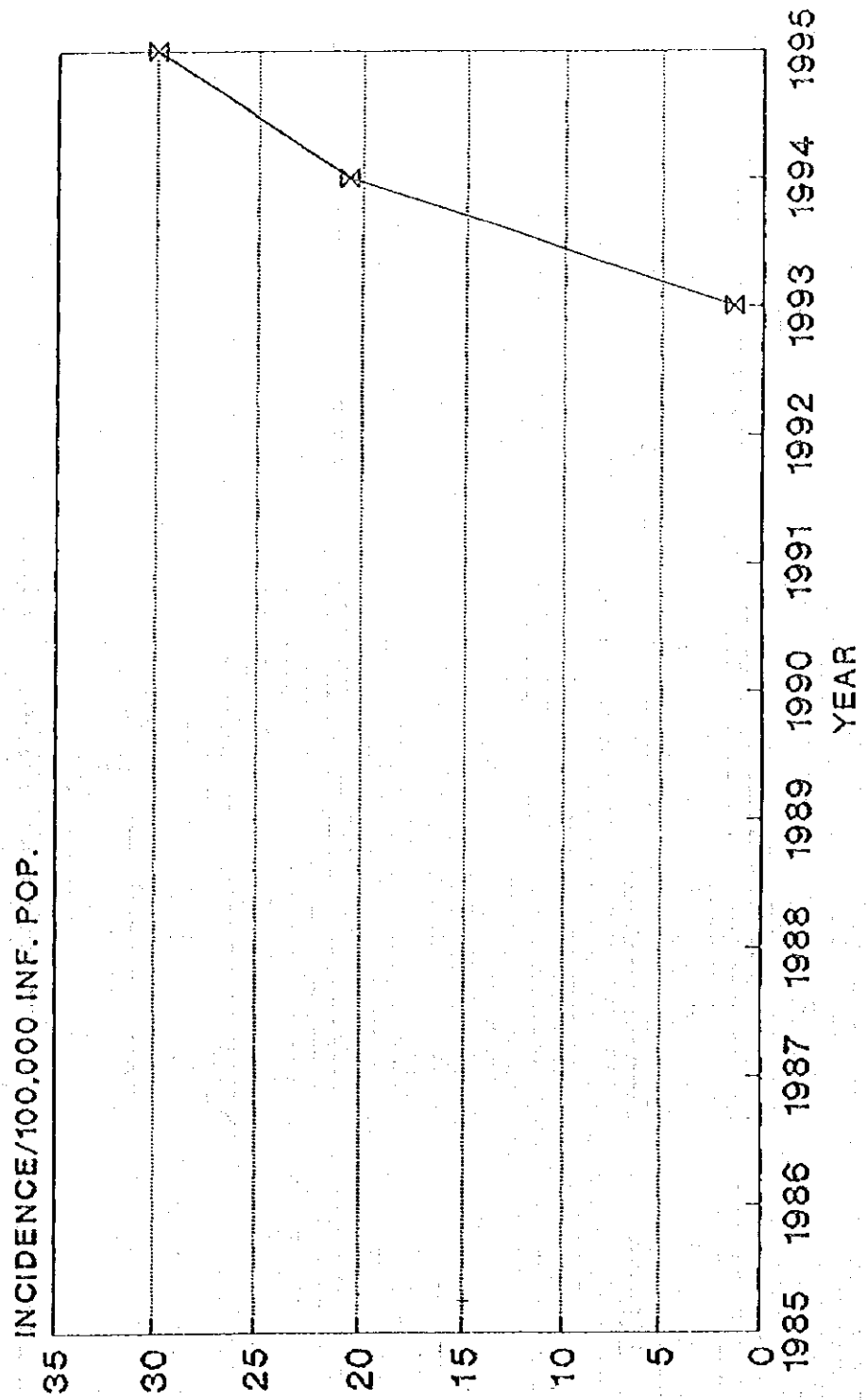


VACCINE

COMMUNICABLE DISEASE INCIDENCE IN GHANA  
1985 - 1995 (PER 100,000 POPULATION)  
TETANUS

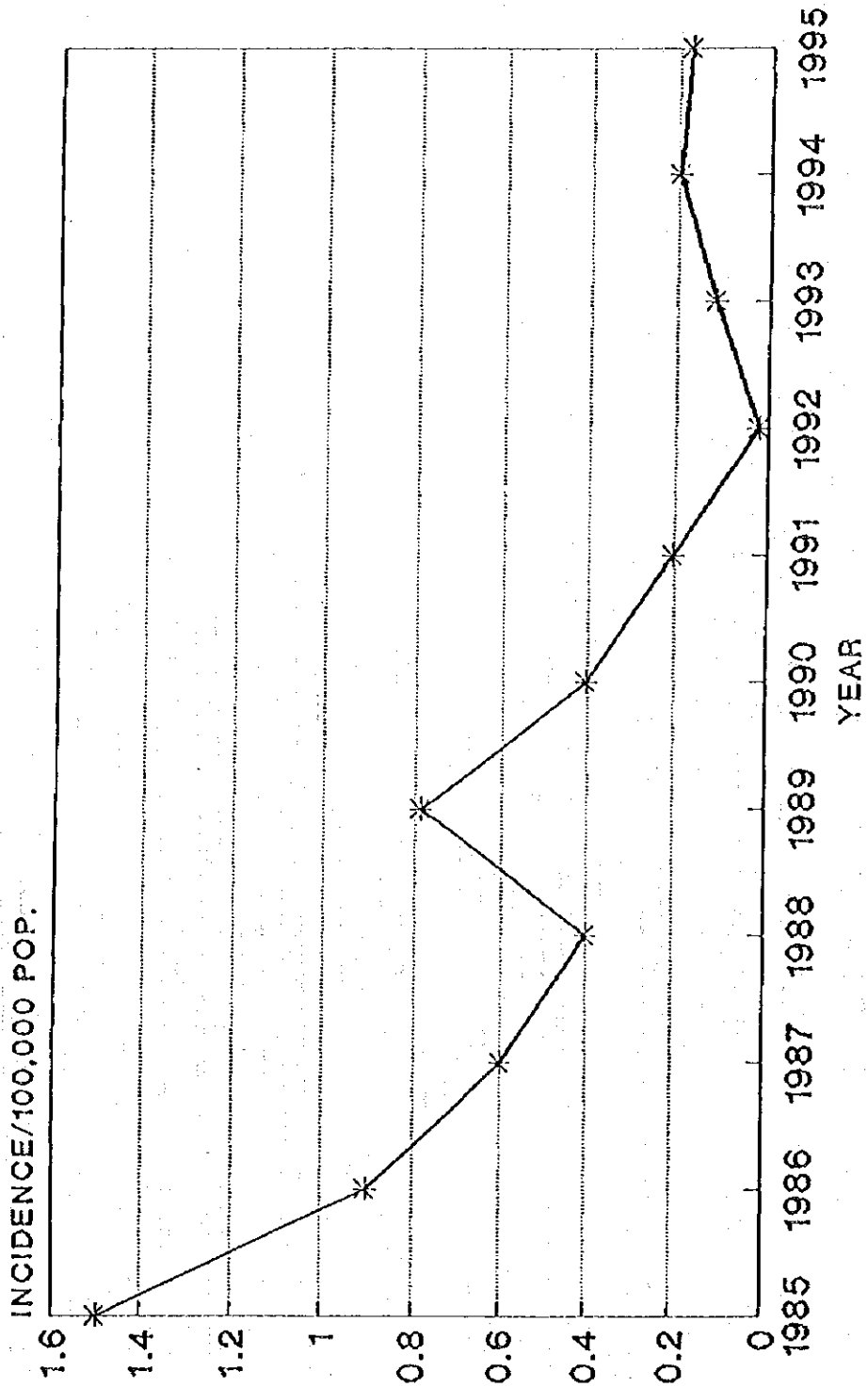


COMMUNICABLE DISEASE INCIDENCE IN GHANA  
1985 - 1995 (PER 100,000 POPULATION)  
NEONATAL TETANUS

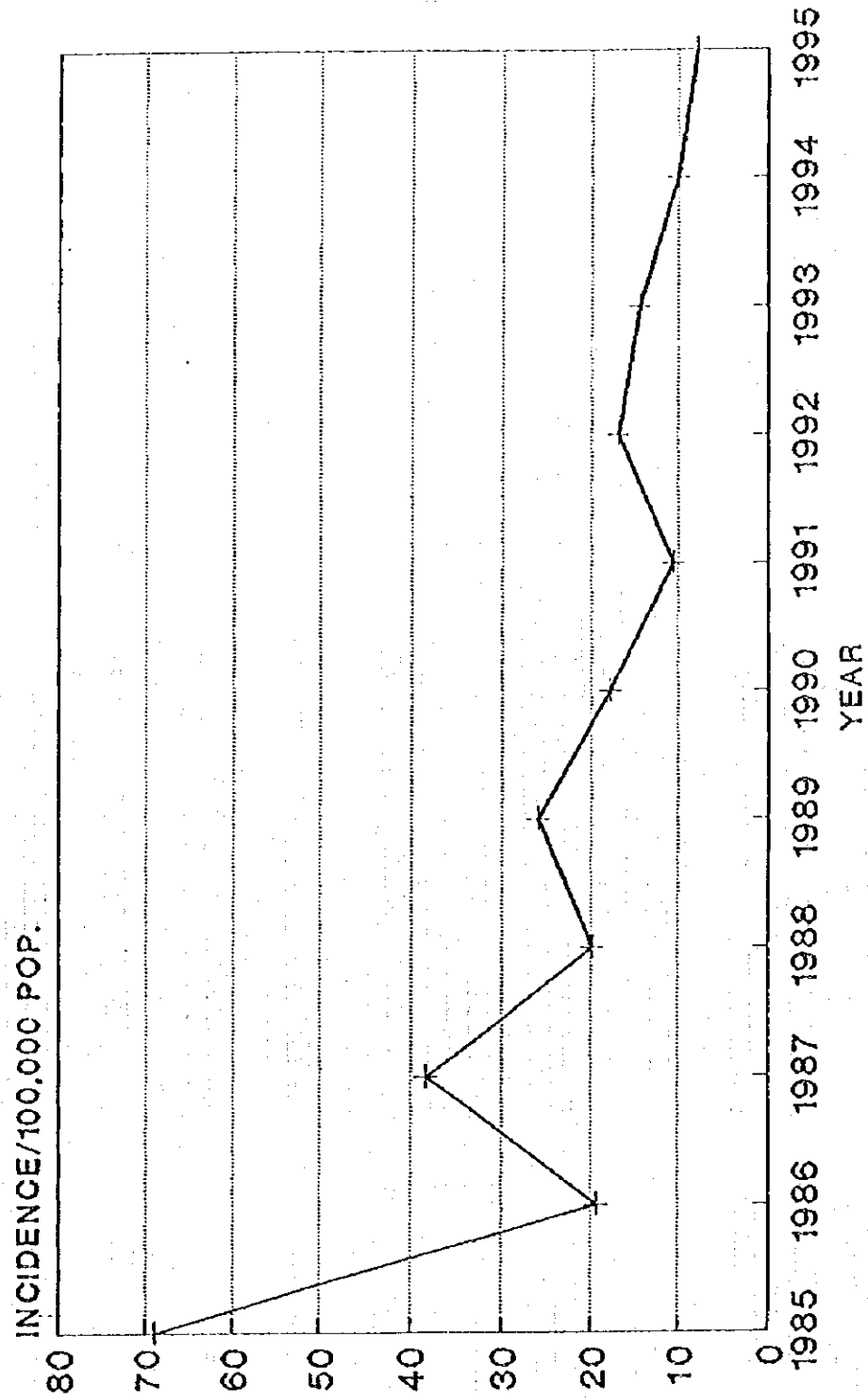




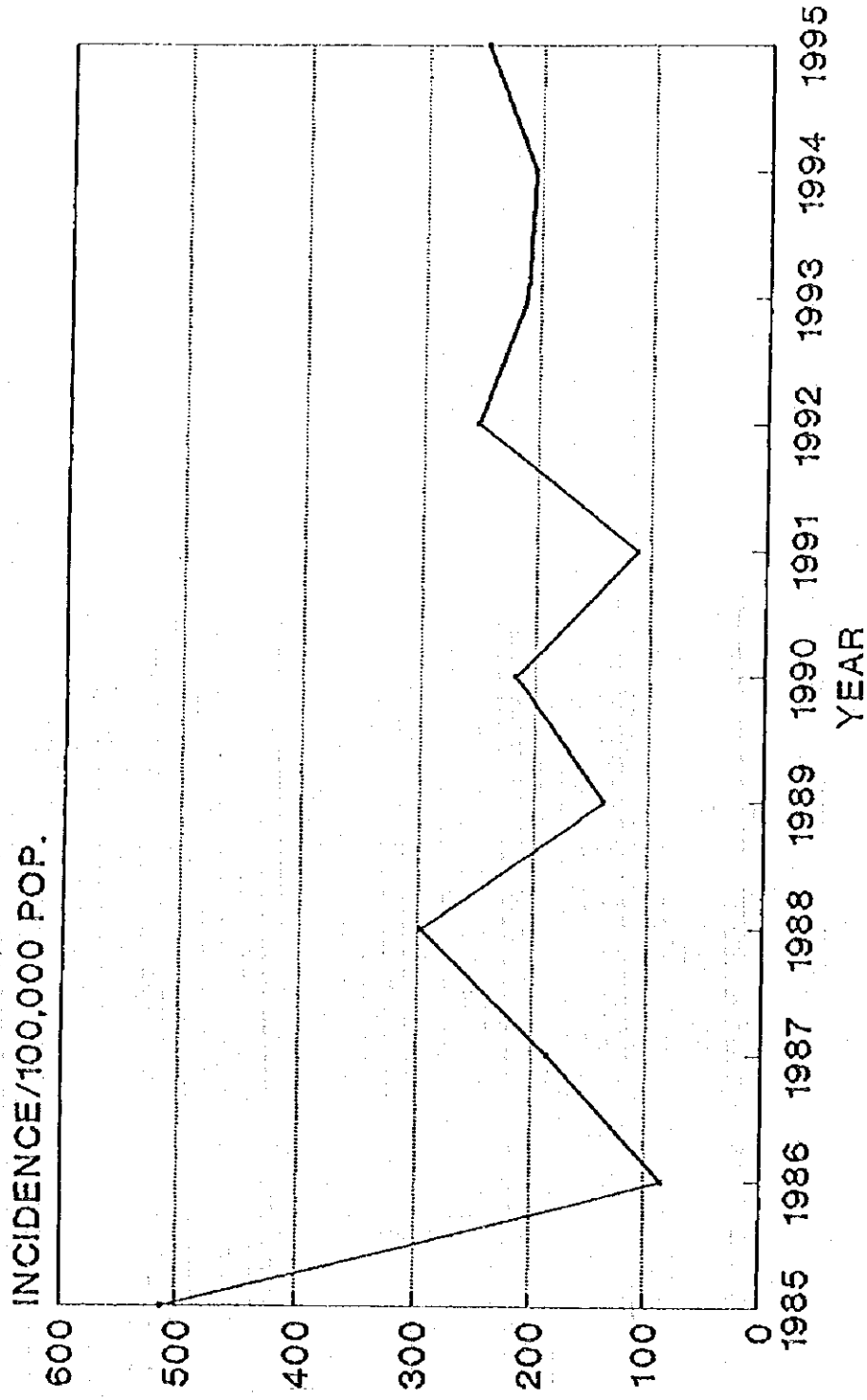
COMMUNICABLE DISEASE INCIDENCE IN GHANA  
1985 - 1995 (PER 100,000 POPULATION)  
POLIOMYELITIS



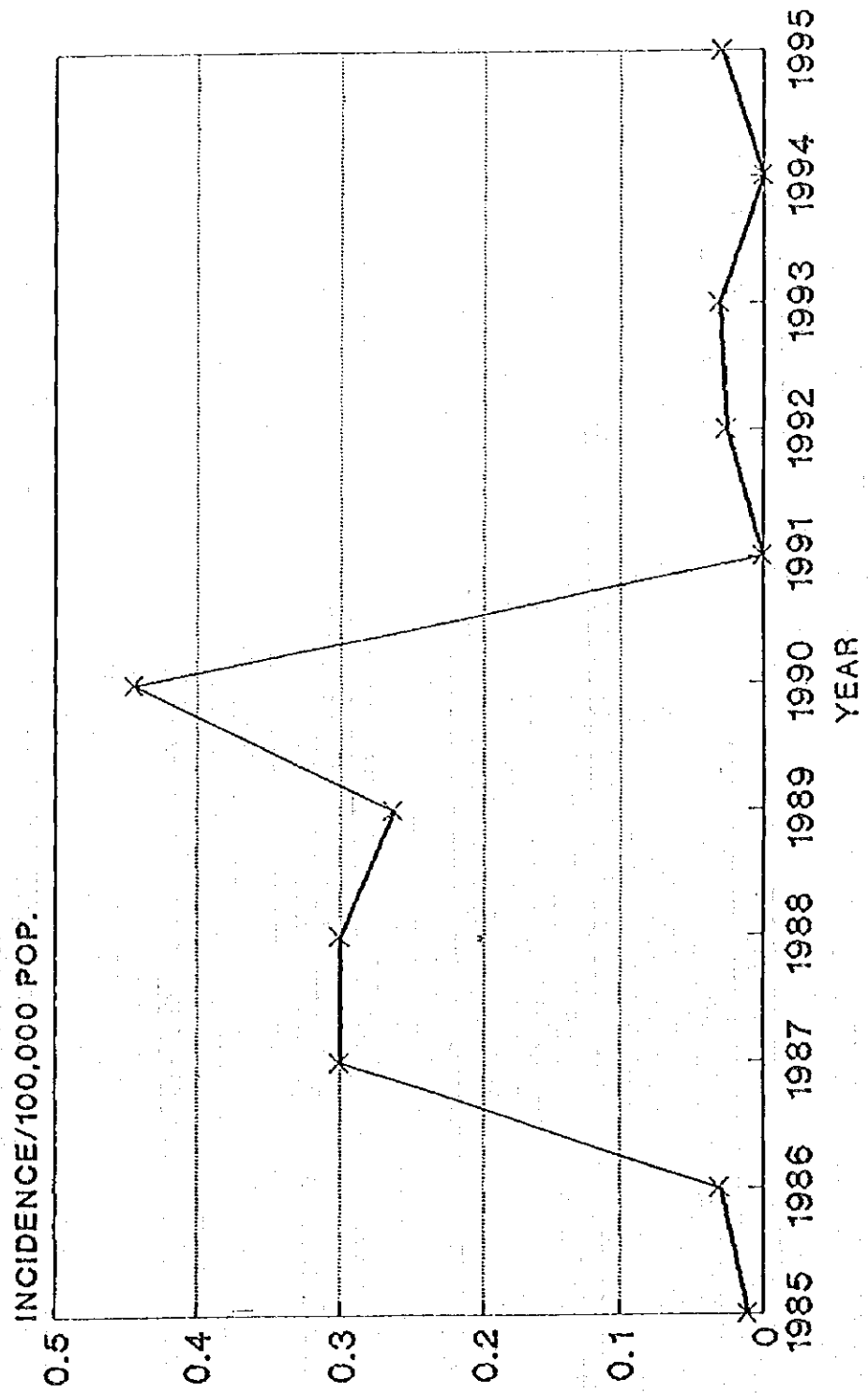
COMMUNICABLE DISEASE INCIDENCE IN GHANA  
1985 - 1995 (PER 100,000 POPULATION)  
PERTUSSIS



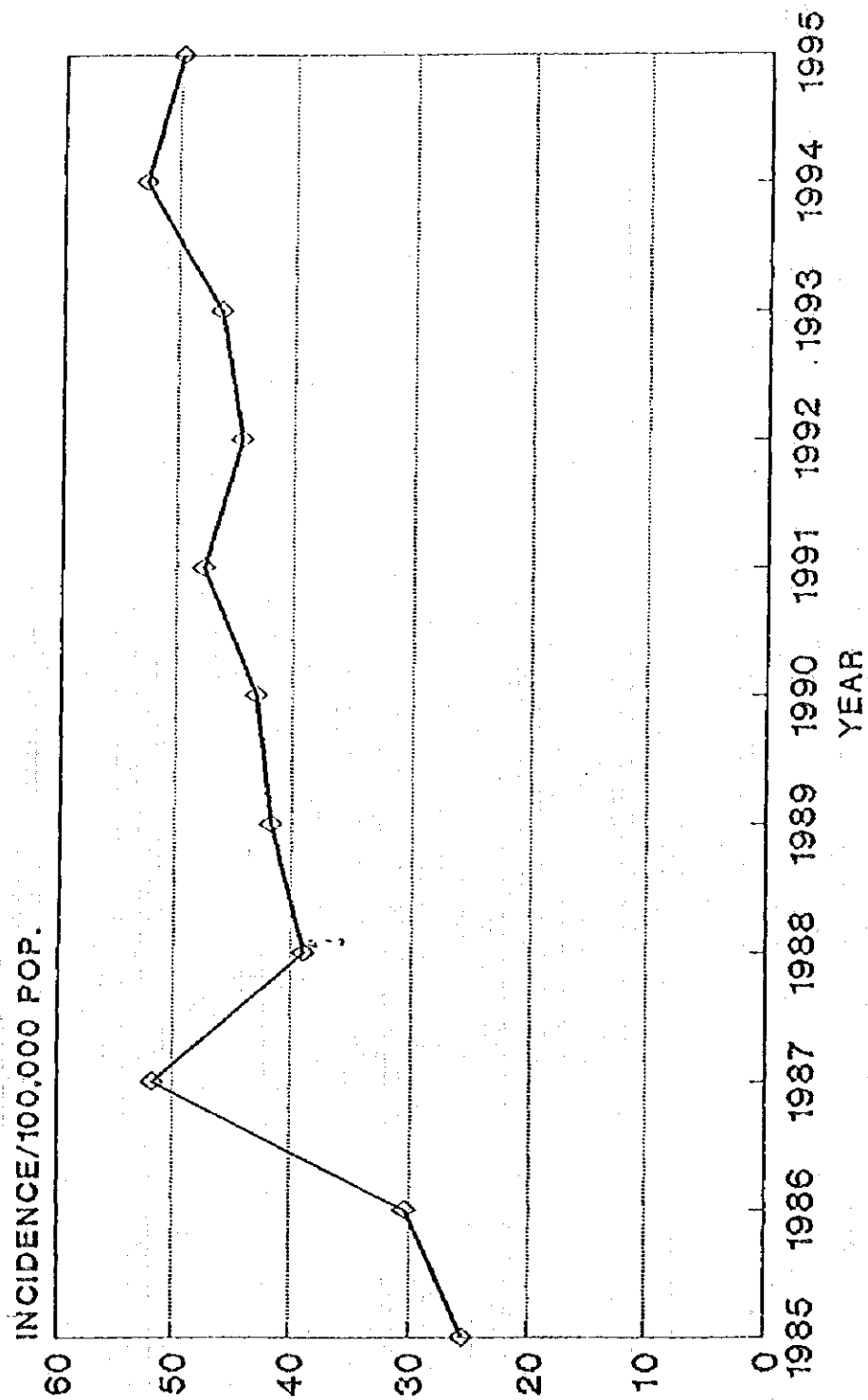
COMMUNICABLE DISEASE INCIDENCE IN GHANA  
1985 - 1995 (PER 100,000 POPULATION)  
MEASLES



COMMUNICABLE DISEASE INCIDENCE IN GHANA  
1985 - 1995 (PER 100,000 POPULATION)  
DIPHTHERIA



COMMUNICABLE DISEASE INCIDENCE IN GHANA  
1985 - 1995 (PER 100,000 POPULATION)  
TUBERCULOSIS











JICA