Review article

Epidemic prone diseases in Ethiopia EPHA Expert Group report

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Infectious agents have caused disease and death in human populations throughout history . Some of the most devastating epidemics ever recorded have been caused by uncontrollable spread of dangerous human pathogens. The plague epidemic of the middle ages was responsible for the death of 13 million people in Europe during a four-year period (1). More recently, in the first part of the century , pandemic influenza swept the world by killing 20 million people in less than a Year's time (1).

At present the world population is affected by devastating epidemics that have resulted in high morbidity and mortality.

Repeated epidemics of the same disease and the emergence of new once are attributed to t.uman demographics and behaviour, economic development and land use, international travel and commerce, technology and industry and the breakdown of public health measures (1). Among the epidemic prone diseases, AIDS is moving up in several countries as a leading cause of death. According to estimates over 2.5 million cases and over 13 million infected persons are likely to be affected globally (2). Malaria epidemic is causing millions of deaths (3). Diarrhoeal diseases are widely recognized as major causes of morbidity and mortality particularly in Africa. Vibrio Cholera and Shigella have caused widespread epidemics throughout the world. In 1968, Shigella epidemic affected half a million people and killed 20,000 people. In Burundi, it took the lives of 2000 people in 1981/82 (4).In recent times Cholera epidemics have ravaged many parts of Africa (5). Another epidemic prone disease that has caused high mortality at different periods of human history is Epidemic Meningitis. In Sub-Sal1ara Africa repeated major outbreaks have occurred.

During the 1988/89 epidemics millions of people were affected (6). Common outbreaks which resulted in high mortality have also occurred as a result of acute febrile illnesses. These diseases are widely spread in developing countries. For example in 1980 the number of typhoid cases occurring in Africa was four million (7). Yellow fever is still a potential threat in many areas of tropical Africa (5).

In general, the incidence of a number of these diseases is escalating globally including those that were once under control in many parts of the world. These diseases if not eliminated at least can be significantly moderated. The response to fight these diseases needs a more aggressive and timely action at local, national, regional and international levels.

The national situation

The most common diseases in Ethiopia are communicable and nutrition deficiency diseases. Outbreaks of some communicable disease have caused morbidity, mortality and disability in a large number of people. In recent years outbreaks of diseases have been observed in areas where

they were not reported before. Some of the reasons attributed to the epidemic situation in the country at present are movement of large numbers of people, poorly planned settlements and irrigation schemes, poor control of disease transmitting vectors, overcrowding, poor personal and environmental hygiene, deforestation, displacement because of social, political and economic problems (8). Increase in health service coverage (though slow) has been suggested as one reason for the appearance of endemic and epidemic diseases in areas where such diseases were not reported before.

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The Ministry of Health of Ethiopia has identified the following Epidemic Prone Diseases (8).
1 .Those that are often encountered a. Malaria
b. Relapsing Fever
c. Typhus
d. bacillary dysentery
e. Meningococcal meningitis
f. Typhoid fever
2. Those that are infrequently or sometimes encountered
a. Measles
b. whooping cough
c. infectious hepatitis
d. Rabies
3. Those that infrequently or are rarely encountered
a. cholera
b. Yellow fever

Malaria
About three fourths of the total area of the country is estimated to be malarious and two thirds of the population are at risk of infection (5).

In 1958 in Dembia, Gondar, and other regions of the country, malaria epidemic claimed about 150,000 lives (9). About four episodes of severe epidemics at 7 -8 years of interval have occurred since then (9) .Malaria
and other Vector Borne Diseases are dealt with by another working group and hence will not be further discussed here.

Meningococcal meningitis
Ethiopia lies within the so called "Meningitis Belt" which stretches across the continent south of the Sahara(10). Epidemic Meningitis occur every eight to ten years during the dry season. Smaller outbreaks occur more frequently. The reasons for such trends are not well understood, but herd immunity, climatic
factors, especially high temperatures and low humidity, poor hygiene and crowding have been implicated (5). In this country Epidemic Meningitis is mostly caused by the sero-group A followed by C.

Meningococcal meningitis was first mentioned in the country in 1901. Later epidemics were reported in 1935, in the 1959-63, 1964,1972,1977,1981-83, 1988-89(5,11). The largest number of recorded cases and deaths were reported in 1981-83 and 1988-89. About 50,000 cases and 990 deaths were reported in 1981-83. Forty five thousand cases and 1685 deaths were reported in 198889 (5). Starting from 1981 the epidemic had spread from N . West to the south and east and hence has increased the boundaries of the" Meningitis Belt"(8). More than 70% of the cases in the 198183 epidemic were reported from Gondar , 18% from Wello, 9% from Gojam and fewer cases from
Tigray(5). In 1988-89, 28% of all cases were reported from Shewa, 22% from Wello, 14% from Gojam, 6% from Sidamo and 5% from Gamo Gofa. More than 50% of all cases were among children up to 14 years and slightly over 40% in the 15-44 group. Of the reported cases in 198183, 54.4% were male and 45.6% females (11). A similar ratio was observed in the 1988-89 epidemic. Epidemics were not reported from low land pastoralist areas and this has been attributed to low population density and less crowded living.

The current criteria of epidemic threshold rate in Ethiopia is recommended to be 15 cases/100,000 inhabitants per week or higher averaged over two consecutive weeks (12). The strategy for control of the epidemic currently adopted is case management using intravenous crystalline penicillin infusion or, in difficult situations, oil suspension of chloramphenicol; immuno-prophylaxis with A and/or C poly saccharides to high risk groups, closed communities and close contacts at home and work for ages between 2-30 years; and chemoprophylaxis with rifampicin to close contacts when vaccine is not available (12). Uninterrupted and efficient surveillance and control systems and coordinated efforts with countries in the region are recommended to effectively prevent and control the disease.

Bacillary dysentery
Dysentery was one of the top ten 3iseases in children under five years of age as reported to the Ministry of Health among out-patients in 1988-89(13).

The main causative agents of epidemic bacillary dysentery are the shigella. Four pathogenic species of shigella are generally identified. They are S. dysentraie (Shiga), S. flexneri, S. Boydi and S.Sonnei. S.dysentraie (shiga) causes epidemics with high mortality. Spread of infection occurs by contaminated food and water, flies or contact through unwashed hands after defecation.

Shigella cause up to 10% of acute diarrhoea in children under five years of age (14). In recent years multiple antibiotic resistance has been observed. It was reported that up to 20% of patients die even after treatment (8).

Education on personal hygiene, proper waste disposal, protection of water sources and prevention of water contamination, measures to reduce the fly population and hygienic preparation of food are important in the prevention and control of the disease.

Typhoid fever
Typhoid Fever is caused by infection with Salmonella typhi which are specific human pathogens. It is now rarely seen in developed countries because of sewage and water treatment facilities but remains a common problem in developing countries like Ethiopia. The disease is transmitted to healthy people through water and food contaminated with faeces and urine. The incidence peaks

in the dry season when water supplies are concentrated but may also reach high levels at the onset of rains when the organisms are flushed into streams and wells. Even in the presence of clean water and good sanitation an epidemic could develop among refugees, prisoners and other groups of people in concentration camps, because organisms can spread from unclean fingers. Despite difficulties in confirming the disease in most of the laboratories of the country , a high number of cases are reported to the Ministry of Health. In 1976-79 and 1983 a total of about 5000 and 1500 cases, respectively, were reported(8). Prevention and control methods include treatment of patients, proper waste disposal, hand-washing after defecation, water treatment, hygienic food preparation and avoidance of food contamination by flies (8).

Measles and pertussis

Measles and pertussis are included in the six childhood diseases of the expanded programme on Immunization (EPI). These diseases are characterized by high mortality and morbidity rates. At the same time they are preventable by immunization. According to reports of health facilities to the Ministry of Health, the number of measles cases reported in 1980 and 1983 was about 3000 (5). After 1983 the number of reported cases declined until 1989 at which time it came down to 1000 cases. In 1990 there was a rise to about 2000 cases. This was attributed to the epidemics in shelter populations displaced by war in Wello, Eritrea and Gondar (5). Measles epidemics were also reported from relief camps during 1983-85 famine. In Gamu Gofa, in 1982 during an epidemic mortality rates of between 7.1 % and 10.9% were reported for children under 10 years old. Cultural factors including avoidance of injections and visits of homes children who have died of measles by relatives and their children appeared to have facilitated transmission (15).

Crowded conditions and loss of maternal antibodies have been considered major factors in the epidemiology of measles in Ethiopia. The number of pertussis cases reported to the Ministry of Health declined from nearly 6000 in 1982-83 to less than 1000 in 1990(5). The epidemiology of pertussis in Ethiopia has not been studied.

National EPI coverage for measles and pertussis (OPT 3) vaccine in childre nunder one year of age in November 1990 was reported to be 59% in areas where vaccination takes place (5). However, some surveys have put such a coverage rate in question. High defaulter rates and missed opportunities were also noted by some investigators (16). The major reasons for immunization failure were lack of information and motivation, inadequate health infrastructure:, problems of communication and transport, the protracted civil war and deficiencies in the surveillance systems (5,17).

Efficient and regular supervision, disease surveillance and increase in community involvement, development of health leadership were recommended to improve the EPI coverage and therefore minimize morbidity and mortality due to these diseases (5).

Viral hepatitis

Infection with hepatitis A (HA V) affects people with low socio economic status and poor hygiene. In Ethiopia it becomes universal by the early teens (5). Therefore it is reasonable to believe that HA V is unlikely to cause outbreaks in this country.

Hepatitis B-infection (HBV) is a major cause of chronic hepatitis, cirrhosis and hepatocellular carcinoma. The main mode of transmission of HBV is transfusion of infected blood and blood

products. Major risk factors in this country are uvulectomy, traditional surgery, tattooing, ear piercing, sexual exposure, circumcision, scarification, presence of lice and jiggers and birth at home (5). Hepatitis B surface antigen (HBS Ag) carrier state is between 8% and 12% while the overall HBV marker prevalence is between 42% and 79% in the general population.

Studies have shown hepatitis O, C, E and non A non B viruses to be endemic in Ethiopia. HEV was shown to have caused epidemics in military personnel stationed in Eritrea (18). The majority of acute viral hepatitis cases in this country are due to non A non B hepatitis (5,8). However, as diagnostic tests become more refined the number of acute viral hepatitis cases due to non A, non B virus is likely to decline.

Control measures against hepatitis include health education on ways of disease transmission and prevention, improvement of personal and environmental hygiene and screening of blood donors. Immunization with a polyvalent vaccine by integrating with the national EPI programme has also been suggested (5).

Cholera

An acute disease of the gastrointestinal tract is caused by the contamination of water/drink and food by the strains of vibrio cholera. Different serotype named Inaba, Ogawa and Hikojima have been identified. The biotype Eltor serotype Ogawa) has become widespread in the last four decades and appears to be displacing the classical v. cholera from most areas.

Early travellers had reported epidemics of cholera in Ethiopia. People threatened by cholera were reported to have fled away from their areas and those from suspected foci were prohibited to travel into cholera free areas (5). Several thousand deaths occurred in eastern, central and southern Ethiopia in the 1970 outbreak. In 1973 another epidemic struck the country and several hundred people died. It is reported that occurrence of some cholera epidemics were not announced by the Ethio- pian government due to fear that agricultural export might suffer (5).

According to a report of the Epidemiology Department of the Ministry of Health of Ethiopia among severe cases about 50% die. With treatment the death rates may come down up to 1% (8). Hand-washing, proper waste disposal, personal hygiene and making drinking water safe, health education, preparedness and surveillance at times and after outbreaks are recognized as important measures in the control of the disease (8).

Yellow fever

Yellow fever is said to be endemic in Africa including in Ethiopia. The major clinical syndrome associated with Yellow fever is haemorrhagic fever. The earliest survey carried out in nine provinces of Ethiopia found
no Yellow Fever. However, Ethiopia is still in the list of countries in Africa with Yellow Fever, based on the various entomological studies confirming the presence of the probable vectors (Aedes Species).

The first cases of Yellow fever were reported in 1959 from Beninshangul (Asosa) district, and may have originated from Western Wellega. There were 100 deaths. The epidemic was confined to the wet rainy season and in the lowlands between Asosa and Kurmuk towns.

The second and more serious epidemic started in the lower Omo Valley near Dime in Gamu Gofa at the end of 1960 .This epidemic lasted for 18 months and affected one million people. Most cases were reported from Gamo Gofa, Kefa and Sidamao and few cases from the Didessa river valley in Wellega. All age groups and both sexes were affected. The total morbidity was around 100,000 people and mortality rates ranging from 30 -85% were reported. The classical clinical forms of yellow fever during this epidemic were - sudden onset, acute in early cases and lasting seven days in fatal cases, black vomit, renal symptoms with albuminuria, later fulminating forms with intense general symptoms and high mortality.

The last yellow fever epidemic was reported in 1966 near Lake Abaya and around the town of Akobo. Here, there were 2,200 cases and 450 deaths, and it was believed to have been introduced by monkeys into Lake Abaya and these became endemic in subsequent years.

The entire south-western regions of the country can be divided into two zones: an epidemic zone along the Sudan border from Lake Tukana to the Blue Nile, and an endemic zone covering large parts of Gamo Gofa, parts of Kaffa and parts of Wolayita. 'Enset' and 'Taro' play an important role in the propagation on yellow fever, because these plantations serve as living and breeding places for the Aedes Simpsoni mosquito -the principal vectors of yellow fever in Ethiopia. Recent assessment indicates that there have been no officially reported and confirmed cases of yellow fever since the last epidemic of 1966. Studies in 1970, 1972, 1975-76 showed a wide distribution of virus activity as manifested by relatively high antibody titers in humans and isolation of the virus from animals and arthropods in formerly epidemic areas.

It is generally recommended that, considering the ecology of Western Ethiopia, the abundance of vectors and wild reservoir hosts, extensive population movements, and recent acceleration in landscape change (deforestation, settlement patterns and water resource developments), careful epidemiological surveillance is required if yellow fever is to remain under control. In addition to human behavioural and environmental changes, the appearance of new, stable mutant viruses may facilitate the spread of arbovirus diseases.

Louse-bome typhus (epidemic type)

This is a common cause of Acute Febrile Illness (AFI) seen throughout the country and especially in the highlands. In Ethiopia it is commonly known as "tessebo", and the first epidemic was reported in 1866, in army Camps and prisons. Afterwards, cases seen were reported by different Ethiopian as well as expatriate health workers. In 1960s and 70s most cases of louse-borne typhus in the world were reported from Ethiopia, Rwanda and Burundi. Between 7 ,000 -16,000 cases were reported annually to the MOH of Ethiopia during 1952- 1980. Fewer cases (2,000 - 4,500) were reported between 1987 -1990. More than 90% of cases reported are from Central and Northern Ethiopia. Most affected areas include Tigray, Gojjam, Gondar and Shewa provinces (now nanled Regions 1, 3 and parts of 4) respectively.

During the last phase of the civil war in 1990- 91, serious outbreaks of louse-borne typhus occurred in army Campus relief shelters, and rural villages. Recent data from Addis Ababa suggest that epidemic typhus is not very common among the rural population (19) . Numerous local epidemics have been reported since 1940s from Ethiopian prison, refugee camps and relief shelters and rural villages. Some of the risk factors for the acquisition of typhus are: having body lice, infrequently washing cloths, older age, and rural dwelling. Some of the habits of inhabitants of Ethiopian

highlands favouring the survival of body and head lice are: they wash their cloths and bath less frequently, wear more clothes, and use more bedding than people in lowlands. Louse- borne typhus infections increase during cool, and rainy seasons, with persisting famine, poor hygienic conditions and crowded living conditions have a potential for large outbreaks.
Interruption of infection chains by delousing and improving living conditions are the main control measures. It should be emphasized that for effective prevention there need to be better hygienic, housing, socio-economic and health services. Chloramphenicol and tetracyclines are effective against typhus. Additionally, a
single dose of doxycycline is also curative. In conclusion, typhus still remains a serious health problem in Ethiopia, especially in institutions where overcrowding is common -prisons, schools, army camps, refugee
shelters, etc. and where personal and environmental sanitation is poor. It is under diagnosed .The propagation of lice and fleas and the transmission of typhus are facilitated by persisting poverty , famine, lack of adequate hygiene, extensive population movements and civil war .

Relating fever
Several thousand cases of relapsing fever were reported annually to the MOH between 1981 and 1990, with the largest number in 1983 (43,727), when an epidemic occurred in Wolayita district. Between one quarter and one half of all cases reported annually between1987 and 1990: Wello (1987), Shewa (1988 & 89) and Gondar (1990). Another 10- 15% of the cases were reported annually from health facilities in Addis Ababa. Disproportionately more cases have been reported from the Ethiopian highlands than the lowlands, and Do
case was reported from Assab. Similarly most cases of relapsing fever are normally reported during the cool season, i.e. , August to December .

Whenever there is a highly susceptible population, there can be a major outbreak any time. This has been well documented, particularly when people have been badly malnourished. This is an observation throughout history, since epidemics have occurred after both world wars and also when people have been undernourished and forced to move in large numbers. Relapsing fever has rapidly spread and caused high mortality rates in Ethiopia during wars, civil unrest and famines. During the final stage of the war in 1991 , epidemics were reported from army camps and among displaced persons. Thirty three percent of the 3,610 cases reported by the MOH in 1984 -85 were hospitalized and 4.2% had died.

In many ways relapsing fever is a disease of deprivation and the challenge now is to show that it can be eradicated or at least reduced to such trivial numbers that it will no longer be a burden to health services. This can not happen until poor people have adequate shelter and are not too crowded.

HIV/AIDS
HIV appears to have been introduced to Ethiopia in 1984 or the year before, at a time when it was said to have become an endemic situation in some parts of East and Central Africa (20). Since then various studie:; on different segments of population showed that HIV infection was prevalent in the general population. Though the first cases of AIDS identified and reported were seven patients from Addis Ababa in 1986- 87, by 1984 the first 2 sero-positives were already detected and reported to the MOH (21). Since then the reported number of AIDS cases to the Department of AIDS control (DAC) of the MOH is increasing at an alarming rate (22).

As of July 31, 1994, (22) there were a total of 14,074 AIDS cases in Ethiopia, and an unpublished report indicates that there are 848 additional cases in August (Dr. Workneh Feleke, Head of AIDS control team, MOH - personal communication). Fifty five percent of all cases are reported from hospitals in Addis Ababa. Of these 43.2 % are residents of Addis Ababa, the capital city of the country .The sexually active group (15 -49 years) comprised 93.3 % of all cases. Around 87.1 % were due to heterosexual transmission and ,female to male ratio of total cases was 1:1.6.

Table 1: **Distribution of AIDS cases by year of report**

Year	Sex			Sex Raito (M:F)	Percent of Total
	Male	Female	Total		
1886	1	1	2	1:1	0.01%
1987	12	5	17	2.4:1	0.12%
1988	67	18	85	3.7:1	0.60%
1989	128	62	190	2.1:1	1.35%
1990	292	156	448	1.9:1	3.18%
1991	585	300	885	1.9:1	6.29%
1992	1984	1272	3256	1.6:1	23.13%
1993	3187	1937	5124	1.6:1	36.41%
1994*	2438	1529	4067	1.5:1	28.90%
Total	8694	5380	14,074	1.6:1	100.00%

*Only up to July 31, 1994
(source: AIDS case surveillance report of Department of Epidemiology and AIDS control, MOH, July 31, 1994 (22)

It can be seen that since late 1992, the proportion of reported cases is increasing dramatically. It is evident that the majority (74.7%) of cases are young, 20- 39 years of age, with an average male age of 32.6 years and females 27.1 years. Overall the average age of AIDS cases is 30.5 years. In terms of marital status, single men and women constitute 44 % of all cases followed by the married (35.4%), divorced and widowed (3%)
patients. Occupationally, government employees constitute 14% of all cases, followed by armed forces (11.6%), merchants (8%), house wives (7.4%), drivers (7%) and commercial sex workers (6%).

Some of the risk factors observed among the AIDS patients were history of Multi-Partner Sexual Contact (87.1 %), maternal HIV or breast feeding (1.4%), history of illegal injections (0.9%), history of blood transfusion (0.85 %) , intravenous drug abuse in 0.04 % and unspecified in 9.7% of all the cases.

Prevalence of HIV infection: Several sero- epidemiologic studies have been carried out in the country, mainly in urban areas and among the so called high risk groups as well as the general population. The first two HIV sero- positives were detected in 1984 while testing a collection of sera from hospital patients in Addis Ababa. Another study conducted among army recruits in 1986, showed that 4/5264 (0.076%) were positive for HIV. In the subsequent year the prevalence was 0.9%. Studies on commercial sex workers also show rising HIV prevalence. In 1986, females with multiple partner sexual contacts (MPSC)and males attending STD clinics had a prevalence of 6.7% and 1.4%, respectively. In 1988, a major sero-epidemiologic study among commercial sex workers in 23 towns out of Addis Ababa, investigated 6,234 women. The prevalence rates ranged from 1.3% in Mitsewa to 38.1 % in Dese town with the average for all towns being 17% .The highest prevalence rates (> 20%) was found in larger towns situated along the roads leading from Addis Ababa to Asab, Gondar and Mekele. The populations in the towns along the major truck roads were more frequently affected than those living in the town with less motor traffic. In Gondar and Bahar Dar towns, among the 367 and 324 women tested, the prevalence found was 14.7% and 35.9%, respectively. A study on HIV -1 prevalence among selected sex workers in Addis Ababa in 1989 revealed 24.7% positivity , the highest prevalence being among those in red-light houses.

A study among males -long distance truck drivers, their assistants and lorry technicians in July 1988 showed HIV sero-positivity rates of 13%, 12.9% and 4.1%, respectively. Among blood donors, the HIV prevalence rates have increased from 2.1% in 1986 to 2.3% in 1988 and among OPD attendants from zero in 1985- 86 to 3.5% in 1989, indicatingea steady spread of HIV infection to the general population in the country .

In summary , results of different studies show that the average HIV prevalence rate in the country in 1988 among MPSC females was 18.5% and in 198929.2%. The progression rates were higher in the initially low prevalence areas and vice versa. Among blood donors in Addis Ababa, it has increased from 2.3% (n=24,768) in 1987 to 3.7% (n =20,462) in 1989 and 6.5% in 1991. Positivity has also increased among military recruits from all regions from 0.8% in 1986 to 2.6% in 1991. The prevalence among scholarship winners going abroad was 3.2% in 1988 and 3.8% in 1989. Several studies assessing high risk behaviours and high risk groups have also been conducted in Ethiopia. The major risk factors associated with HIV infection (among commercial sex worker) are said to be high number of sexual partners, infection with other sexually transmitted disease, lack of general education and duration of involvement in prostitution (23). HIV infection was more common among persons who experienced other STDs as compared to those who didn't report STDs.

The truck drivers, who practised frequent contacts with female sex workers experienced STDs more frequently. Other high risk practices among males studied in Jimma town (24) revealed 47% had sex with MPSC \females, out of which only 24% had reported using condoms. Interestingly, high risk behaviour was found among those with the highest knowledge about AIDS (24). In Addis Ababa, a study among soldiers, showed that more single males were infected than married ones, and they had greater tendency to visit bars and have sexual contacts with female sex workers (25). Genital ulcers were significantly associated with multi-sexual contacts and with HIV infection. Among prisoners in Dire Dawa, 6% were positive for HIV-1 and more common among those concurrently having. syphilis and genital ulcers (26). A study among senior high school students in Addis Ababa indicated that among those sexually active students, 60.2% have reported to have

had sexual relations with 2 -5 persons, and the majority of respondents used no protective methods at all (27). Among a similar group of students, but in a rural setting, the mean number of sexual partners was three, and 40% of these never used-condoms (28).

Among rural farmer male populations, in Central Ethiopia, high risk practices for HIV infection and transmission were documented among rural residing former soldiers, merchants and students. Within these groups, 45-50% had extra marital sexual contacts, 25-37% reported to live had sex with urban sex workers and only 10 -30% used condoms. In the same study 13.5 % of male farmers had extramarital sexual contacts in 3 months time, of which 7 % were with urban sex workers. Again high level of knowledge was associated with high risk behaviours (29). Another study in rural Gondar among male farmers found out that 7.5% (n=89) had practised extra-marital sex in 23 months preceding the survey. Consistently, higher knowledge was associated with high risk practices (30). In the same district (Oembia), another study revealed that 38.6% of 112 government employees of Kolla Oiba town had a total of 82 high risk heterosexual contacts of which 55 were with commercial sex workers (31). A study done among students of Gondar College of medical Sciences, revealed that 61.4% (n=228) had more than one sexual partner. Of these 53 had contacts with sex workers and 12 students with STOs were self-reported. Condoms were used in only 47.8% of sexual contacts (31.). In Bahr Oar town, a community based study among sex workers showed that 50% of them persuaded their clients to use condoms, and of these, 51.9% were occasional users while 48.1% of sex workers used regularly.

The same study reported that 7.1 % of school youth in Bahr Oar town reported history of symptoms related to sexually transmitted diseases. Mean number of sex partners was found to be 3.9 and 69.9% of these out of school youth never used condoms (33). Attitudes towards using condoms has also been studied by few investigators. Hailegnew reported that in Addis Ababa, 32% believed in condom use, II % had used condoms once or more in the past. Nevertheless, 47% of respondents were not sure about it's effectiveness and 12% did not like condoms at all, while 9% think that it will decrease their sexual gratification (34) .

According to the AIDS control department, using the" AIDS Calculator" , the cumulative number of AIDS cases will have exceeded 7000 in 1990 and will have increased to over 45,~ by the year 1993. If the transmission trend is not changed by the end of 1993, there would be 800,000 HIV infected persons in Ethiopia. Among children it was estimated that some 20,000 were infected in Ethiopia in 1990, and 50,000 would be infected by 1993 (5).

Control measures: As early as 1985, A Task Force on the prevention and control of HIV infection and AIDS in Ethiopia was established, immediately after the first laboratory diagnosed HIV cases were identified. Then short and medium term plans were developed in 1987, by giving highest priority to the development of national program (5). Later in 1987, the office of National AIDS Control Program (NACP) was established at a departmental level with two broad objectives of preventing HIV transmission and reducing the morbidity and mortality associated with HIV infection. The DAC coordinates the implementation of NACP in Ethiopia. Major activities include: Epidemiological Surveillance through laboratory network for HIV infection, HIV surveillance, Surveillance of AIDS cases and intervention through prevention of transmission through blood transfusion, prevention of sexual transmission of the HIV, Social mobilization and condom

promotion, education of the general population, promotion of condoms through social marketing and establishing counselling network for HIV / AIDS victims in Ethiopia (5).

At present all planning and implementation ACP activities are being carried out by the regions (35). Hence, the Dept. of Epidemiology and AIDS control in the MOH is expected to prepare national policy on HIV / AIDS, develop guidelines pertaining to HIV /STD/ AIDS in the Ethiopian context, secure funds from external sources, procure HIV kits, reagents, STD drugs, protective supplies, IEC materials from abroad and
distribute, monitor and evaluate at various levels. The department prepares monthly, quarterly and annual reports and distributes them to donors and regional health bureaux (RHB), compiles surveillance data sent from the regional health bureaux trains trainers and provide mass media education for the centre (35).

The Regional Health Bureaux are responsible for the overall AIDS/STDs prevention and control activities into their respective areas. Hence, the RHB are expected to carry out the following specific activities: creation of an epidemiologic surveillance system on HIV / AIDS in the region for monitoring the epidemic, establishing sentinel surveillance, assessing the existing resources and infra structures, the extent to which these could be used to support AIDS related activities. The same document (36) outlines expected tasks of offices at zonal and Woreda levels.

The second medium term plan (1992- 1996) (36) is being implemented at present with priority interventions aimed at preventing transmission of HIV which will target individuals and groups with high risk behaviour. The promotion of early, effective management of STDs will be a major strategy and condom promotion will be further strengthened. Efforts to minimize transmission through blood will continue, notably by improving screening facilities for blood donations and promoting infection control practices. While prevention strategies are prioritized in the MTP, care and support for those infected and those who have already developed AIDS will not be neglected. The provision of home-based care and community support coupled with the improved availability and accessibility of counselling services will seek to reduce the personal and social impact of HIV infection. Trends of the epidemic will continue to be monitored through epidemiologic studies. Research activities are planned to focus on operational research (36).

Sources of information on epidemic diseases The Ministry of Health gathers information about epidemic diseases from the following reports

1. Monthly morbidity and mortality reports
2. Epidemic Diseases Report -used only when there is an out break
3. Weekly Epidemic Notification on 15 epidemic prone diseases including those discussed above. However information received from these reports has been criticized as being incomplete, of poor quality and delayed. Some times distorted information is sent to the Ministry of Health in order to obtain more drugs (8).

Problems encountered by the Ministry of Health in disease surveillance and epidemic control(8):

1. In some health institutions people think that information is collected only to compile" the Annual Report "

2. Data are not analyzed and used for proper actiones at health institutions levels. Occasionally data are analyzed after a long period of time, some times past a year .The results of such delayed analyses may not have any use at all.
3. Weekly Disease Notification forms are not regularly sent. No feed back is given from higher bodies.
4. Lack of workers who have adequate knowledge and training on disease surveillance at the different levels of health care.
5. No or little running budget 6. Radio, telephone, roads and other means of communication are not available in many places. Therefore, reports are delayed.
7. Inadequate supervision to improve/develop quality, exchange and use of information. Recently the Ministry of Health has provided guidelines for the control of epidemic diseases. It has worked out objectives and strategies for different managerial levels, health care facilities and Community Health Services.
Emphasis was given to community participation by forming anti-epidemic committees at different levels (8).

Strategies outlined by the Ministry of health to Health bureaux and departments include: I. Maintaining adequate amount of drugs, medical instruments and equipment.
2. Reporting timely to concerned bodies
3. Monitoring activities of health institutions according to the" Surveillance and Epidemic control Guidelines"

At the level of health institutions the following strategies were proposed.
1. Treatment of patients and isolation when necessary
2. Control and preventive measures depending on type of disease(immunization, isolation, chemoprophylaxis, insecticide spraying etc).
3. Disease surveillance at the time and after epidemic is over .

Epidemic diseases in Region 3 and North Gondar zone

According to the Annual Report of the Health Bureau of Region 3, major epidemic diseases in 1993-94 were malaria, relapsing fever , meningitis, bacillary dysentery, measles, and whooping cough. Table 2 shows distribution of cases and deaths due to these diseases.

Measures taken to combat the epidemics included treatment of cases and health education on prevention of disease. Training for 30 trainers and mid-level training for 222 health workers were conducted (37). The health bureau planned to vaccinate 54 % of the eligible children (< 1 year of age) in the region against the six diseases of the EPI. However, of the target planned only 58% and 47% could be vaccinated against pertussis and measles, respectively (37).

The situation of AIDS case surveillance in Region 3 looks as follows: AIDS cases reported from East Gojam (220), West Gojam

Table 2: **Distributtion of epidemic disease in Region 3 and North Gondar, zone**

Epidemic disease	Number of cases	%	Number of cases	%
Region 3				

Malaria	28651	72.6	204	47.0
Diarrhoea	2730	9.4	91	21.0
Typhus	4338	11.0	114	26.3
Whooping cough	1018	2.6	4	0.9
Relapsing Fever	986	2.5	12	2.8
Measles	768	1.9	9	2.0
Total	39491	100.0	434	100
Northe Gondar				
Malaria	1720	34.5	15	13.3
Dysentery	1392	28.0	40	35.4
Whooping Cough	941	18.9	32	28.3
Typhus	819	16.5	24	21.2
Measles	100	2.2		
Meningitis	4	0.1	2	1.8
Total	4926	100.0	113	100

(772), North Gondar (590) and South Gondar (347) Northern Shoa (168), Metekel (144), constitute 2242 (15.9%) of all patients seen in 1986 E.C. Majority of cases reported in this region come from the following (Zones in descending order): West Gojjam, North and South Gondar , North Shoa, East Gojjam, Metekel and South Gojjam. The number of cases and deaths due to diseases reported by the" Epidemic Diseases Report" form to the North Gondar Zonal health department in 1992-93 .is shown in Table 2.

In 1986 EC (1993-94 GC), 712 cases of dysentery , 435 cases of malaria and 98 cases of typhus were reported by the" Epidemic Disease Report". There were 49,8 and 4 deaths due to dysentery, malaria and typhus, respectively.

EPI coverage in 1986 EC (1993-94 GC) for measles was reported to be 9.48 % .Eleven percent of the eligible children were reported to have received DPT 3. Problems of reporting and recording were clearly observed while using the" Epidemic Diseases Report " form to compute the number of cases and deaths at the zonal health department. For example in one report under the heading" type of disease" was written malaria and dysentery .The number of cases seen were 15. It was not clear whether 15 people had at the same time both dysentery and malaria or a certain proportion of them had dysentery and the rest malaria. In the latter case it could not be known how many of the patients were suffering from dysentery and how many from malaria. There was a report where the number of cases (10) was less than the number of deaths (12). We did not include these data in the computation of cases and deaths. In addition, several report forms did not have dates.

The role of Ethiopian Public Health Association

Although it is difficult to obtain accurate information about epidemic prone diseases, available .reports have indicated that these diseases are causing high morbidity and mortality .

EPHA, recognizing the devastating effect of these diseases in the population, has immense responsibility in assisting the national health system to modifying the effects of these diseases. During the activity of the working group, we have identified problem areas which need to be addressed by EPHA if sustainable effort is to be made in the prevention and control of epidemic prone diseases.

We have come to recognize that one of the biggest problems in our public health system is the lack of surveillance mechanism that should help public health professionals to monitor epidemic prone diseases. In our opinion the lack of an efficient surveillance system has left policy makers in health with no basis for developing and implementing policies for controlling the spread of epidemic prone diseases. It is known that a well designed and well implemented surveillance program can provide the means to detect epidemics early,
document their geographical and demographic spread, estimate the magnitude of the outbreak and initiate timely action. We have enumerated a list of identified problems at local, zonal and regional levels that affect the management, prevention and control of epidemic prone diseases.

1. Lack of simple reporting systems at the levels of the region, zone, district and community.
2. Under-reporting of epidemic prone diseases by health institutions. Notifiable diseases are not listed and reported on a regular basis.
3. Delay in reporting, as a result of which effective and timely action cannot be carried out.
4. Poor collection and documentation of data on the type and number of outbreaks, number of people affected, number of deaths and so on.
5. Lack of knowledge of health personnel in regard to reporting requirements. This includes unawareness of responsibility to report, unawareness of which diseases to report, how, when and to whom to report.
6. There is no epidemic intelligence unit at regional, zonal and local levels. Thus, supervision and coordination of activities is missing.

7. An efficient surveillance system does not exist at all levels including at the level of the community .
8. There is a gap between information received and action. Surveillance data are not linked with public health programmes.
9. A vailable data on epidemic diseases if they exist, are not disseminated to health institutions and other public agencies.
10. There is lack of training of health professionals at different levels of the health system in epidemic disease recognition and management.
11. Lack of inadequate public health laboratory facilities to support disease recognition and management.

l2.. Absence of a guideline that could assist health professionals in epidemic investigation and control or unawareness of health professionals about the existence of such a guideline. EPHA recognizing these and other problems which affect the recognition, prevention and control of epidemic prone diseases can assist the national, regional and local health system in the following areas:

1. In the development of a national policy for the management of epidemic prone diseases.
2. In strengthening the health information system at the community, local, zonal, regional and national levels, including in the identification of key information to be collected.
3. In the development of mechanisms for monitoring epidemic prone diseases. This includes the establishment of a system of identifying epidemic risk and possible risk factors by considering the epidemiological history and ecological and social characteristics of the specific areas.
4. In assisting in the development of essential indicators for predicting potential epidemic prone diseases.
5. In formulating national policies and in the establishment of coordinating mechanism to ensure that development activities do not create or enhance epidemics.
6. In the training of health professionals in epidemic investigation, control and prevention- a prerequisite for achieving sustainable disease control.
7. In the development of a simple operating surveillance system at every level of the national health system. This should allow information received to be used for prompt public health action.
8. Assist in the establishment of public health laboratories at regional levels to support disease surveillance.
9. In the formulation of laws and regulation in the reporting, investigation and control of epidemic prone diseases.
10. In carrying out relevant epidemiological studies and operational health system to support the recognition, management and control of epidemic prone diseases. Thus, EPHA has an active role to play in creating awareness among policy makers, health professionals and the media that due attention be given to the control of epidemic prone diseases. We hope this working document will provide the basis for further discussion.

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