EMT 510: ENVIRONMENT AND COMMUNITY HEALTH (3 UNITS)

LECTURE NOTE

PREPARED BY

B. S. BADA

DEFINITION OF CONCEPTS IN COMMUNITY AND PUBLICHEALTH

The phrase community health is composed of two words: community and health. In order to conduct or successful community health programme, health workers must consider the significance and indication of both words. We are dealing with a product, *health*, and a recipient, *the community*. Complete knowledge and understanding of both are necessary. We must understand and deal with the health problem; we must also understand and treat the social or public phase of the situation. Health is a social responsibility in and of the community. In order to formulate ways of meeting and solving health needs by the democratic process, a community must have groups of inter-relating and interacting individuals functioning for a common purpose. This demands recognition of different groups in the community and appreciation of the fact that their goals or values may not be totally in accord with our own. We cannot have adequate motivation for health or develop adequate participation by these groups unless we are willing to accept people, whoever they are and wherever they may live and work with them toward sharing goals, aspirations and tasks. Community health is the general health of a community and the practice and study of ways to preserve and improve it. Public health includes health education, sanitation, control of diseases, and regulation of pollution.

Public health, protection and improvement of the health of entire populations through community-wide action, primarily by governmental agencies. The goals of public health are to prevent human disease, injury, and disability; protect people from environmental health hazards; promote behaviors that lead to good physical and mental health; educate the public about health; and assure availability of high-quality health services. Public health systems vary in different parts of the world, depending upon the prevalent health problems. In the developing world, where sanitation problems and limited medical resources persist, infectious diseases are the most

significant threat to public health. Public health officials devote resources to establish sanitation systems and immunization programs to curb the spread of infectious diseases, and provide routine medical care to rural and isolated populations. In industrialized nations, sanitary food and water supplies and excellent medical resources have reduced rates of infectious disease. Instead, accidents and diseases such as lung cancer, heart attacks, and strokes are among the leading causes of death. In these areas, public health goals include education programs to teach people how to prevent accidents and lessen their risk for disease, and the maintenance of the excellent disease prevention systems already established.

Public health workers may engage in activities outside the scope of ordinary medical practice. These include inspecting and licensing restaurants; conducting rodent and insect control programs; and checking the safety of housing, water, and food supplies. In assuring overall community health, public health officials also act as advocates for laws and regulations—such as drug licensing or product labeling requirements. Some public health officials are epidemiologists, who use sophisticated computer and mathematical models to track the incidence of communicable diseases and to identify new diseases and health trends. Others conduct state-of-the-art medical research to find new prevention and treatment methods.

Most people think of public health workers as physicians and nurses, but a wide variety of other professionals work in public health, including veterinarians, sanitary engineers, microbiologists, laboratory technicians, statisticians, economists, administrators, attorneys, industrial safety and hygiene specialists, psychologists, sociologists, and educators.

HIPPOCRATES VIEWPOINT OF COMMUNITY HEALTH

Hippocrates the greatest physician of antiquity, regarded as the father of medicine. Born probably on the island of Kos, Greece, Hippocrates traveled widely before settling down in Kos to practice and teach medicine. He died in Larissa, Greece; little else is known about him. His name is associated with the Hippocratic Oath, though he probably is not the author of the document. In fact, of the approximately 70 works ascribed to him in the Hippocratic Collection, Hippocrates may actually have written about six of them. The Hippocratic Collection probably is the remnant of the medical library of the famous kos School of Medicine. His teachings, sense of detachment and ability to make direct, clinical observations probably influenced the other authors of these works and had much to do with freeing ancient medicine from superstition.

Among the more significant works of the Hippocratic collection are Airs, Waters, and places (5^{th} century BC), which, instead of ascribing diseases to divine origin, discusses their environmental causes. It proposes that consideration such as town's weather, drinking water, and site along the paths of favourable winds can help a physician ascertain the general health of the citizens. He further stated that by observing enough cases, a physician can predict the course of a disease. The idea of preventive medicine, first conceived in Regimen and Regimen in Acute Diseases, stresses not only diet but also the patient's general way of living and how it influences his or her health and convalescence, Sacred Disease, a treatise on epilepsy, reveals the rudimentary knowledge of anatomy reveals the rudimentary knowledge of anatomy in ancient Greece. Epilepsy was believed to be caused by insufficient air, which was thought to be carried by the veins to the brain and limbs. In joints, the use of the so-called Hippocratic bench is

described for treating dislocations. Also of interest are Wounds in the Head, Women's Diseases and Dismembering of the Feotus in the Womb.

INFLUENCE OF THE ENVIRONMENT AND DEVELOPMENT ON COMMUNITY HEALTH

Environment and Community Health

Atmospheric changes have major implications for human well-being. Since *Our Common Future* considered the topic of **climate change**, there has been a sharp and continuing rise in greenhouse gas (GHG) emissions and in the concentration of these gases in the atmosphere. Climate change (including global warning) is under way, and an average temperature increase of 0.74 ^{0}C over the past century has been recorded. This trend, in which 11 of the last 12 years (1995-2006) rank among the 12 warmest years since 1850, is virtually certain. Impacts are already evident and include changes in water availability, spread of waterborne disease vectors, food security, sea-level and ice cover as exemplified by melting of the Greenland ice sheet etc. Anthropogenic GHG emissions (principally carbon dioxide, CO_2) are the main drivers of change. The projected increase in frequency and intensity of heatwaves, storms, floods and droughts would dramatically affect many millions of people. The Intergovernmental Panel on Climate Change (IPCC) projects an increase in the global temperature of 1.8-4 ^{0}C by the end of this century. This will lead to potentially massive consequences, especially for the most vulnerable, poor and disadvantaged people who contribute to climate change to a lesser extent. Even if atmospheric concentrations of GHGs were to be stabilized today, land and ocean temperatures would increase for decades and sea levels would rise for centuries. More than 2 million people are estimated to die prematurely each year due to indoor and

outdoor air pollution. Severe indoor air pollution occurs in many poor communities when biomass and coal are used for cooking and heating in enclosed places without adequate ventilation. Outdoor air pollution arises from many sources, including industrial processes, motor vehicles, energy generation and wildfires. Although air quality has improved dramatically in some cities, man areas still suffer from excessive air pollution, resulting in severe health impacts. Long-range transport of a variety of air pollutants also remains an issue of concern for human and ecosystem health.

The release of harmful and persistent pollutants, such as heavy metals and organic chemicals, from mining, manufacturing, sewage, energy and transport emissions, the use of chemicals, and from leaking stockpiles of obsolete chemicals and products, remains a problem for terrestrial and aquatic ecosystems. These are the greatest cause of human sickness and death on a global scale. Eutrophication of inland and coastal waters caused by excessive nutrient loads form sources such as agricultural fertilizer causes sporadic major fish kills and threatens human health and livelihood.

Development and Community Health

Development depends on the environment while its impacts on the environment affect human well-being. The world has changed radically over the past two decades. Significant changes to geopolitical borders have occurred. Global population has grown from 5 billion to 6.7 billion. There has been a net annual rise in gross domestic product (GDP), per person of almost 2 percent and continued increases intrade volume, carbon dioxide emissions and agricultural land. Technological innovations have improved livelihoods and health. Low transportation costs, coupled with market liberation and the

rapid development of telecommunications have fuelled globalization and altered trade pattern, expanding the flow of goods, services, capital, people, technologies, information, ideas and labor. While millions have worked their way out of poverty and have access to improved services, such as healthcare, there are still more than 1billion poor people in the world. They lack essential services such as clean water, adequate nutrition, shelter and clean energy, making them especially vulnerable to environmental and socio-economic changes.

The combination of population pressure, malnutrition and infection has sapped the vitality of the developing nations for generations. Now new problems are being added. Industrial development, often without the restraining laws and regulations of the affluent industrial nations, is causing serious environmental change and occupational diseases. And some of the worst health-harming habits of the industrial nations, notably cigarette smoking and traffic injury, are increasingly common.

Industrial development is needed in the third world but unfortunately many multi-national operations are attracted to the idea of setting up Petra-chemical plants, textile mills, and factories, not by desire to assist these nations towards economic development, but by the supply of cheap labour, and the desire to avoid laws and regulations that have been enacted in the industrially developed nations to protect the health of workers and to preserve environmental quality. Factories in the developing nations frequently employ children and women for low wages; have no workers' compensation, and few if any industrial safety standards. Workers who are injured on the job can be dismissed without compensation and their places filled by others from the virtually unlimited available pool

of unemployed workers among the rural and new urban poor. Environmental quality is often damaged by unrestrained discharge of toxic waste products into the air and water.

The habits and customs we increasingly recognize as harmful to health are eagerly embraced by people in third world nations, who often perceive them as outward signs of their own emergence into better times. Women are persuaded that artificial formula is more desirable than breastfeeding; for some years, the multinational infant formula manufacturers have engaged in persuasive advertising campaign to promote infant formulas, even though it was well known that mothers in rural villages lacked the means to purchase, sterilize or store formula under safe and hygienic conditions. Despite pressure from UNICEF and other representatives of the international community, persuasion to use infant formula rather than breast milk continues in some third world nations.

The adoption of cigarette smoking is probably the worst of the unhealthy practices of industrially developed nations to be exported to the third word. The tobacco companies are able to promote their deadly product without restraint in most developing nations; advertising is directed specifically at children, the use of cigarettes is equated with social and economic success - with the result that in some developing nations about half the child population of both sexes is already addicted to cigarette. Just as bad, tobacco has become firmly established as a lucrative cash crop, displacing badly needed subsistence agriculture, and perhaps worst of all, trees are being depleted to provide fuel for flue-curing tobacco to make into cigarettes.

Another problem that reflects low standards of ethical and moral conduct by some multi-national corporations is the export to developing countries of pharmaceutical preparations that have been denied a license in the country where they were originally developed, usually because of doubts about their safety or efficacy or both. In some developing countries e.g. in Latin America and Southeast Asia, these drugs are sold in open stalls in market places. Apart from the harm they may do, some of these drugs are broad-spectrum antibiotics combinations that help to produce resistant stains of pathogenic micro-organisms.

AGENCIES INVOLVED IN INTERNATIONAL HEALTH

International and national agencies under the control of governments, nongovernmental organizations (NGOs) and private voluntary organizations are all active in international health. The government-sponsored international agencies include several United Nations (UN) organizations, the best known of which is WHO. Other UN agencies with well-defined and important health-related roles are the United Nations Children's Funds (UNICEF), the United Nations Development Programme (UNDP), the Food and Agriculture Organization (FAO), The United Nations Fund for Population Activities (UNFPA), the Office of the United Nations High Commissioner for Refuges (UNHCR), the United Nations Fund for Drug Abuse Control (UNFDAC) and the International Bank for Reconstruction and Development (IBRD), also known as the world Bank. The most important international nongovernmental organization is probably the International Commission of the Red Cross / Red Crescent (ICRC). Some affluent industrial nations have their own agencies that receive direct governmental financial and logistical support for health-related activities. These include the US Agency for International Development

(USAID), the Swedish International Development Authority (SIDA), the Canadian International Development Agency (CIDA), and a number of others. Many agencies, both governmental and nongovernmental, have affiliations with WHO; examples include the Centers for Disease Control, the Public Health Laboratory Service in the United kingdom, the Canadian Addiction Research Foundation, and a number of national and international professional associations in the health field.

The nongovernmental and private voluntary organizations raise funds for international health work of many kinds, mainly by voluntary subscriptions and donations; many churches and missionary groups also play a prominent role; their activities include many general and specific programs, such as hospital and community-based therapeutic and preventive services, aid for persons with specific diseases such as leprosy, trachoma, and cataract, and aid for destitute children. Several philanthropic foundations, notably the Rockefeller Foundation, have illustrious records of contributions to the advance of medical research and education in developing countries.

WHO is supported by all nations and is concerned with all aspects of human health. Its achievements since 1948 have been impressive. WHO has been responsible for at least one contribution of lasting historic importance, the eradication of smallpox; this was accomplished in 1979 after an international collaborative effort that was supervised, coordinated and directed by WHO. If WHO had done nothing else, the total and permanent eradication of this disease, one of the great scourges of mankind since prehistoric times, would have justified its existence. Given enough money, material and manpower, WHO could similarly eradicate other diseases, as well as improve the human conditions in many other ways.

Communicable disease control is much emphasized among the activities of WHO; there are programs aimed at controlling all the principal communicable diseases of developing and tropical countries - malaria, schistosomiasis, onchocerciasis, leishmaniasis, trypanosomiasis, leprosy, yaws, tuberculosis, yellow fever, parasitic diseases, sexually transmitted diseases, viral hemorrhagic fevers, zoonoses. Other programs focus on material and child health, on nutritional disorders, on occupational environmental health problems, mental disorders, etc. Other programs deal with education and training of health workers, with information and technology transfer, quality control of biological products and pharmaceutical preparations. A section is concerned with epidemiologic surveillance, health status assessment and world health statistics, disease classification systems etc. An activity that is often done in collaboration with organizations such as ICRC and UNHCR is emergency and disaster relief, when natural or manmade disasters displace large numbers of people, rendering them homeless and depriving them of means to subsist and survive.

DISTINCTION BETWEEN COMMUNITY / PUBLIC HEALTH IN DEVELOPED AND LES DEVELOPED COUTRIES

Developed countries refer to industrialized countries characterized by population that has realized high standard of living, good health and long life expectancy.

Developing countries are countries that have started to industrialized but they still contain large segment of population that live under pre industrialized conditions.

Less developed countries are characterized by low level of industrialization, poor health care and low life expectancy.

We can be proud of the improvements in health that have occurred since the beginning of the 20th century; many of these are attributable to advances of medical science and the application of public health measures such as sanitation and clean water. Some formidable obstacles to health and well-being, however, still exist. War and political instability are at the heart of some of the most intractable problems. Others in the industrially developed, affluent nations are due to uncontrolled excesses in exploiting the environment, destroying what was naturally present and poisoning vegetation, wildlife, even human communities. It is important to bear these problems in mind while we consider the health problems of the developing world. We cannot separate the developed from the developing world, and consider their problem in isolation from each other.

Population growth

Throughout history and as far as we can determine, since long before recorded history began, the growth rate of human numbers was linear, save for occasional disruptions such as the epidemics of plague in the 14th century, which killed about a third of the population of Europe. But at varying times from the late 18th century onward, the rate of growth began to change towards an exponential pattern. This exponential growth has occurred all over the world, beginning in the late 18th century in western Europe, the early 19th century in eastern Europe, and the early 20th century in Africa and in south and southeast Asia and Latin America. In North America the pattern is distorted by migrations, birth rates began to greatly exceed death rates, early in the 19th century in the United States. The causes of this surge in human numbers have been much debated among

demographers. Some believe that, improved nutrition, related to changes in climatic conditions and the opening up to agriculture of vast areas in the Americas and Australasia, was the principal determinant; others think the reasons are more complex, and include reduced risks of infant death from infections, due to ecologic changes. The change to an exponential growth rate preceded most of the modern advances of medical science.

Other Population Problems-Migrations and Rural-Urban Shifts

Several times in human history there have been massive movements of large numbers of people about the earth, great redistributions, probably related to imbalance between numbers and the supply of needed resources of food, fuel, raw materials or valued commodities.

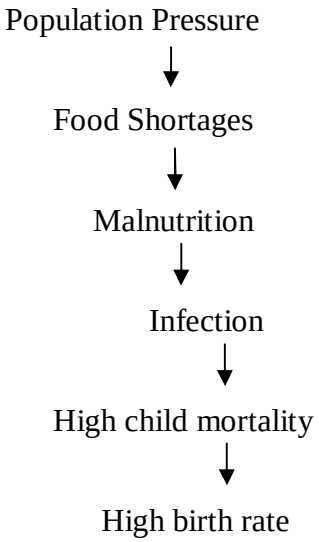
Within many developing nations, (and also within the industrially developed nations), there has also been a large-scale redistribution from rural to urban areas. In the late 1970s, it was estimated by the UN Statistical Office that by the year 2000, the proportion of people living in urban areas would exceed the proportion in rural areas. Some of this rural-urban movement has been due to drought or other natural disasters that have led people to flee from the land in search of work in cities. Dispossessed subsistence farmers and displaced or unwanted rural agricultural labourers have moved in huge numbers to squalid shanty towns on the outskirts of cities, swelling the urban populations and overloading already inadequate water supply and sanitary services. In most developing nations, food supplies, sanitary services, fuel and shelter will almost certainly be inadequate to cope with the projected numbers. Moreover, the rural areas of many of the

nations in which these cities are located will be experiencing equal or greater rates of population growth, and will not have much if any spare to contribute to the food supply.

The health problems of developing nations

A useful way to arrange and classify the nations of the world, suggested by James Grant, director-general of UNICEF, is according to their prevailing infant mortality rates. Infant mobility rates correlate closely with levels of economic development, literacy, housing conditions, access to pure water supplies and several other variables dependent upon economic development; the availability of health care is not directly related to infant mortality rates, though it is often related to the level of economic development. The World Bank's recognition of the relationship between economic development and health is an important contribution to the solution. Many developing nations are caught in a vicious circle of unrelieved poverty that causes or contributes to most of the ill health, which in turn aggravate the poverty. Development assistance that relieves the poverty may be the first step towards improvement of health. The low status of women, leading to female illiteracy and thus to poor understanding of ways to protect their infants' health, must also be dealt with

The vicious circles of population pressure, malnutrition and infection



The fact that so many children now live where previously they would have died, helps to convince parents that fewer children have to be conceived to provide the work-force needed to maintain farms or paddy fields. Protecting and preserving the lives of infants and children is the first step towards dealing with the most urgent and frightening problem of all, the problem of uncontrolled human reproduction.

The rate of population growth is influenced by complex cultural factors, religious beliefs, levels of education and literacy, especially literacy of women which depends upon the status of women in society. Once they are able to read, women are better able to understand the basic principles of contraception; they are also better able to understand that disease and premature death are not inevitable facts of life. The education that is needed to change traditional values is another urgent priority. Perhaps television can play its most valuable role in human affairs by contributing to the education and value changes needed to improve the status of women.

Special efforts are needed in some developing nations to improve the status of women. In many rural agrarian societies, women are destined to spend their lives in a combination of childbearing and heavy manual labour. They may be denied access to modern education, so have no way to learn how much they are missing by reading about the better situation of women and their families in other lands.

High density of population of course contributes to the spread of communicable diseases, so population pressure not only drains food resources and leads to widespread malnutrition, but also sets the stage for epidemics. These three problems - population pressure, malnutrition and infection - thus constantly reinforce one another. Economic development may best help to break these vicious circles by concentrating on the control of infections, but in turn the control of infections cannot achieve much without opportunities for employment of the increasing numbers of survivors – which requires improved education and higher levels of literacy. Clearly the solution is as complex as the problem.

Problem solving in the developing world

- Upgrade / develop primary care
- Expanded program on immunization
- Growth monitoring
- Breastfeeding
- Oral rehydration
- Mobilize / Train traditional healers

- Community development

- Global interdependence

THE Alma – Ata “Health for All” Conference in 1978 gave a focus to what had previously been somewhat aimless efforts. The expanded program on immunization and the oral rehydration program have achieved measurable results already; the tropical disease research program, such as vaccines against malaria and schistosomiasis, has achieved more than optimists could have hoped for a few years ago. Less glamorous but just as important, the underpinning (support, strengthen from beneath) of primary care services and health information systems in developing countries is beginning to work. Instrumental in this is the collaboration between WHO, other official agencies, and NGOs, which have responded to the challenge of meeting specific goals with finite deadlines. Perhaps the most significant achievement has been the way the international agencies have shifted the emphasis of leadership to local communities, giving control over their own health affairs back to the people who will directly benefit, in contrast to preserving the traditional approach in which expatriate advisers, with varying degrees of paternalism, made all the decisions and implemented all the plans. A central feature of this reorientation of aims and methods has been the development of primary health care- a direct and explicit reaction to the “Health for All” initiative. Just a few years ago, many developing countries had virtually no primary care workers other than traditional healers; now increasingly there are battalions of rural health workers, many modeled on the Chinese “bare-foot doctor” pattern. Trained for a few months in first aid, health education and elementary principles of personal preventive medicine, these health workers are concerned mainly with promoting better health only. Secondarily with the treatment of

the various incidental illnesses and injuries that afflict the people in the villages where they work. An important part of this approach is to upgrade the skills of traditional healers. One of the most valuable forms of development assistance that industrial nations can offer to the third world is to help with these training programmes for primary health care workers. Other priorities include promoting the concept of global interdependence, the recognition that actions of groups, communities, nations in one part of the world affect those who live at a distance, perhaps ultimately react on us all whenever we may live. There is no doubt that despoiling the environment, profligate consumption of non-renewable resources will ultimately harm us all and our descendents, especially if this is accompanied by pollution and destruction of other living creatures with which humans are interdependent.

Another priority is to focus our attention on a few major problems, rather than attempting to deal superficially with a great many at once, including perhaps some of little consequence. Without a doubt, programs that protect the lives of infants and children for example GOBI are the highest priorities.

SOURCES OF COMMUNITY/PUBLIC HEALTH PROBLEMS IN RURAL AND URBAN AREAS IN LESS DEVELOPED COUNTRIES

- Water availability / scarcity

- Vehicular emission

- Population increase

-Air pollution

-Sanitation

CONTROL OF HEALTH PROBLEMS ARISING FROM CONTAMINATION OF WATER, AIR IN COMMUNITIES

Water contamination: water (e.g lakes, rivers, oceans and groundwater) pollution occurs when pollutants are discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds.

Sources of contamination

- Pesticides: run-off from farms, backyards, leachate from landfill. It has effect on ecosystems, human health (endocrine) and reproductive damage in wildlife.
- Sewage: untreated or inadequately treated municipal sewage
- Synthetic organics: e.g persistent organic pollutants
- Acidification: transportation of sulphur dioxide from power plants common in US and Europe
- Chemicals in drinking water: fluorine, arsenic, lead
- Nutrients: phosphorus from fertilizers

Diseases: Typhoid, cholera

Preventive measures

- Water should be properly checked
- Steps taken to disinfect it
- Water pipes should be regularly checked for leaks and cracks
- At home water should be boiled, filtered

Air contamination

Introduction of chemicals, particulate matter or biological materials into the atmosphere; that cause harm or discomfort to humans or other living organisms.

Air pollutant

SO_x, NO_x, CO, CO_2, volatile organic compounds e.g CH_4, particulate matter, CFCs harmful to the ozone layer, radioactive pollutants (produced by nuclear explosions, war explosives and natural process such as the radioactive decay of radon.

Sources

Anthropogenic

- Stationary sources e.g power plants, factories
- Mobile sources e.g motor vehicles
- Chemicals e.g agriculture and forestry
- Fumes from paint, hair spray, aerosol sprays and other solvents
- Waste deposition in landfills generate methane
- Military such as nuclear weapons, toxic gases

Natural

- Dust from land with little or no vegetation
- Methane by the digestion of food by animals e.g cattle
- Smoke and carbon monoxide from wildfires

Health effect

- Cardiopulmonary disease
- Pneumonia through air contamination from motor vehicles
- Lung and heart diseases

Control devices

- Regulations on air contamination: The clean air act, The national ambient air quality standards, National emission standard for hazardous air pollutants

SPATIAL EPIDEMIOLOGICAL APPROACH TO COMMUNITY / PUBLIC HEALTH PROBLEMS ANALYSIS

Epidemic can be defined as affecting or tending to affect a disproportionately large number of individuals within a population, community or region at the same time. Among the diseases that have occurred in epidemic proportions throughout history are bubonic plague, influenza, small pox, typhoid fever, tuberculosis, cholera, bacterial meningitis and diphtheria. Occasionally, childhood diseases such as mumps and German measles become epidemics.

Epidemiology, medical science that involves the study of the incidence and distribution of diseases in large populations and the conditions influencing the spread and severity of disease.

The major activities of local and state health departments from 1850 to 1920 involved communicable disease control and sanitation. The chief methods of controlling communicable diseases included escorting diseased persons to the town pesthouse, quarantine and fumigation to destroy bacteria. However, quarantine failed as the major measure of communicable disease protection because health officials and others did not understand the epidemiological principles

of the disease carrier in relation to the spread of infection. Furthermore, the modes of transmission and periods of incubation and communicability of infection were not well understood. Because pride and business interests were involved, citizens in most communities falsely denied that diseases existed in their midst. Although tuberculosis and typhoid fever claimed many lives, smallpox was the most dreaded disease. Smallpox instilled fear and terror in the public mind because of its unwilling appearance and disfiguring consequences, its extreme communicability and its high fatality rate. Smallpox vaccine had been introduced as early as 1796 but mass vaccination programmes were not conducted in the US until the 1920's because many individuals were slow to accept the preventive measure. With the application of measures for community sanitation and health education, and with an increasing proportion of the population protected by immunization against typhoid fever, diphtheria and smallpox, the number of cases and deaths from these communicable diseases gradually decreased.

Cholera was the classic epidemic disease of the 19th century, as plague has been of the 14th century. When cholera first appeared in US in 1832, yellow fever and smallpox, the great epidemic diseases of the previous two centuries, were no longer truly national problems. Yellow fever had disappeared from the North, and vaccination had disappeared from the North, and vaccination had deprived smallpox of much of its menace. It was not until 1883 that Robert Koch, directing a German Scientific Commission in Egypt, isolated the organism that causes cholera – vibrio comma, a motile, comma-shaped bacterium. Once they find their way into the human intestine, these vibrios are capable of producing an acute disease which, if untreated, kills roughly a half of those unfortunate enough to contact it. Cholera, like typhoid, can be spread along the pathway leading to the human digestive tract. Unwashed hands or uncooked fruits and vegetables, for example, are frequently responsible for the transmission of the disease, though

sewage – contaminated water supplies have been the cause of the most severe, widespread and explosive cholera epidemics. Clean streets, airy apartments, a pure supply of water, were certain safeguards against epidemic disease. And by 1866, advocates of sanitary reform could in justification of their programmes point to the discovery of John snow, a London physician, that cholera was spread through a contaminated water supply. Cholera in 1849, for example was assumed by the great majority of physicians to be a specific disease, whereas in 1832, most practitioners had still regarded cholera as a vague atmospheric malaise.

Modern epidemiology may focus on the effect of age such as the susceptibility of the older person to respiratory death during influenza epidemics; of sex such as the greater incidence of heart attack among men; or of socio-economic factors exemplified by the greater influence of tuberculosis among the poor especially the homeless in crowded cities. In addition to searching on the general causes of disease among population, epidemiology may be charged with identifying the source of a specific condition of a particular disease.

- Public Health Programmes

1 Immunization – Vaccines against polio to children

2 Rural and Urban health clinics.

3 Disease tracking and Epidemiology: This can be done by going through records of
` health problems in different areas.

4 Sanitation and population control

5 Medical Research

6 Public Education campaign

PLANNING INTERVENTION PROGRAMME FOR COMMUNITY / PUBLIC HEALTH PROBLEMS

Interested groups and individuals can study and plan together to improve the health of their community by carrying out the following six steps:

I. Recognizing health needs.

II. Interesting others in community health needs

III. Community health council

IV. Conducting a community health survey.

V. Educating the public

VI. Evaluating the community health programme.