PUBLIC HEALTH SCIENCES BOOK
For Health Students

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PT. PENA PERSADA KERTA UTAMA

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REFERENCES

CHAPTER I
INTRODUCTION

Health care is very important to all of us in public health. Public health has a shifting focus from not just to individuals but to populations. Public health is about what makes us sick, what makes us healthy, and what can be done together about it. Disease problems such as influenza, AIDS, climate change, or about health care costs, are things that need to be considered to see the impact resulting from existing health problems. The resulting impact is not only seen on individuals but also on at-risk groups as well as the population as a whole. Based on this, basic questions will arise about what determines health and disease. Therefore, options can be made for intervention in efforts to improve health and prevent disease.

Therefore, in this case, we discuss the principles of population health to prevent disease and disability by looking at how public health affects our daily lives in ways that we often underestimate. Moreover It also explores a range of potential interventions to protect health and prevent illness, disability, and death. Other things that became a discussion are: about how public health has a special emphasis on using evidence. *Evidence Based* To determine health problems, understand the etiology or cause of disease, develop recommendations to address health problems, and implement and evaluate the benefits of harmful interventions.

Information and communication are also important topics to look at how health data is obtained and structured and how it can be delivered or communicated and used to make decisions in health improvement efforts. Further also discussed about the contribution of social science to examine how social, economic, and cultural factors affect health. In addition, behavioral changes in individuals and groups can be changed to improve health. In addition, it is also necessary to look at it from the aspect of Health policies and laws can be used to improve health.

Diseases that exist in the community are grouped into two, namely non-communicable diseases (NCDs) and infectious diseases (PM). Examples of PTM are: cancer, heart and blood vessel diseases, as well as diseases that affect our mental health, such as depression to Alzheimer's. While PM is diseases that can be transmitted from person to person or from other species to humans such as HIV / AIDS. Based on the two types of disease groups, there are several interventions that can be done including efforts to inhibit the spread of disease, to prevent the spread of disease ranging from hand washing, immunization designed to protect individuals, and screening, and preventive medicine designed to cure disease.

CHAPTER II
DISCUSSION

Learning Activity 1
PUBLIC HEALTH PRINCIPLES

A. Definition of healthy according to WHO

WHO makes a universal definition that states that healthy is a state of physical, mental and social well-being that is a whole and not just free from disease or disability.

According to WHO, there are three important components that constitute a unified definition of healthy, namely:

1. Physical health

   Physical health is an important component in the sense of complete rest, in the form of a human figure who looks clean skin, shining eyes, neatly combed hair, neatly dressed, muscular, not fat, breath does not smell, appetite is good, sleep well, agile, and all physiological functions of the body run normally.

2. Mentally healthy

   Mentally healthy and physically healthy are always connected with each other in the old saying, "a healthy soul is found in a healthy body" (*men sana in corpore sano*). The attributes of a human being who has a healthy mentality are as follows:

   - Always satisfied with what is in him, always happy, relaxed, and pleasant and there are no signs of psychological conflict.
   - Can get along well and can accept criticism and is not easily offended and angry, always understanding and tolerant of the needs of others.
   - Can control themselves and not easily emotional and not easily afraid, jealous, hatred as well as facing and being able to solve problems cleverly and wisely.

3. Social welfare

   The limits of social welfare that exist in each place or country are difficult to measure and are highly dependent on the culture, culture, and level of prosperity of the local community.

In a more essential sense, social welfare is an atmosphere of life in the form of feelings of security, peace and prosperity, sufficient food, clothing and shelter. In a prosperous society, people live in an orderly manner and always respect the interests of others and the general public.

4. Spiritually Healthy

   Spirituality is an additional component to WHO's definition of healthy and has significance in people's daily lives. Every individual needs to receive formal and informal education, opportunities to take vacations, listen to songs and music, spiritual flushes such as religious lectures and others so that there is a dynamic and not monotonous mental balance.

B. According to Health Laws

According to scientific limitations, health or health has been formulated in Health Law No. 36 of 2009 as follows: "The perfect state is both physical, mental and social, and not only free from disease and disability, and economically and socially productive."

This means, a person's health is not only measured from physical, mental, and social aspects, but also measured by his productivity in the sense of having a job or producing something economically. For those who have not entered working age, children and adolescents, or for those who are no longer working (retired) or elderly, apply socially productive. For example, socio-economic productive for school students or students is to achieve good achievements, while socio-economic productive for the elderly or elderly is to have social and religious activities that are beneficial, not only for themselves, but also for others or society.

In Health Law No. 23 of 1992, health is defined more complexly as a state of well-being of body, soul, and social that allows everyone to live a productive life socially and economically. Not only is it free from physical, mental, and social distractions, but health is seen as a tool or means to live productively. Thus, the health efforts made are directed at efforts that can direct people to achieve sufficient health in order to live productively.

C. Definition of public health based on Winslow, WHO, and *Institute of Medicine*

a. The definition of public health according to Winslow:

Professor Winslow (1920) contains a definition *of public helath* or public health to provide direction and goals for its development in the world of medicine in accordance with the dynamics of public life and the demands of the times.

Public health is the science and art of preventing disease, prolonging life, and improving health through "community organizing efforts" to: improve environmental sanitation, eradicate infectious diseases, education for personal hygiene, organize medical services, and care for early diagnosis and treatment. Development of social engineering to ensure that everyone is met with the needs of a decent life in maintaining health.

b. Definition of public health according to WHO

Public health refers to all organized actions (whether public or private) to prevent disease, improve health, and prolong life among the population as a whole. Its activities aim to provide conditions where people can be healthy and focus on the entire population, not on individual patients or diseases. Thus, public health is concerned with the total system and not only the eradication of certain diseases. The three main public health functions are:

- Assessment and monitoring of public health and at-risk populations to identify health issues and priorities.
- Formulation of public policies designed to solve identified local and national health problems and priorities.
- To ensure that all populations have access to appropriate and cost-effective care, including health promotion and disease prevention services.

Public health professionals monitor and diagnose health problems from across the community and promote healthy practices and behaviors to ensure that populations remain healthy. One way to describe the breadth of public health is to look at some important public health campaigns:

- Vaccination and infectious disease control
- Motor vehicle safety
- A safer workplace
- Safer and healthier food
- Safe drinking water
- Healthy mothers and babies and access to family planning
- Decrease in deaths from coronary heart disease and stroke
- Recognition of tobacco use as a health hazard.

The term global public health recognizes that, as a result of globalization, forces that affect public health can and do originate from outside national borders and that respond to public health issues now require attention to cross-border health risks, including access to hazardous products and environmental change.

c. Definition of public health according to *the Institute of Medicine*:

Public health is described as what society does to ensure conditions for people to be healthy. To do this, he further suggested, there needs to be a fight against an emerging threat to public health.

The Institute of Medicine*'s (IOM) 1988 report offered a condensed definition of public health as "Meeting the interests of society under conditions of ensuring people can be healthy," (Committee for the Study of the Future of Public Health, 1988, p.19*) and Turnock (2001) later described public health as "a collective effort to identify and address unacceptable realities that result in prevention and health outcomes avoided, and it is a composite of efforts and activities undertaken by people committed to this goal" (p.19). While public health definitions and practices evolve over time, the complexity issues to be addressed remain constant.

D. The main functions of public health

According to (Riegelman R 2009) the main functions of public health first are,

1. Prolong life and improve people's quality of life. The point is that the public health team keeps a person alive for a long time,

besides that it is also necessary to maintain the health of both individuals and groups because it will be useless if someone can survive for a long time but during his life has a continuous illness so that the person will not be productive and will even complicate the lives of others.

2. Second, carry out health protection by means of health promotion when the disease is at risk. Health protection needs to be maintained to prevent diseases that have the potential to spread or aggravate health conditions.
3. The third is to use new technologies such as the Internet to redefine the meaning of "society" and offer new ways of communicating. The use of new technology is very important because in the delivery of promotion in the health sector, a medium is needed so that the delivery of information becomes effective and comprehensive.

Meanwhile, according to Notoatmodjo S (2012). Public health has the following functions:

1. The main thing is to prevent disease, extend life, and improve the health of the population (community). Prevention of disease is one effort so that the disease does not attack itself or spread to others, prevention is also a better thing to do than making efforts after the occurrence of disease. This is because, if someone has experienced illness, there must be a negative impact of the disease either a small impact or a big impact. Examples are disruption of activity or death. So the health team plays an important role when it comes to disease prevention.
2. The function of the public health team is to extend the life of a person or community, of course, it can be done based on efforts to prevent disease as mentioned.
3. The last function is to improve public health which is carried out by implementing a *hygiene* system, it is done to maintain or improve the quality of human life.

E. Differences between public health and medicine

1. Public Health
   a. The target is society, not individuals and healthy people.
   b. Using a proactive approach, means not waiting for problems to come but looking for problems. Officers are on the ground/community looking for and identifying problems and taking action.
   c. See clients as whole beings, with a holistic approach. The occurrence of disease is not only due to disruption of biological systems but bio-psycho-social aspects.
   d. Group and community-based interventions are directed at health promotion (promotive) and disease prevention (preventive).
   e. The manpower consists of Kesmas, sanitarians, health nurses, Midwives in the Village, Health Cadres, and so on.
2. Medicine
   a. Performed against individual targets and is a sick person.
   b. Tends to be reactive (waiting for problems to come), for example doctors wait for patients to arrive at the Puskesmas/practice.
   c. Seeing and handling clients / patients is more to the human biological system / patients are only seen partially (even though humans consist of bio-psycho-social aspects that are seen between one aspect of another.
   d. Health services are provided to individuals aimed at prevention, healing, palliative, and rehabilitation.
   e. The manpower consists of doctors and nurses (Medical and Paramedic)

F. History of public health development in the world and in Indonesia

1. The history of the development of public health in the world

   The history of world development dates back to the dawn of human civilization, recorded in Rosen's first global survey, *A History of Public Health* (1958), where it has been discovered *drainage system* and MCK four hundred years ago in the Pakistani

area by archaeologist Mohenjo Daro. (*Public Health in History*, 2011). The concept of treatment by looking at the spread of disease rather than individual treatment has also been found since ancient Greece.

In the 19th century, in 1842 a civil servant and author of a public health survey in England, Edwin Chadwik, believed that public health should go hand in hand with environmental control. Waterways, sewers, and clean air were his priorities, although at that time the theory of germs as the cause of disease had not progressed.

In that century there were also many medical experts who were recognized by the government and were very different from ordinary medicine workers who previously existed. Referring to Louis Pasteur's germ theory, medical science invented many new therapies, including smallpox vaccines, anesthetic drugs for surgery, infusions and diphtheria antitoxins. In the 20th century BCG vaccine was used to *tuberculosis*, antibiotics, and *chlorpromazine* (anti-psychotic drugs). This century has also focused on building sewage systems and air cleaning systems including measles immunization, the appointment of doctors in the field of public health, and the construction of isolation hospitals.

The causes of mortality due to infection have also decreased in this era, according to the book *Public Health In History*, 2011, there was a threefold decline (from 350 per 100,000 population in 1917, to 150 per 100,000 population in 1937 and decreased Kemali to 10-20 per 100,000 population in 1957). Health services in the preventive and curative fields have been integrated and applied in many ways, such as in public health schools, the treatment of infants, and for the welfare of mothers. Public health activities have been implemented from the smallest level.

2. History of development in Indonesia

The history of the development of public health in Indonesia has experienced a long journey until it can develop into what it is now. The beginning of the public health struggle

was experienced during the New Order period. According to the book History of Indonesian Health Development 1973-2012, the figure who at that time struggled was the Minister of Health Prof. DR. Gerritz A. Siwabessy (1973-1978). After the turmoil of the transfer of power from the previous President Soekarno to President Suharto, Siwabessy was appointed as a Minister of Health. Siwabessy made many movements to develop public health in Indonesia, such as rebuilding cooperation with international organizations after Indonesia became a member of the United Nations (UN) back in 1967 (History of Indonesian Health Development 1973-2012, 2012). One such organization is UNICEF's Family Nutrition Improvement Programme (*Applied Nutrition Program*). Siwabessy also succeeded in freeing all parts of Indonesia from the threat of smallpox which was recognized by WHO in 1974. The struggle began with Indonesia's participation in *Global Smallpox Eradication Programme* (SEP) in 1967 which continued two years later launched a comprehensive eradication of smallpox for six years (History of Indonesian Health Development 1973-2012, 2012).

During the Siwabessy period, the Community Health Center began to be developed and the hospital also experienced various additional accommodations such as the construction of laboratories at Hasan Sadikin Hospital, Bandung, Intensive Care (Emergency) at Cipto Mangunkusumo Hospital, Jakarta, *Floating Hospital* (Hospital Ship) in Maluku, health facilities and equipment in Semarang and Purwokerto General Hospitals.

The historical record of public health cannot be separated from the Repelita (Five-Year Development Plan) program launched by the Development Cabinet. Siwabessy held a National Health Work Meeting on 22-29 April 1968 in Jakarta. The meeting produced the National Health Program which was later used as the foundation of the first Repelita in the health sector, as part of the short-term and long-term development of the Development Cabinet which began on April 1, 1969 (History of Indonesian Health Development 1973-2012, 2012)

Continuing Siwabessy's struggle, the next Minister of Health Dr. Soewardjono Soerjaningrat formulated the National Health System in 1980. SKN was initiated as a basic philosophy and can provide direction for health development in Indonesia whose ideology cannot be separated from Pancasila and the 1945 Constitution which aims to create general welfare for the Indonesian people.

Dr. Soewardjono is the implementer of the national family planning program which is the main agenda of the new order development movement. The national program cannot be separated from population problems in Indonesia which must be controlled by distribution patterns, density levels, and age structure of the population. On October 17, 1968, the National Family Planning Institute (LKBN) was formed. The government's commitment to make family planning programs part of development demands the improvement of LKBN. For this reason, in 1970 through Presidential Decree No. 8/1970 this institution was changed to the National Family Planning Coordinating Board (BKKBN). (History of Indonesian Health Development 1973-2012, 2012).

Further developments regarding the National Immunization Week (PIN) are based on the number of polio cases that still exist in Indonesia and have the potential to cause outbreaks or extraordinary events. TPIN dates were held in 1995, 1996 and 1997 simultaneously given to all children under five years of age every September and October.

As science and technology increase, so does public awareness of the importance of health. In the early 2000s, Indonesian life expectancy increased from 66.2 years in 2004 to 70.7 in 2009, decreased maternal mortality (MMR) from 307 per 100,000 live births in 2002 to 228 per 100,000 live births in 2007, and reduced infant mortality from 35 per 1000 live births in 2002 to 34 per 1000 live births in 2007 (History of Indonesian Health Development 1973-2012, 2012).

G. Determinants in public health according to H.L. Blum and the concept of Big Gems

Determinants are factors that determine or influence the health status of individuals or communities.

Dr. Henrik L Bloom commonly called HL Bloom explained there are 4 main factors or *determinant factors* that affect the degree of public health, namely environment, behavior, health services, and genetics.

1. Milieu

   The environment plays the biggest role in determining the degree of health of a community. Because most of the causes of diseases and problems come from the environment. Elements included in this environment such as soil, water, air, living things, and bacteria. A problematic environment will greatly impact the health of individuals or people in the environment, for example people who live in an environment whose water is polluted with factory waste containing chemicals or bacteria, it will be dangerous for the health of the surrounding community because it will cause disease and other health problems.

2. Behavior/lifestyle

   Human behavior is also the 2nd important factor that determines whether a society is healthy or not. Human behavior is also influenced by customs, culture, customs, beliefs, education, and socio-economy. For example, people or individuals who often fast food will increase the incidence of obesity, smoking habits can increase coronary heart disease and people who live on the banks of the river always throw garbage in the river so that there is a concentration of garbage that can make river water contaminated with bacteria and harmful chemicals, and flooding and other ongoing problems.

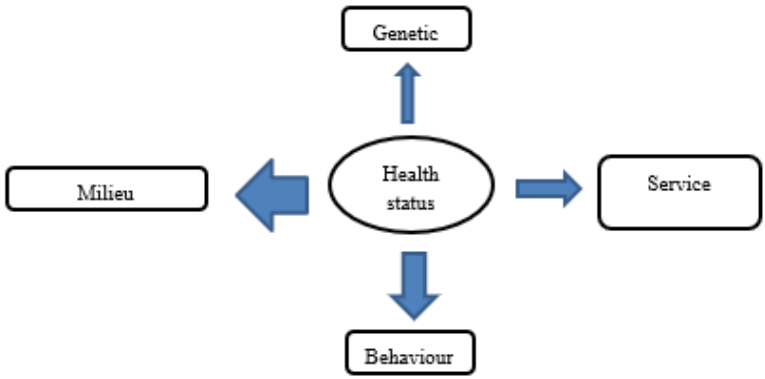
3. Service

   Health services affect public health because health care facilities are very important in health recovery services, disease prevention, treatment, and community care that requires health services. The availability of facilities is influenced by location, whether they can be reached or not, health workers providing

services, information and motivation of the community to visit the facility in obtaining services and the health service program itself whether it is in accordance with the needs of the community in need.

4. Genetic

   Hereditary factors can also affect an individual's health. However, there are some diseases that are genetically inherited but do not become diseases to the child because of a healthy lifestyle and environment. For example, someone who has DM can pass the disease on to his children later, but his child does not suffer from DM because of a healthy lifestyle.



BIG GEMS Concept

The BIG GEMS concept is a tool or method used to make it easier to remember determinants that affect health. BIG GEMS stands for these factors, namely:

Behavior
Infection
Genetic
Geography
Environment
Medical care
Sosio-economic-cultural

This is a factor of Blum's theory which is expanded so that there are several additions from 4 factors to 7 factors, namely: *Infection*, *Geography*and *Socio-economic-cultural*.

1. *Infection*: infection is often the direct cause of a disease. Early treatment/prevention of exposure to an infection can affect the development of the disease or how to prevent the disease.
2. *Geography*: geographic location affects the frequency and presence of a disease. For example, diseases caused by malaria infection only occur in certain regions. Geography also shows the geological conditions of the region, for example places / areas that have high levels of radiation have an impact on the development of lung cancer.
3. *Socio-economic-cultural*: In the United States, socioeconomic factors include education, income and employment status. These measures have all been shown to be factors influencing a variety of diseases as varied as breast cancer, tuberculosis, and occupational accidents. Religious and cultural factors are also included in the factors that influence a disease because beliefs sometimes influence decision making for treatment that will affect the development of the disease as well. Although most diseases are more common in low socioeconomic classes, some such as breast cancer are common and more common in people of high socioeconomic class.

H. Examples of public health efforts in everyday life

1. Prevention and Eradication of Infectious Diseases

   Infectious diseases are infectious diseases that can be transferred from sick people or animals, from reseviors or from objects containing other disease lips to healthy humans. Infectious diseases can be viral, bacterial, etc. Prevention can be in the form of immunization in toddlers and adults.
2. Mother and Child Welfare

   Examples of efforts to improve maternal health:
   - Ante-partum treatment
   - Intra-partum care (during childbirth)
   - Post-partum care (after childbirth)

   Meanwhile, the effort to improve children's health is to regularly come to posyandu, provide exclusive breastfeeding for 6 months and breastfeed until the age of 2 years.

3. *Environmental Hygiene* and Sanitation

   Environmental Hygiene and Sanitation is the monitoring of physical, biological, chemical, social, and economic environments that affect human health, where useful environments are improved or multiplied, while adverse ones are repaired or destroyed.

   Examples of efforts to improve health in the environment:

   - Clean water supply
   - Care or planting trees around the yard of the house in order to produce oxygen or clean air
   - Doing cleaning in the surrounding environment, be it gutters, trash cans, latrines, etc.

4. Health Education to the Community

   Health education is an application of the concept of education in the health sector. The concept of health education is a learning process which means that in education there is a process of growth, development, or change to a more mature age.

   Examples of efforts to improve health in health education to the community, namely:

   - Counseling on the importance of health to the community
   - Teaching healthy living behaviors to the community

5. Dental Health Business

   Dental and oral disease, especially *Caries Dentist* disease is a disease that is widespread in most populations around the world so that it really becomes a public health problem. For this reason, there is a need for health improvement efforts in the field of dental health. Examples of efforts made:

   - Doing teeth cleaning (toothbrush) after eating and before going to bed at night
   - Health education, especially dental
   - Tooth extraction that does not work as before
   - Cavities filling

Learning Activity 2
PUBLIC HEALTH BY EVIDEN

A. Public Health Based on *Evidence Based*

Public health based *Evidence Based* is a way of working used by public health experts to solve health problems in the community. The way this works is to ensure that any intervention (public health program) can be supported with evidence showing that the intervention is likely to be effective and successful (evidence based public health – Browson ross c)**.**

B. Differences in Public Health Based on Evidence Based *and Medicine Based on* Evidence Based.

Health has several differences with medicine based on *evidence based.*

Characteristic	Medicine	Public health
Quality of Evidence	Experimental Studies	Observational Studies and Quasi-experimental
Volume of Evidence	Smaller	Bigger
Intervention Time up to Outcomes emerge	Shorter	Longer
Professional training	More formal, with Certificate or License	Less formal, none Certification Standards
Decision-making	Individual	Team

First, in terms of the quality of evidence possessed by medicine, which is obtained from the results of experimental studies or experiments such as laboratory results. Meanwhile, public health gets quality evidence from quasi-experimental observations, for example taking to the streets to find out the condition of the community in the context of observation or can use quasionary.

Secondly, in terms of the volume of medical evidence has a smaller volume. This is related to the experimental studies used. Because medicine only conducts studies of an individual's disease,

the evidence or data regarding the results of studies conducted will be smaller when compared to the volume of evidence that public health officials have. This is because, public health makes observations with community objects which will certainly have more diverse characteristics than individual objects.

Third, if viewed from the time of intervention, medical mka will have a shorter intervention time compared to public health. Intervention in medicine will be shorter in time because the object used is an individual so that the intervention carried out will show results faster than the results of interventions carried out to the community. This is again because the characteristics possessed by the community will be much more diverse than that of an individual so that the output of interventions carried out by public health will be longer.

Fourth, in terms of medical training is more formal equipped with a recognized certificate or license, while for health workers, professional training is less formal and there is no certification standard such as medicine. This relates to the different goals between medicine and public health. Because medicine has curative and rehabilitative purposes that are carried out on individuals who have experienced illness, more professional training is needed in terms of handling diseases in individuals. Meanwhile, public health has preventive and promotive goals targeting people who have not been exposed to disease so that they are prevented from getting sick.

Fifth, in terms of decision making, medical officers will make individual decisions about hurting someone or actions taken to treat the disease. Meanwhile, public health workers will make decisions together with their teams to address problems that exist in the community. This is because health workers not only address the health aspects in the community, but also about various other aspects such as the social and cultural approach of the local community that affects their health.

C. Approaches Used for Public Health Based on *Evidence Based* (*PERI Approach*)

FAIRY approach is the approach used for public health. According to Riegelman (2009) *FAIRY* consists of (*Problem, Etiology, Recommendations,*and *Implementation).*

1. *Problem;* What are his health problems?
2. *Etiology*; What causes the disease?
3. *Recommendations;* What actions can reduce health impacts?
4. *Implementation*; How do we solve it?

Problem, It's about how we can describe a health problem.The first step in addressing health problems is to describe their impacts, where we need to start by understanding the occurrence of disability and death from disease, which we call the burden of disease. In public health, disability is often called morbidity and mortality is called mortality. We also need to determine if there has been a recent change in the impact of the disease. Thus, the first question in describing health problems is, what is the burden of disease in terms of morbidity and mortality and whether it has changed over time.

Etiology, That is about what is the cause of a disease. Public health based *Evidence Based*, using a very specific definition of causation, i.e. *contributory cause*. Approach *Evidence-based* Rely on epidemiological research studies to establish *Contributory cause.* This requires that we go beyond group association and establish three definitive requirements:

1. The cause is associated with effects at the individual level. That is, potential causes and potential effects occur more often in the same individual than expected by chance.
2. The cause precedes the effect in time. That is, a potential cause is present at an earlier time than the potential effect.
3. Changing the cause changes the effect. That is, when potential causes are reduced or eliminated, potential effects are also reduced or eliminated.

Recommendations, i.e. what actions can reduce health impacts. In public health based on *evidence based,* However, action should be based on recommendations that incorporate evidence. So, a

recommendation is a summary of the evidence of interventions that work to reduce health impacts and indicate what actions should be taken. Action recommendations have been a part of public health and medicine for many years showing the growing body of research evidence supporting the benefits and harms of potential interventions. In recommendations *evidence based,* Expert opinion is most important when research evidence does not or cannot provide answers.

*Implementation*that is How to solve health problems. Strong recommendations based on evidence are ideally the basis for implementation. Today, there are often a large number of interventions with sufficient data to consider implementation. Many interventions have potential downsides, as well as potential benefits. The large and growing array of possible interventions means that health decisions require systematic methods to decide which interventions should be used and how to combine them in the most effective and efficient way. One method of checking options for implementation using such structures is called the "*when-who-how*"."*When*" ask about the time in the course of the disease at which the intervention occurred. The timing allows us to categorize primary, secondary, and tertiary interventions."*Who*" Ask about who we should direct interventions at and whether they should be directed at individuals one at a time as part of clinical care. Or, should it be directed at groups of people, such as vulnerable populations, or should it be directed at everyone in a community or population.

D. Steps Used to Describe Health Problems

The first step in addressing a health problem is to describe or describe its impact. That is, we need to start by understanding the occurrence of disability and death from disease, which we call the burden of disease. In public health, disability is often called morbidity and mortality is called mortality. We also need to determine if there has been a recent change in the impact of the disease. Thus, the first question in describing health problems is

"What is the burden of disease in terms of morbidity and mortality and has changed over time?"

The second question we need to ask is "Are there differences in the distribution of disease and can these differences generate ideas and hypotheses about the etiology of the disease (causes)?" That is, we need to research how the disease is spread or distributed in the population. We call this the distribution of the disease. Public health professionals called epidemiologists investigate factors known as "people" and "places" to see if they can find patterns or associations in disease frequency. We call this group association. Group associations may suggest ideas for hypotheses about the cause, or etiology, of disease." People" includes demographic characteristics that describe people, such as age, gender, race, and socioeconomic factors. It also includes behaviors or exposures, such as smoking, exercise, radiation exposure, and drug use. "Place" implies a geographic location, such as a city or country, but also includes relationships between people, such as a university community or a shared internet site. When these factors are more common among groups with disease than among groups without disease, we call them risk indicators for risk markers.

Finally, epidemiologists take a scientific approach to addressing public health problems. They often skeptical the initial answer to the question and ask: Could there be other explanations for differences or changes in disease distribution? they often ask: Differences or changes are they real or are they artifactual? Artifactual implies that a clear relationship is actually the result of the data collection process.

When trying to determine whether an association is artifactual or real, epidemiologists ask: Whether the observed changes or differences may be due to comparing apples to oranges -- e.g. comparing different groups of average age subjects. Age is very important to epidemiologists because it is very closely related to disease incidence. Thus, the third question we need to ask in describing the problem is "Are differences or changes used to suggest artifactual or real group associations".

Before we can answer these three questions, we need to understand more about the measurements that epidemiology uses to describe health problems. We need to look closely at how we measure changes in differences in illness, disability, and death.In public health, we use rates to summarize our measurements. Let's start by looking at what we mean by tariffs and then we'll return to three questions that should be addressed when explaining health issues.

E. Epidemiology Measures Used to Measure Public Health Problems

The term "level" would be used to describe a type of measurement that has a numerator and denominator where the numerator is part of the denominator—that is, the numerator includes only individuals who are also included in the denominator. There are two basic types of rates that are key to describing disease. This is called incidence rate and prevalence. The incidence rate measures the likelihood of getting a disease over a period of time – usually one year. That is, the incidence rate is the number of new cases of the disease that developed during one year divided by the number of people in the population at risk, as in the following equation:

$$\text{Incident rate} = \frac{\text{\# dari kasus baru penyakit dalam satu tahun}}{\text{\# dari orang dalam populasi berisiko}}$$

We often express the incidence rate as the number of occurrences per 100,000 inhabitants in the denominator. For example, the incidence rate of lung cancer may be 100 per 100,000 per year. In evidence-based public health, comparing incidence rates is often a useful starting point when trying to determine the cause of a problem.

A mortality rate is a special type of incidence rate that measures the incidence of death due to disease during a given year. When most people who develop the disease die from this disease, such as the situation with lung cancer, the mortality rate and incidence rate are very similar. Thus, if the incidence rate of lung cancer is 100 per 100,000 per year, the mortality rate may be 95 per 100,000 per year. When mortality rates and incidence rates are

similar and easier or more reliable mortality rates are obtained, epidemiologists can substitute mortality rates for incidence rates.

The relationship between incidence rate and death rate is very important because it estimates the likelihood of dying from the disease after diagnosis. We call this a case of death. In our example, the probability of dying from lung cancer – the level of morality divided by the incidence rate – is 95 percent, indicating that lung cancer results in a very poor prognosis after diagnosis.

Prevalence is the number of individuals who have the disease at any given time divided by the number of individuals who potentially have the disease. It can be represented by the following equation:

$$\text{Prevalence} = \frac{\text{\# Hidup dengan penyakit tertentu}}{\text{\# pada populasi berisiko}}$$

Thus, prevalence says the proportion of the percentage of individuals who have the disease.

Despite the fact that lung cancer has become the most common cancer, the prevalence will be low – perhaps one-tenth of one percent or less – because those who develop lung cancer generally do not live for long periods of time. Therefore, you will rarely see people with lung cancer. The prevalence of chronic diseases of long duration, such as asthma or chronic obstructive pulmonary disease (COPD), is often relatively high, hence you will often see people with these diseases.

Prevalence is often useful when trying to assess the total impact or burden of health problems in a population and can help identify service needs. For example, the knowledge that there is a high prevalence of lung cancer is a particular region may indicate that there is a need for health services in that area.

F. Ways to Establish the Cause of Health Problems

The first thing to do to establish the cause of a health problem is to identify the effects of that health problem. In the book Public Health 101 this is commonly called "burden of disease" or the subject of disease. We must be able to determine what changes occur due to the health problem. So the first question to establish the cause of the

health problem is what are the effects of the problem, either morbidity or mortality and whether there is a change.

The second question is whether there is a difference in the spread of the disease and can that difference be an idea of the cause of the disease. In this case epidemiologists divide the causative factor by "*Person*" and "*Place*" to see the pattern of spread of this health problem. We must know how this disease spreads in the community so that it is clearer the causative factor and this is called *distribution of disease.* "*Person*" relates to individual characteristics such as age, gender, race, and socioeconomics. Also do not forget to include other factors that may be related such as smoking history, medications, exercise and so on. "*Place*" shows the geographical location, such as rural or urban, as well as how a person relates to the surrounding community. If factors of this type occur more frequently in the group with the disease, it is named *Risk indicators* or *risk markers.*Ultimately, epidemiology is a scientific approach to detecting health problems: Epidemiologists often compare groups based on differences in average age. Age is very important because it has a strong relationship with the occurrence of disease.

In the early 20th century, a child in the town of Colorado Springs, Colorado was found to have serious problems disfiguring teeth brown. This condition occurs in those who use water from the same source. Ironically, those who experience it are protected from cavities. The discovery of the factor "*Place*"This led to two decades of research that led to the discovery that fluoride content in water can reduce the risk of cavities, but if used excessively can cause teeth to become brown (Riegelman, 2009).

G. How to Make Recommendations to Solve Health Problems

Recommendations are studies that build on evidence and interventions regarding health problems. So the recommendations include what actions should be taken to reduce health problems. In preparing a recommendation, basic evidence of a health problem is needed. This basic evidence is obtained from research and intervention studies on a case of disease. Basic evidence is composed of 2 criteria, namely the quality of evidence and the magnitude of

the impact of the health problem. The quality of evidence is determined by investigation using appropriate methods. The magnitude of the impact of a disease event also influences a recommended action. The magnitude of the impact can be seen from the mortality and morbidity rates. Basic evidence recommendations are a combination of the quality value of the evidence and the value of the magnitude of impact through intervention studies.

Examples of making recommendations in solving health problems one of them is about recommendations regarding smoking cessation. A public health professional should examine issues about the dangers of smoking by conducting research. The research includes what are the disadvantages of smoking, chemicals contained in cigarettes and diseases that can be caused by smoking. The results of the study were reviewed and compiled a recommendation on steps that should be taken to smokers to stop smoking.

H. Framework for Determining Action Implementation Options

The framework for implementation is composed of "When-Who-How". When, ask about the time when the course of the disease occurs. Time is categorized into primary, secondary, and tertiary. Primary intervention is before the onset of a disease. This is aimed at preventing the disease from occurring. Secondary interventions are interventions after the disease has progressed and its risk factors, but before the appearance of symptoms. It aims at early detection of the disease and to reduce risk factors even if the patient is not yet asymptomatic. Tertiary intervention occurs after the appearance of symptoms but is not yet permanently disabled. The goal is to prevent the worst risk of a disease.

Who, the question to whom we should intervene. It is aimed at individuals who at one time need clinical care or must be directed at groups such as vulnerable populations and whether it needs to be directed at a person or group.

Then the last one is How. How should we implement interventions? There are 3 basic types of interventions to change behavior, namely information (education), motivation (incentives)

and policies (retirement). An example of such an implementation is about the dangers of smoking. When is education about the dangers of smoking conducted? Whether before the occurrence of the disease due to smoking or after the onset of the disease due to smoking. If before, it can be categorized as preventive measures. Then who do we educate about the dangers of smoking? Is it to the gentlemen or to the young people? Then after we determine the target, we can take action in the form of counseling and education about the dangers of smoking or by implementing regulations regarding cigarettes.

I. Things to Do After Implementation

Public health problems rarely disappear with just one intervention. It is therefore important to evaluate whether an intervention or combination of interventions has succeeded in reducing the problem. It's also important to measure how many problems have been successfully addressed with the intervention.

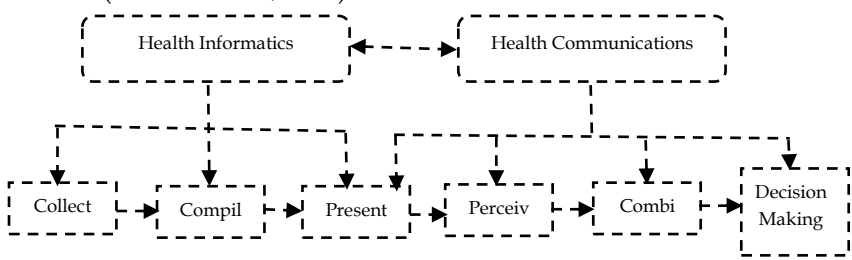
Learning Activity 3
HEALTH COMMUNICATION AND INFORMATION

A. Differences between Health Information and Health Communication.

Health information is concerned with methods for collecting, structuring and presenting health information, while health communication is a way to view, combine, and use information to make decisions. (Public Health, 2009). Thus, these two concepts are about information from the time it is collected until it can be used.

No.	Differentiator	Health information	Health Communication
1.	Definition	Methods for collecting, compiling and presenting health information	ways to translate, combine, and use information to make health decisions
2.	Scope	– Collecting data – Structuring data – Present data	– Presenting Data – Translate data – Aggregating data – Make a decision
3.	Purpose	Accurate data	Positive feedback
4.	Focus	Information	Transaction
5.	Concept	Collecting Information	Processing and disseminating information

Health Information, Health Communication and Information Flow (Public Health, 2009)



B. Basic Types of Public Health Data

No.	Type	Example	Benefit	Advantages/ Disadvantages
1	One case or few	Reports stating one or more cases, such as SARS, anthrax, mad cow disease and other diseases.	Markers for new diseases and become warnings for areas of spread.	Useful for unusual and new conditions. /Requires the attention of a doctor and must be quickly disseminated information
2	Statistical data and disease reports	Important statistics : deaths, births, marriages, divorces, reports on communicable and non-communicable diseases	Requires lawyers: sometimes there are penalties if birth and death status do not meet the cause of a disease,	Statistical data is very complete because social and financial factors/disease reports are more reliable when an institution is reporting than an individual report, often late in reporting data
3	Surveys-sampling	*National Health and Nutrition Examination Survey* (NHANES), *Behavioral Risk Factor Surveillance System* (BRFSS)	Describe conclusions about the outline of the population and the subgroups represented by the sample	Good survey management produces illustrative conclusions about the larger population. Often late in reporting data
4	Self-Report	Monitoring of side effects of drugs and vaccines according to reports of people who have used them	It may help identify unknown or unusual events.	Useful when unusual events following drug or vaccine use/tend to be incomplete, it is difficult to evaluate intent due to selective reporting processes
5	Observation system	Monitor influenza to identify early outbreaks and	Early warning or warning before an	Can be used for 'real time' monitoring, / requires in-depth knowledge of

		changes in virus type	unrecognized event occurs	disease patterns and using services for its development.
6	Surveillance syndrome	Use a pattern of symptoms such as headache, cough/fever or gastrointestinal symptoms to increase awareness of new diseases.	Allows to detect unpredictable changes, such as bioterrorism or new outbreaks that occur due to similar symptoms	May be useful for early warning even if no disease is diagnosed / no disease is diagnosed and there is a possibility of being wrong

C. A measure that describes the health status of the community and population.

The health status of the community can be described by two measures according to Riegelman (2009), namely infant mortality and life expectancy. The infant mortality rate estimates the infant mortality rate in the first year of life. The first year of life has a meaning that infant mortality is measured by the number of children who die at the age of 0 to 1 year in a given year compared to the number of live births in the same year.

The infant mortality rate is used as a measurement because it describes the social and economic conditions of the community. Infant mortality rates can be used to develop plans to reduce infant mortality. Planning to reduce infant mortality at the age of the first month will be different from the age of the baby after one month. This is because, infant mortality at the age of the first month is usually caused by factors carried by children from birth, namely obtained from parents at conception or obtained during pregnancy. So that the handling carried out is related to the health service program of pregnant women, for example the iron pill administration program and anti-tetanus injections. As for infant mortality at the age of more than one month to before one year, many are caused by environmental factors so that development can be carried out with immunization programs, as well as programs for prevention of infectious diseases in children, information programs on nutrition and healthy feeding for children under the age of 5

years. Measurements of health status in children have not been combined with disability problems, because these measurements assume that disability is not a major factor among children.

Life expectancy has been used to measure the overall health of a population using probability figures in each year of life. This expectation measurement became a mainstay in health measurement in the 20th century. Life expectancy is the average age of a person to be able to live continuously in the face of the risk of death that exists in society at a certain time. There are several life expectancy indicators that are often used to measure the health status or socioeconomic condition of a country. For example, the life expectancy of a developed country may be 80 years. Then probably in 1900, life expectancy in the same country was only 50 years. By 2020, it is expected to be up to 85 years. Thus, it allows us to make comparisons between countries with other countries from time to time.

D. Difference between HALE and DALY

At present, there are measures in measuring population health or also called *Summary Measures of Population Health* (SMPH) developed by WHO. These are indicators compiled using data on mortality and health. SMPH as an indicator of the degree of health in the population. Criterion:

- Able to reflect changes such as incidence, prevalence, severity and mortality
- Allows results to be communicated to relevant parties, such as policy makers, media and the public – Can be used on a wide range (different regions, countries with different systems)

SMPH is classified into two groups namely; *Health Expectancy Indicators* and *health gap indicators. Health-Adjusted Life Expectancy* (HALE) is a measurement developed by the World Health Organization that attempts to capture a more complete estimate of health than standard life expectancy. HALE estimates the number of healthy years an individual is expected to live at birth by subtracting years of illness – weighted by severity – from the overall life expectancy. HALE is also calculated at age 65 to provide a

measurement of the quality of life of the elderly. By moving beyond mortality data, HALE is intended to measure not only how long people live, but the quality of their health through their lives.

Health gap indicators What has been widely known is *Disability Adjusted Health Year* (DALY). DALYs reflect the number of ages at the time of illness and the number of years spent in poor health and the number of years lost to premature death. In addition, HALE numbers were calculated using DALY data, using the prevalence of each disease and associated severe disability to estimate the average quality of life per age group. DALYs are calculated by measuring premature mortality and the number of years of life lost.

HALE	DALY
Estimation of a person's average life expectancy in certain health conditions	Measure actual differences in the degree of health of populations
A summary measure of the level of health achieved by the population.	Measuring disease burden and effectiveness of health interventions
Calculating the amount of life expectancy of a person during good health	Counting the number of years spent in ill health
Moving beyond mortality data	Using mortality

E. Efforts to guarantee Health Information.

Having information is not enough. A key role and important tool of public health is to effectively present information in a way that has a function as a basis for understanding and decision making. The problem of information presentation is gaining importance and becoming more complex. They require the study of a wide range of disciplines from mass media, computer graphics, and statistics. Public health information is often presented as graphic. Graphics create a picture in our minds of what is happening and a picture is literally worth a thousand words. Graphical

presentations can accurately inform, but they can also mislead us in a variety of ways. Accurate presentation of visual information has become an art, as well as a science worthy of the attention of everyone who uses information.

Quality issues are key to the presentation of information. The Internet is increasingly becoming a major source of public health information for users. So, when we address quality issues, we need to have a set of criteria to assess the quality of information presented on the internet. Before relying on websites for health information, you should ask yourself key questions. This question is summarized in table 1.

The presentation of data can be seen as the end of health informatics, but also the beginning of health communication. Even the most accurate presentation of data does not tell us how the data will be perceived by the user. Let's look at the rapidly growing components of health communication that relate to how we perceive information.

Table 1. Quality Standards for Health Information on the Internet

Criterion	**Question**
Overall site quality	What is the purpose of a clear site? Is the site easy to navigate? Is the sponsor of the site clearly identified? Are ads and sales separate from health information?
Writer	Is the author of the information clearly identified? Does the author have health credentials? What contact information is provided?
Information	Does the site get information from reliable sources?

	Is the information useful and easy to understand? Is it easy to distinguish between fact and opinion?
Relevance of Punctuality	Is there an answer to your specific question? Can you tell when the information was written? Is it at this time?
Link	Do internal links work? Are there links to related sites for more information?
Personal Discretion	Is your privacy protected? Can you search for information without providing information about yourself?

F. Impact or Effects on One's Perception When Receiving Health Information

According to the book Public Health 101 there are 3 effects or effects that greatly affect a person's perception in absorbing health information. The first effect is the fear effect which is the fear of danger that can be seen and has feared consequences. The effects of fear can also be brought about by potential catastrophic events.

Effect two is an unknown effect. The level of quality of a case regarding a potential harm or benefit can affect how we perceive data and translate it for our own situation. The more often we hear about a health problem, it will affect our perception in responding to it. For example, knowing a friend or relative who died of lung cancer can affect how we perceive information about the dangers of smoking.

The third effect is the uncontrolled effect. We often perceive the dangers we perceive within our control as less threatening than those we perceive as beyond our control. Car crashes, for example, are often viewed as less dangerous than plane crashes, despite the

fact that statistics show that commercial air travel is much safer than travel by car.

Perspectives on harm and benefit need to be considered together if we are going to convey information to make decisions. Not everyone perceives harm and benefit in the same way. Selection of the right and accurate method needs to be done. One approach to overcoming the perception of different information is to use a method known as decision analysis. Decision analysis relies on the extensive information processing capabilities of computers to combine information about benefits and harms to reach quantitative decisions.

G. The relationship between health information and health decision making.

There are 2 key questions that can be used to understand how we use health information to make health decisions.

1. How does our 'risk-taking' affect the way we make decisions?
2. How to incorporate information into our decisions?

There are many attitudes that can affect the way we make decisions. One of the most important is what is known as the 'risk-taking attitude'.

There are 3 basic approaches to making clinical decisions: decision-informed approach, *informed consent*, and make up your mind together.

1. Informing of decision: the 'inform decision' approach implies that the doctor has all the important information and can make the decision in the best interest of the patient. The role of the doctor is then only to inform the patient about what needs to be done, prescribe treatment, and write down recommendations / orders. At one time the Inform of decision approach was used as the standard of medical practice. The decision to conduct multiple tests and receive various drugs is still often made with an *inform of decision approach*.
2. *Informed consent*: rests on the principle that ultimately patients need to give their consent before major interventions, such as surgery, radiation, or chemotherapy can be performed. *Informed*

consent can be written, spoken, or implied. Clinically, informed consent *implies that the individual has the right to know* what will be done, why it will be done, and what benefits and harms it will bring. The patient has the right to ask questions, including asking about the availability of other options. *Informed consent* does not mean that all possible options are explained to the patient, but it does also mean that a physician makes recommendations for a particular intervention.

3. *Shared decision making*: in this approach the doctor's job is to provide information to the patient that the patient can use to make decisions. This includes directly providing information to patients, providing consultations, or referring patients to sources of information that are often available on the internet. Shared decision-making places a much greater burden on patients to seek, understand, and use the information provided. With this approach, doctors are not required to provide specific recommendations or interventions, although patients are free to ask for a doctor's opinion. So by using these 3 approaches, patients can find out what information is related to health or disease, so that patients can take risks to make health decisions for themselves or their families. In addition, health informatics and health communication are key tools for population health. By looking at the important issues related to each issue. In terms of making decisions for public health, public health data and information are collected, which then the information or data is compiled, presented, felt, combined , and then can be used in decision making about the priority of problems and solutions or solutions to problems to be taken.

Learning Activity 4

SOCIAL SCIENCES, BEHAVIORAL SCIENCES AND PUBLIC HEALTH

A. Definitionof Social Sciences, Behavioral Sciences, and Public Health Sciences

Social Sciences.

Social science is a science that covers all aspects of life ranging from the nature of a person or individual, interactions between individuals, between individuals and groups, and interactions between groups and groups.

Understanding social science according to experts, including the following:

- According to Achmad Sanusi ~ Social Sciences consists of social science disciplines that are academic in level & usually studied at the university level, the more scientific.
- Then according to, Peter Herman ~ Social Science is something that is understood as a difference but still a whole.
- And according to, Gross ~ Social Science is an intellectual discipline that studies humans as social beings scientifically, focusing on humans as members of society &; on the group or society he forms.

Behavioral Science.

Behavior is the action or activity of humans themselves that have a very wide expanse including: walking, talking, getting angry, laughing, writing, sleeping, going to school, college, reading, and so on. Human behavior is all human activities and activities, both those that are directly observed, and those that cannot be observed by outsiders (Notoatmodjo, 2003).

Several summaries of behavioral theories can be put forward e.g. theory: Burrhus Frederic (B. F.) Skinner (March 20, 1904 – August 18, 1990) was an American and was more of an induction orethic than a deduction, a psychologist, behavioral scientist, philosopher Professor of Psychology at Harvard University from 1958 and retired until 1974. Theories put forward include that behavior can be predicted and controlled. One theory, Behavior is a

person's response (R) to stimuli or stimuli (S) in a particular environment.

From a biological point of view, behavior is an activity or activity of the organism concerned, which can be observed directly or indirectly (Sunaryo, 2004).

Behavioral science is a branch of the social sciences whose object is human behavior. If the social sciences includeFields of Political Science, economics, history, sociology, anthropology and psychology, then behavioral science only consists of 3 branches of science, namely psychology, anthropology and sociology, considering that human behavior is strongly influenced by aspects of psychology, society and culture.

Psychology is a science that studies the psychological aspects and personalities of individuals and groups. Areas of coverage are mental/emotional processes and Characteristics of individual behavior nor groups. Anthropology studies the evolutionary development of humans which includes its physical, social and cultural elements. In accordance with the field of orientation, anthropology can be distinguished in physical anthropology, social anthropology and cultural anthropology. While medical anthropology specializes in the study of the influence of cultural elements on people's appreciation of disease or health. Sociology studies the relationships and mutual influences between individuals and groups (ranging from families to complex societies), social structures, and observing social processes, including social change.

Public Health Sciences.

Public health is the science and art of preventing disease, extending life span, and improving health through community organizing efforts to: a) improve environmental sanitation, b) eradicate communicable diseases, c) education for personal hygiene, d) organize medical services and treatments for early diagnosis and treatment, e) develop social engineering to ensure everyone is fulfilled a decent life in nurturing Health.

Definition of public health according to U. F Achmadi (2005, 2012)

Public health is all efforts aimed at improving the degree of health by using a series of efforts that consist of at least the following elements or characteristics:

1. Community-based
2. Prevention-oriented and/or health-enhancing
3. Implemented cross-disciplinary or in collaboration with the non-health sector
4. There is community involvement or community participation
5. Well organized.

It can also be formulated that public health is, a series of efforts to nourish a group or the entire population, oriented towards prevention and / or improvement, carried out cross-sectorally or cross-disciplinary, and involving the community and well organized.

According to the American Physician Association (1948) Public Health is the science and art of maintaining, protecting and improving public health through community organizing efforts. From this limitation it can be concluded that public health extends from only dealing with sanitation, sanitation techniques, curative medicine, preventive medicine to social sciences, and that is the scope of public health science.

Many disciplines are used as the basis of public health science, among others, Biology, Chemistry, Physics, Medicine, Environmental Health, Sociology, Education, Psychology, Anthropology, and others. Based on this fact, public health science is a multidisciplinary science. But broadly speaking, the disciplines that underpin public health science, or often referred to as the main pillars of science

These Public Healths include:

1. Public Health Administration.
2. Health Education and Behavioral Sciences.
3. Biostatistics/Health Statistics.
4. Environmental Health.
5. Community Nutrition.

6. Occupational Health.
7. Epidemiology.

Why public health science is a multi-disciplinary science, because basically Public Health Problems are multicausal, so the solution must be multidisciplinary. Therefore, public health as an art or practice has a wide expanse. All activities, whether direct or indirect, to prevent disease (preventive), improve health (promotive), therapeutic (physical, mental, and social therapy) or curative, as well as restore (rehabilitative) health (physical, mental, social) are public health efforts. (Notoatmodjo, 2003).

B. The Relationship Between Public Health and Social Sciences and Behavioral Sciences

The development of social and behavioral sciences in the 19th and 20th centuries is closely related to the development of public health. This field of study shares fundamental beliefs that understanding organizations and the motivations behind social forces, along with a better understanding of individual behavior, can be used to improve the lives of individuals, as well as those of society as a whole.

The development of the 19th century social and behavioral sciences, as well as public health, grew out of the Industrial Revolution in Europe, and later in the Americas. It was based on efforts to address the social and economic inequalities developed during this period and provided the intellectual and institutional structure for what it was and is now called social justice. Social justice means a society that provides fair treatment and a fair share of society's benefits to individuals and groups of individuals. Early public health reformers advocated for social justice and saw public health as an integral aspect of it.

The intellectual link between the social and behavioral sciences and public health is so fundamental and so deep that it is often taken for granted. As a student with the opportunity to learn about both social sciences and public health, it is important to understand the contributions The key that the social sciences can make public health. It is not an exaggeration to view public health

as an application of the social sciences, that is, as an applied social science. Table 4.1 summarizes the many contributions that the social sciences make to public health.

Table 4.1
Examples of contributions from the social and behavioral sciences to public health

Social Science Disciplines	**Examples of the Contribution of Discipline to Public Health**
Psychology	Behavioral theory of origin and risk-taking tendencies and methods for reminding individual and social behavior
Sociology	Theories of social development, organizational behavior, and systems of thought. Social impact on individual and group behavior.
Anthropology	Social and cultural influences on individual and population decision-making for health with a global perspective.
Political Science/Public Policy	Approaches to government and policy decisions related to public health. Structure for policy analysis and the impact of government on public health decision making.
Economics	Understand the impact of micro and macroeconomics on public health and health care systems
Communication	The theory and practice of mass and personal communication and the role of the media and in communicating health information and health risks.
Demographics	Understand the demographic changes of the global population due to aging,

	migration, and differences in birth rates, plus their impact on health and society
Geography	Understanding the impact of geography on disease and determinants of disease, as well as methods for displaying and tracking the location of disease occurrence

C. Socioeconomic Status Affects Health Status

Health status, at least as measured by life expectancy, is strongly linked to socioeconomic status. Greater longevity was associated with higher social status with a gradient increasing longevity from low to high on socioeconomic scales.

It is also important to realize that socioeconomic impacts are not solely related to a person's income above the annual income threshold level of about $10,000 per person; the association of longevity with income is best explained by income differences, rather than absolute levels. Thus, developed countries with smaller inequalities of income, such as Japan, Sweden, and Canada, have greater average longevity and smaller gaps in longevity between their richest and poorest citizens than compared to countries such as the United States. In the United States, a greater gap in income and longevity exists between the richest and poorest citizens. However, the enormous diversity of the United States population in terms of culture and religion as well as socioeconomic levels may also help explain the differences in longevity.

Greater economic wealth usually means access to healthy living conditions. Sanitation, less crowding, greater access to health care, and safer methods for cooking and eating are all strongly associated with higher economic status in developed, as well as developing countries.

Individuals of lower socioeconomic status are more likely to be exposed to health hazards at work and in the physical environment through exposure to toxins in the air they breathe, in the water they drink, and in the food they eat.

These factors, while important, explain only about half of the observed differences in life expectancy between individuals of different socioeconomic status. For example, rates of coronary heart disease were much higher among people of low socioeconomic status, even after accounting for cigarette smoking, high blood pressure, cholesterol levels, and blood sugar counts.

Considerable research is now being directed to better understand these and other effects of socioeconomic status. One theory suggests that social control and social participation may help explain substantial differences in health. It states that control over individual and group decision-making is much greater among individuals of higher socioeconomic status. The theory states that the ability to control one's life may be related to biological changes that affect health and disease. Additional research is needed to confirm or refute this theory and/or provide an adequate explanation for these important, yet unexplained, differences in health based on socioeconomic status.

Example:

Type	Example
Conditions of residence	Improved sanitation, reduced tightness, heating and cooking methods
Overall educational opportunities	Education is the strongest association with health behaviors and health outcomes. It may be due to a better appreciation of disease-related factors and a greater ability to control these factors.
Educational opportunities for women	Education for women has an impact on child and family health
Exposure	Low socioeconomic employment has traditionally been associated with increased exposure to health risks

Access to goods and services	Ability to access goods, such as protective devices and high-quality food and services, including medical and social services to protect and promote health
Family size	Large family size affects health and has traditionally been associated with low socioeconomic status and with lower health status
Exposure to high-risk behaviors	Social alienation related to poverty can be related to violence, drugs, other high-risk behaviors
Milieu	Low socioeconomic status associated with greater exposure to environmental pollution, natural disasters, and built environment hazards

D. Culture and Religion Affect Cultural Health Status

Culture, in its broadest sense, helps people make judgments about the world and decisions about behavior. Culture defines what is good or bad, and what is healthy and unhealthy. This may be related to lifestyle patterns, beliefs about risk, and beliefs about body type. For example, a large body type in some cultures symbolizes health and well-being, not overweight or other negative conditions.

Culture directly affects the habits of daily life. Food choices and methods of food preparation and preservation are all influenced by culture, as well as socioeconomic status.

Culture is also related to an individual's response to symptoms and acceptance of interventions. In many cultures, medical care is exclusively for people with symptoms and is not part of prevention. Many traditional cultures have developed sophisticated systems of self-care and self-medication supported by families and traditional healers. This tradition greatly influences how an individual responds to symptoms, how they communicate

symptoms, and the types of medical and public health interventions that they will receive.

Many cultures allow and even encourage the use of traditional approaches alongside Western medical and societal health approaches. In some cultures, shamans are considered appropriate for health problems that cause not to be considered biological, but related to spiritual and other phenomena. Recent studies of alternative, or complementary, medicine have provided evidence that certain traditional interventions, such as acupuncture and specific osteopathic and chiropractic manipulation, have measurable benefits. Thus, cultural differences should not be seen as a problem to be addressed, but rather as a practice to be understood.

Ways that culture can affect health	**Example**
Culture associated with social-behavioral practices can put individuals and groups at increased or decreased risk	Preferential food-vegetarian, Mediterranean diet Cooking method The history of foot binding in China Female genital mutilation Sports roles
Culture is related to responses to symptoms, such as the level of urgency to recognize symptoms, seek care, and communicate symptoms	Cultural differences in seeker care and self-medication Social, family, and work structures provide varying levels of social support; low social support can be associated with a decline in the quality of life-related health.
Culture is related to acceptable types of interventions	Variations in traditional acceptance rates include reliance on Western self-help and shamans

Culture is linked to disease response and intervention	Cultural differences in follow-up, adherence to treatment, and acceptance of adverse outcomes

Religion

Social factors that affect health include religion along with culture. Religion can have a huge impact on health, especially for certain practices that are encouraged or condemned by certain religious groups. For example, we now know that male circumcision reduces susceptibility to HIV/AIDS. Religious attitudes that justify or condemn the use of condoms, alcohol, and tobacco have direct and indirect impacts on health as well.

Some religions forbid certain healing practices, such as blood transfusions or abortions, or completely reject medical intervention altogether, as Christian scientists do. Religious individuals could view medical and community health interventions as free for religious practice or might substitute prayer for medical interventions in response to symptoms of disease.

How religion affects health	Example
Religion can influence social practices that put individuals at increased or decreased risk	Sexual: circumcision, contraceptive use Food: avoid seafood, pork, beef Alcohol use: part of religion rather than forbidden Tobacco use: actively discouraged by Mormons and Seventh-day Adventists as part of their religion
Religion can influence response to symptoms	Christian scientists refuse health care in response to symptoms
Religion can influence acceptable types of interventions	Ban on blood transfusions Attitude towards stem cell research

	Attitude to abortion End of life treatment
Religion can influence disease response and intervention	The role of prayer as an intervention to change outcomes

E. Healthy Behaviors Can Be Changed

According to Riegelman (2009) healthy behavior can be changed. Some examples of behavior change for the better are:

- In the 1980s, babies first slept on their stomachs, then became supine to reduce *Sudden Infant Death Syndrome* (SIDS) by almost 50% in the United States.
- The use of seat belts in the United States has increased from 1970 by 25% to 80% today.
- In the United States, drunk driving has been drastically reduced
- During the 1990s there was a 50% increase in the use of mammography to reduce mortality from breast cancer.
- Smoking behaviour in the UK among men fell from 50% to less than 25% by 1960.

Behavior change not only occurs in changes for the better but behavior changes can also be worse, for example:

1. In America there has been an increase in calorie intake and reduced exercise schedules over the past three decades. This has led to a doubling of obesity from about one-third of all American adults.
    - Between the 1960s and 1990s, teenage girls and young adult women increased their smoking, subjecting their unborn children to the added danger of low birth weight
    - Teenagers and adult women between the 1960s and 1990s increased smoking, which can pose a danger to young children in terms of weight loss

F. Some healthy behaviors in individuals are more volatile

Some behavioral changes are relatively easy to change, while others are difficult to change. To change behavior requires the ability to recognize a difference. This is relatively easy when one of

the behaviors can be replaced with something similar but potentially produce better results. For example, a change from acetaminophen (Tylenol) to aspirin in terms of preventing Reye's syndrome. This is a relatively easy change. In addition, the campaign "*Back Death to Sleep*"It is also a relatively straightforward change and has reduced infant mortality from SIDS. Based on both cases, changes that are acceptable and still comfortable make behavior change easier to achieve.

As science develops, actions such as cost reductions followed by increased availability or improvements in ease of use will make behavioral change easy. The most difficult behavior changes occur whether someone has a physiological component, such as obesity, or against additives that make a person addicted such as smoking. A person who is obese must continue to control his weight for a long time and this generally has a low success rate of less than 30%. In addition, physical, social, and economic factors can be obstacles in behavior change. For example, health services are not accessible, which will hamper the process of behavior change. Successful behavior change requires that people understand how behavior can be changed and what we can do to help change it.

G. Changing Behavior in Individuals and the Process Someone Goes Through to Change Their Behavior

Behavior change requires more than individual motivation and determination to change. Those who want to change need encouragement and support from groups ranging from friends and family to work and peer groups. Behavior change may also require social policies and expectations that reinforce individual efforts. Forms of Individual Behavior Change.

- *Natural Change*: Human behavior is always changing. Some of these changes are due to natural events. Example: changes in behavior caused by a person's age.
- *Planned Change*: This change in behavior occurs because it is planned by the subject himself. Example: changes in a person's behavior because of a certain goal or wanting to get something of value to him.

- Readiness to *Change*: If there is an innovation or development programs in the organization, what often happens is that some people are very quick to accept the innovation or change, and some people are very slow to accept the innovation or change. Example: changes in technology in an organizational institution, for example from manual typewriters to computer machines, usually people who are old find it difficult to accept changes in the use of technology.

How to Change Behavior

Some strategies for obtaining behavior change by WHO are grouped into three

- Using force/power or encouragement (enforcement/regulation) For example: with the existence of rules / laws that must be obeyed by community members. This change can take place quickly but not necessarily last long because behavioral changes occur not or have not been based on consciousness itself.
- Provision of information (education)
  By providing information about ways to achieve a healthy life, how to maintain health, how to avoid disease, and so on will increase public knowledge about it.
- Participatory discussion
  This method is an improvement on the second way above which in providing information about health is not unidirectional but two-way.

Stages in individual behavior change

In 1992, Prochaska, DiClemente, and Norcross made *transtheoretical model of client change.* In this model, they propose that there are five stages in change towards better behavior. The stages that are always experienced are:

1. *Precontemplation*: the individual is unaware of his behavior or unaware that he needs to change, and may have no intention of changing.
2. *Contemplation*: The individual begins to realize the need for change and begins to think seriously about it but he has not yet decided to do so.

3. *Preparation*: the individual decides to perform some action in the near future and may have performed the action in the past but he or she failed.
4. *Action*: The individual has begun to succeed and engage in actions that lead to the desired results but have not achieved the results that are aspired to.
5. *Maintenance*: the individual has successfully achieved his goal and must now try in two ways: preventing the old behavior from recurring and consolidating the changes that have been made in the *action phase*.

H. The stages that a person goes through to change his behavior

The first stage, called *precontemplation*, explaining that a person has not considered changing their behavior. At this stage, efforts to drive change are unlikely to succeed. However, efforts to educate and offer assistance later in life can be the basis for a later stage.

This second stage, known as rumination, implies that the individual is actively thinking about the benefits and barriers to change. At this stage, information is focused on short-term gains and, as well as long-term benefits, which can be very useful. In addition, the stage of contemplation is suitable for developing a basis. Assign the focus of the problem to measure the future level of progress.

The third stage is called preparation. During this phase the individual develops a plan of action. At this point, the individual will set goals, remember various strategies, and develop a schedule. Assisting in recognizing and preparing for unexpected obstacles can be very useful for individuals during this phase.

The fourth stage is the action stage when behavior change occurs. This is a time to bring together all outside possibilities to reinforce and reward new behaviors and help with problems or setbacks that occur.

The fifth stage – and hopefully the final tahab – is the maintenance stage in which the new behavior becomes a permanent part of a person's lifestyle. The maintenance phase requires

education on how to anticipate the long-term nature of behavior change, especially how to resist the temptation to discontinue old behaviors.

I. Changes in group behavior

Changing group behavior can be done by means of a marketing approach to try to better understand and change group health behavior. Social marketing, the use and expansion of traditional product marketing, has become a key component of public health approaches with behavior change. Successful social marketing campaigns were first used in developing countries to promote a range of products and behaviours, including family planning and child rehydration therapy. Social marketing includes the "4 Ps", which are widely used as the structure of traditional marketing efforts. These are:

- Product: identifies the behavior or innovation that is being marketed.
- Price: identifies benefits, barriers as well as financial costs.
- Place: identify goals and how to reach them
- Promotion: organizing a campaign or program to reach the target audience

Social marketing has incorporated concepts from diffusion theory of innovation. This theory, like the stages of behavior change, argues that the adoption of a new behavior requires a series of phases.

J. Social Marketing

In recent years, public health has begun implementing marketing approaches to try to better understand and change the health behaviors of groups of people—especially those smokers as they are at high risk of health impacts from their behaviors. Social marketing, the use and extension of traditional product marketing, has become a key component of public health approaches to behaviour change. Social marketing campaigns were first successfully used in developing countries to promote a variety of products and behaviors, including family planning and child

rehydration therapy. In recent years, social marketing efforts have been widely and successfully used in developed countries, including efforts such as:

- Truth Campaign – Developed by the American Legacy Foundation, it aims to steer smoking from being seen as a teenage rebellion.
- The Anti-Drug Youth campaign uses social-marketing efforts directed at young people, including Anti-drug parents.

Social marketing incorporates the "4 Ps," which are widely used to structure traditional marketing efforts. These are:

- Product: Identify the behavior or innovation being marketed
- Price: Identifies benefits, barriers, and financial costs
- Place: Identify your target audience and how to reach them.
- Promotion: Organizing a campaign or program to reach the target audience(s).

Social marketing has incorporated concepts from the diffusion theory of innovation. This theory, like the stages of behavior change, argues that the adoption of a new behavior requires a series of stages or steps. It moves from knowledge of innovation, to persuasion of its benefits, to decisions to adapt, to implementation, and confirmation. Diffusion innovation theory has contributed concepts from many different types of adopters including: early adopters—people looking to experiment with innovative ideas; The majority of adopters—often early opinion leaders—whose social status often influences others to adopt the behavior; and late (or slow) adopters—those who need support and encouragement to make adoption as easy as possible. A different approach is often needed to engage each group. For example, a marketing effort might initially target early adopters with an approach of encouraging innovation and creativity. This can be followed by a leader's opinion approach that can help innovation or behavior change become mainstream. A different approach emphasizes easeof- use and widespread acceptance may be most beneficial for encouraging final adopters. Social marketing, like

product marketing, often relies on what marketers call it *Branding*. *Branding* including words and symbols that help the target audience identify with the service; However, it goes deeper than just words and symbols. This can be seen as a method of applying the fourth "P," or promotion.

It is also built on the basis of three "Ps":

- *Branding* requires a clear understanding of the product or behavior to be changed (product).
  Brand-Successful puts forth strategies to reduce financial and psychological costs (prices).
- *Branding* identifies the audience and audience segments and asks how each segment can be reached (place).
  Branding is the public face of social marketing, but it also needs to be integrated into the core of a marketing plan. Social marketing efforts in both developing and developed countries have shown that it is possible to change behavior.

K. A combination of individual, group, and social efforts to implement behavior change.

Behavior change is certainly expected by everyone if it leads to a better direction. The behavior of individuals who are members of a community group and population, can affect the environment and the surrounding community. Therefore, to change behavior it is necessary to combine the behavior of individuals, groups, and social efforts. In each stage of behavior change, the combination comes into play and determines the success of each stage.

Referring to books *Public Health* 101, it is easier to see the combined process of changing behavior if it is associated with a direct example. In this case, what will be raised are examples of individual behavior in an effort to stop smoking.

The following is a description of the stages of behavior change which at each stage combines the roles of individuals, groups and social.

1. Precontemplation *and* Contemplation *Stages*

   At this stage, individual interventions focus on education, assessing readiness for change, and offering assistance. Interventions target the wider group and population and create

an environment that supports individuals not to smoke, such as taxes on cigarettes and restrictions on smoking in public and workplaces.

2. Preparatory Stage

   In this stage the individual has determined the target to be able to quit smoking. Family and friends are also instrumental in providing encouragement and support. as well as national efforts, such as *The American Cancer Society's annual Great American Smokeout,* which encourages smokers to quit smoking forever by starting with one day

3. Action Stage

   The stage of action is essentially on the individual, but nevertheless must be supported and encouraged by family and friends, and strengthened by social enterprises such as health insurance that provide financing to support the group and treatment.

4. Maintenance Stage

   This stage also relies on individual, group and population/social interventions. Individual interventions often focus on long-term education for behavior change and meeting the need to protect against the temptation to return to smoking. The mode of maintenance of the desired behavior requires support and encouragement from the group.

For more details, here is an example of a table of stages of behavior change in the case of smoking behavior cessation efforts.

Stages of change - individual, group and population/social interventions to change smoking behavior (Public Health, 2009)

Stage of Change	**Individual**	**Groups at risk**	**Population/ social**
Pre Contemplation	Assess readiness to change and offer future assistance	Social marketing targets more	Cigarette taxes, restrictions on smoking in public places, warning labels

		specific groups. Smoking restrictions at work	on cigarette packaging
Contemplation	Information on the dangers of smoking and the advantages of quitting smoking	More accepting of social marketing targeted at the group Smoking restrictions at work	Respond more to changes in cigarette prices, restrictions on smoking in public places, and warning labels
Preparation	Set individual targets and strategy creation. Medications may help	Support of friends and family in individual preparation	National Efforts, such as *American Cancer Society National Quit Day*
Action	Eliminate the link between smoking and pleasurable activities. Use the drug if needed	Announce to the public, such as family, friends and co-workers	Coverage of medical expenses and if you stop getting insurance
Maintenance	Education about the effects of long-term addiction and potential relapse	Continuous workplace support from colleagues and social groups	Continuous support of social marketing, taxes, and restrictions on smoking in public places

Learning Activity 5
LEGAL ETHICS AND HEALTH POLICY

A. Scope of Health Law, Policy, and Ethics

Health laws, policies, and ethics reflect the variety of tools used to encourage and discourage behavior by individuals and groups. This applies to health care, as well as traditional public health. In addition, in recent years bioethics has been established, which includes elements of both health care and public health and focuses on applying morals or values to areas of potential conflict.

Health law, policy and ethics influence a wide range of issues we face in population health. They address things like access to quality and health care costs. They also discuss organizational and professional structures designed to deliver health care. Health law, policy, and ethics are also key tools for achieving traditional public health goals ranging from drug use safety, traffic safety, communicable, noncommunicable disease control and environmental diseases.

Bioethics lies at the intersection of health law and policy and attempts to apply individual and group values and morals to controversial issues, such as abortion, stem cell research, and end-of-life care.

The scope of health law, policy, and ethics is vast. That includes defining the key principles and philosophies underlying the community approach. Then, we will focus on three examples that illustrate that the main issues faced are that health, public health, and the bioethical arena. These are:

1. Is there a right to health care?
2. How does public health balance individual rights and societal needs?
3. How can bioethical principles be applied to protecting individuals who participate in research?

B. Legal principles underlying public health and health services

In order to better understand health policy and legal issues, it is important to understand some of the major legal principles underlying public health and health care in the United States.[1] First,

the U.S. Constitution is the basic document governing public health issues and health law. However, the U.S. Constitution makes no mention of health. As a result, public health and health care are among the remaining issues primarily to state authorities unless delegated by the state to local jurisdictions, such as cities or counties. The use of this authority, known as police power, allows the state to pass laws and take action to protect the public interest. The authority to protect the public interest can justify a variety of state actions including: Regulation of health care professionals and facilities; Establishment of health and safety standards on the market, as well as other work arrangements; and hazard control ranging from requiring the use of car imprisonment systems to restrict vaccination of tobacco product sales.[1, 2]

The use of state police powers is limited by the protection afforded to individuals. These protections are known as rights and are created either through the United States Constitution, through state constitutions, or through laws passed at the federal or state level. The United States Constitution allows, but does not require, the government to act to protect public health or to provide health care. This has been referred to as the negative constitution. So, while governments often have the authority to act, they are not obligated to do so. For example, the Supreme Court has not found an obligation on the part of the state to act to prevent child or spousal violence even when the state is fully aware of the specific circumstances or the court has challenged a restraining order.[1]

Second, interstate trade with treaty provisions of the U.S. Constitution is the primary source of federal authority in public health and health care. It provides the federal government with tax, spending, and regulating authority for interstate commerce.[2] This authority has been used to justify various federal involvement in health services and public health. Federal authority is often granted through incentives to states. For example, states may be offered federal funding or matched funding if they enact certain types of laws, such as regulations governing Medicaid or definitions of blood alcohol levels for driving under its influence. The U.S. Constitution's supremacy clause states that lawful federal laws are

the supreme laws of the land, thus preempting or overriding the laws of the country conflict with them.[a] These provisions have been used by federal government public health agencies, such as the Food and Drug Administration and the Environmental Protection Agency, to justify national standards that deny and limit state rules and regulations ranging from quality control of drugs to permissible levels of exposure to toxic substances.[1, 2]

Third, the U.S. Constitution provides for individual rights. Some of them, such as freedom of speech, religion, assembly, and the right to bear arms, are explicit in the document. Others have been concluded by the U.S. Supreme Court, such as the right to procreation, privacy, physical wholeness, and travel. These rights are often inferred to the basis of individual protection in public health and health care, including the right to utilize contraception, abortion, and limiting state and federal authority to use quarantines and other travel restrictions.[1, 2] Unless the U.S. Constitution explicitly includes a right or one has been "discovered" by the Supreme Court of the United States, no right is realized. However, federal and state legislatures can create rights through legislation ranging from access to education to accessing medical care. The existence of a right implies that state and/or federal courts are expected to uphold and enforce the right.[b]

Health laws based on these rules govern the authority of federal and state governments as well as individual rights. This comes from the four sources summarized in Box 5-1.[1]

Thus, health law refers to a broad array of legal issues that affect much of what happens in public health and health care. However, the influence of health policy often extends beyond that of the formal legal system.

1. The author of the legal implications of the constitution is the supremacy of the U.S. Constitution even more international law. Human rights and standards incorporated into international documents do not directly apply in the United States. These rights and standards apply only in the United States through the enactment of federal or state laws.[1]

2. Enforcement is required by law to occur under due process. Due process includes substantive legal proceedings, which refer to the reasons for depriving an individual of the right, as well as procedural legal proceedings, which refer to the processes that must be undertaken to deprive an individual of rights. The former implies that state and federal governments should justify depriving individuals of life, liberty, and property. When the basic rights involved or the law are based on a suspect's classification, such as gender or race, courts apply strict criteria that place a difficult burden on government evidence to justify this type of act. Procedural due process means that when a right exists, the government is unlikely to deny individuals that right in an arbitrary or unfair way. This process requires that due process of admissibility be followed before an individual can be deprived of rights. The Supreme Court has regarded a fundamental right as one that is explicit in the U.S. Constitution, that has been "found" in the U.S. Constitution by the Supreme Court, or that is rooted in the nation's history and traditions.[1, 2]

Table 5-1 Components of Health Law, Policy, and Ethics

Component	Coverage	Example Problem
Health Care	Access, quality, and cost of health care Organizational and professional structure for care delivery	Rules governing Medicare and Medicaid, as well as laws governing private insurance Hospital governance and professional licensing
Public Health	Population health and safety, including government efforts to provide services to entire populations, as	Food and drug laws and procedures, environmental laws and procedures, regulations for the

	well as vulnerable groups	control of infectious diseases
Bioethics	Application of individual and group values and morals to controversial areas	End of life treatment, stem cell research, abortion, protection of research subjects

C. Health Policyand Examples

Within the limits set by law, there is great latitude for governments, as well as private groups, to develop policies that affect the ways that public health and health care are doing. Health policy is part of a larger arena of public policy. According to Teitelbaum and Wilensky, "when deciding whether something is a public policy decision, focus not only on who makes the decision, but also on the type of decision made." They define individuals or groups who make public policy based on the ability of individuals or groups to make authoritative decisions. Authoritative decisions are decisions made by individuals or groups who have the power to carry out those decisions. Various government and private groups make public policy decisions in areas such as smoking. In government, authoritative decisions may be made by executive officials, such as presidents or governors, or administrative officials, such as federal, state, or local health officials. These biases range from policies that prevent tobacco growth, policies that encourage the sale of tobacco products abroad, to policies that restrict smoking in public places or tax tobacco sales. This policy may or may not be incorporated into laws or regulations.

Sometimes, health policy can be carried out by private groups, including professional societies, such as *American Public Health Association*, or commercial trade associations representing hospitals, drug industry, insurance industry, etc. Policies that affect many people, such as those that restrict smoking in hospitals, encourage doctors to combine smoking prevention and cessation programs, compensate doctors' efforts through insurance, and encourage the development of new drugs to help quit smoking, are

all examples of health policies that may be regulated by groups outside the government. Thus, "public" in public policy does not necessarily mean that policy is developed and implemented by the government.

According to Teitelbaum and Wilensky, in addition to being authoritative, a public policy decision must be one that "goes beyond the scope of the individual and affects the larger society." The decision to seek vaccinations or screenings, smoke cigarettes at home, or to purchase a particular type of health insurance is an individual decision. Public policy issues revolve around incentives or requirements to encourage or prevent these actions by groups of individuals or society as a whole. Health policy often leans on attitudes or philosophies that groups take toward the role that different types of institutions must play in public health and health care. In particular, the exact role of government is often a controversial subject.

D. Characteristics of Market Justice and Social Justice and *Implications of* Market *Justice and Social* Justice

There is a fundamental difference in society that is influential in advancing health, namely between the role of government and economic markets. Both differences have different characteristics from each other. According to the Big Indonesian Dictionary, Characteristics mean special characteristics, having distinctive properties in accordance with certain characteristics. While implication is involvement or circumstances involved. According to the book *Public Health* 101, 2009, the following are the characteristics and implications of *Market Justice and Social Justice*.

Characteristic

Market Justice	Social Justice
Health is seen as an economic good	Health is seen as a social resource
Assuming the free market as the delivery of health services	Requires an active role of the government in the delivery of health services

Assuming that markets are more efficient in allocating resources fairly	Assume that governments are more efficient in allocating health resources equitably
The production and distribution of health services is determined by market demand	The allocation of medical resources is determined by central planning
Distribution of medical care based on people's ability to pay	People's ability to pay has nothing to do with medical care
Access to medical nursing is seen as an economic reward for achievement and personal effort	Access to medical services is seen as a fundamental right

Implication

Market Justice	Social Justice
Health individual responsibility	Health shared responsibility
Benefits based on individual purchasing power	Everyone has the right to a basic service package
Limited liability for the common good	Strong obligations for the common good
Emphasis on individual well-being	Community welfare replaces individual well-being
Personal solutions to social problems	Public solutions to social problems
Allotment based on ability to pay	Rationing planning by health services

E. Philosophy of the Role of Government in Influencing Health Policy

There are 2 philosophies regarding the role of government in health care and public health, namely social justice (*Social Justice*) and market fairness (*Market Justice*).Approach *Social Justice* and *Market Justice* useful for understanding the structure of health systems.

Characteristics of *Social Justice* and *Market Justice*	
Market justice	Social justice
Seeing health care as an economic good	Seeing health care as a social resource
Assume free market conditions for/as healthcare delivery	Requires active government involvement in health service delivery
Assume that markets are more efficient in allocating resources fairly	Assume that governments are more efficient in allocating health resources equitably
Produksidandistribusidari health care ditentukan oleh permintaan pasar	The allocation of medical resources is determined by the central plan/budget
The distribution of medical care is based on people's ability to pay	A person's ability to pay is not always consequent to receiving medical care
Access to medical care is seen as an economic reward for personal effort and as an achievement	Equal access to medical services is seen as a fundamental right

Implications of *Market Justice* and *Social Justice*	
Market Justice	Social Justice
Individual response to health	Collective responsibility for health
Profit/expediency based on individual purchasing power	Everyone is entitled to a basic butler package
Limited liability for collective goods	Strong obligations to collective goods
Emphasis on individual well-being	Community welfare replaces individual well-being

Personal solutions to social problems	Societal solutions to social problems
Division based on ability to pay	Distribution of health care plans

F. Right to Health Services

In 1948, international human rights law established two health-related laws: first, the protection of public health that lawfully restricts human rights, and the second is the right to individual health and the obligation of governments to provide them. In the first part it refers more to *Pubic Health Care* whose arrangements are still in development while in determining obligations related to the basic human right to health, priority is given to rules for public health (Katarina T 2001).

Regulation on the right to health in a number of legal instruments can be seen in article 25(1) of the Universal Declaration of Human Rights, namely: "*everyone has the right to a standard of living adequate for health of himself and of his family, including food, clothing, housing and medical care and necessary social service*". The right to health is fundamental for every individual in terms of exercising his other human rights including the achievement of an adequate standard of living. The links of the Universal Declaration of Human Rights are:

1. *The right to health care*
2. *The right to information*
3. *The right to self determination*

1. *The right to health care*

The right to health has a broader scope, not only concerning individual issues, but encompassing all factors that contribute to an individual's life, such as environmental issues, nutrition, housing, etc. While the right to health services and the right to medical services, are patient rights that are more specific than the right to health.

In developed countries that have well-established health systems *The Right to Health Care* It is not a big problem in

fulfillment, especially for some European countries that already require health insurance for every population, as well as developing countries, because it turns out that in America this is still a problem because until now more than 40 million Americans do not have health insurance. As for health services in Indonesian laws and regulations, it actually has regulations on the right to health services. However, in reality this right has not been fully achieved. Because in its implementation, there are many poor health services due to orientation shifts that occur in health service facilities. The point is, at first the service facilities were oriented towards providing the best for the interests of patients, but now it shifts to business orientation. Thus according to (Riegelman 2009), generally the right to health care in the U.S. has not been established. As a state and federal struggle, government has problems in terms of providing health care for all people and the right to health care.

2. *The right to information dan The right to self determination*

   The right to obtain information and the right to self-determination, both rights are inseparable because the right to obtain information, for example from the implementation of informed consent, the patient has an interest in determining for himself what will be done to his body. This right gives the authority to do something or even not do something, so that patients have the freedom to exercise their rights (Veronika DK 1989).

Learning Activity 6
NON-COMMUNICABLE DISEASES

A. Definition and Impact of Non-communicable Diseases

Non-communicable diseases are diseases that occur due to interactions between agents (*Non living agent*) with the host in this case humans (predisposing factors, infections etc.) and the surrounding environment (*Source and Vehicle of Agent*). Non-communicable diseases are also called chronic diseases, non-communicable diseases, *New Communicable Disease*, and degenerative diseases.

According to the World Health Organization (WHO), in 2005 non-communicable diseases caused 58 million deaths in the world, including heart and blood vessel diseases (30%), chronic respiratory diseases and other chronic diseases (16%), cancer (13%), injury (9%) and diabetes mellitus (2%).

Some studies show that in general, the presence of risk factors for non-communicable diseases in a person does not give symptoms so they do not feel the need to overcome risk factors and change their lifestyle.

This risk factor is a condition that is potentially dangerous and can trigger the occurrence of non-communicable diseases in a person or certain groups. Risk factors include lack of physical activity, unhealthy and unbalanced diet, smoking, alcohol consumption, obesity, and behaviors related to accidents and injuries, such as improper traffic behavior.

According to (Riegelman 2009) there are various forms of overcoming non-communicable diseases through several approaches, namely preventive, curative, and *rehabilitative*. Here are some of the basic strategies used as a form of the approach mentioned:

- Screening for early detection and treatment of disease
- Some risk factor interventions
- Identify cost effective treatment
- Genetic counseling and intervention
- Research

Risk factors for non-communicable diseases can be minimized by promoting and preventing non-communicable diseases among certain people, namely people who are still healthy, people who are at risk, people who are diseased and people who suffer from disabilities that require rehabilitation (Samsudrajat 2011).

B. Epidemiology Transition

Epidemiological transition is a complex change in health patterns and patterns of major disease causes of death where there is a decrease in the prevalence of infectious diseases (infectious diseases), while non-infectious diseases (non-communicable diseases) actually increase. This occurs along with changes in lifestyle, socio-economic and increasing life expectancy which means an increase in risk patterns for degenerative diseases such as coronary heart disease, diabetes mellitus, hypertension, and so on.

Rosanti's research (2012) also explains that the presence of unhealthy lifestyles in children and adolescents can have a negative impact on their health in the future, one of which is increasing the risk of non-communicable diseases. In addition to lifestyle, epidemiological transitions are also due to demographic changes As a result of urbanization, industrialization, increasing income, level of education, health technology and medicine in the community. This will have an impact on the epidemiological transition, namely changes in mortality patterns due to infection, total fertility rates, population life expectancy and an increase in non-communicable diseases or chronic diseases. This epidemiological transition is associated with the transition of mortality from high mortality to low mortality and is generally accompanied by an epidemiological transition, which is a shift in the type of disease that causes death. Infectious diseases are the leading cause of death at a time when mortality rates are still high, treatment of which usually requires only relatively simple medical technology by today's measures. Examples of such diseases are: *tubercoluse* and diarrhea. However, when the mortality rate is low, the cause of death is no longer caused by infectious diseases, but rather caused by degenerative diseases,

namely diseases associated with decreased organ function due to the aging process, such as heart disease, cancer and high blood pressure.

C. Burden of Disease with Examples and Related Data

Non-communicable diseases (NCDs) have become a public health problem globally, regionally, nationally and locally. G*lobal status report on* NCD *World Health Organization* (WHO) in 2010 reported that 60% of the causes of death of all ages in the world are due to NCDs. In low and middle-income countries, of all deaths that occur in people younger than 60 years, 29% are caused by NCDs, while in developed countries, 13% of deaths. Proportion of NCD causes of death in people less than 70 years old. WHO data shows that of the 57 million deaths that occurred in the world in 2008, as many as 36 million or almost two-thirds were caused by Non-Communicable Diseases.

In Indonesia, the epidemiological transition has led to a shift in disease patterns, where chronic degenerative diseases have increased. Over a period of 20 years (SKRT 1980–2001), the proportion of infectious disease deaths decreased significantly, but the proportion of deaths due to degenerative diseases (heart and blood vessels, neoplasms, endocrine) increased 2–3-fold. Stroke and hypertension in most hospitals tend to increase from year to year and always top the list. In the long run, the prevalence of heart and blood vessel disease is expected to increase.

The Directorate General of P2PL grouped NCD priorities in 2009 and 2010 al; Hypertension, Heart and Diabetes. The results of the 2007 Basic Health Research (Riskesdas) show that most cases of hypertension in the community have not been diagnosed. This can be seen from the results of blood pressure measurements at the age of 18 years and over found the prevalence of hypertension in Indonesia is 31.7%, where only 7.2% of the population is already known to have hypertension and only 0.4% of cases are taking hypertension medication.

According to Khancit, in 2011 WHO recorded there were one billion people affected by hypertension. In Indonesia, the number of people with hypertension reached 32 percent in 2008 with an age range over 25 years. The number of male sufferers reached 42.7 percent, while 39.2 percent were women. In 2005, a global estimated 17.5 million people died from vascular heart disease (PJPD), and 7.6 million from heart attacks. DM is a serious threat to health development because it can cause blindness, kidney failure, diabetic legs (gangrene) so they must be amputated, heart disease and stroke. DM was ranked 6th as the cause of death. About 1.3 million people die from diabetes and 4 percent die before age 70. In 2030 it is estimated that DM ranks 7th cause of death in the world. As for Indonesia, it is estimated that in 2030 there will be 21.3 million people with DM (diabetes).

D. Key Strategies for Controlling Noncommunicable Diseases

The basic strategies used that are part of the population health approach are:

1. Screening for early detection and treatment of disease
2. Some risk factor interventions
3. Identify cost effective treatments
4. Genetics, counseling and intervention
5. Research

E. Screening Strategies in Non-communicable Disease Control

Screening for the disease implies the use of tests in individuals who do not have symptoms of a particular disease. These people are asymptomatic. This means that he has no symptoms associated with the disease. He may have other symptoms of the disease. Screening for disease can result in detection of the disease at an early stage, and there is an assumption that early detection will allow for treatments that improve outcomes. Screening has been able to reduce disability and/or death. Not all noncommunicable diseases, however, are good for screening and in some cases screening programs must still be designed and studied for some noncommunicable diseases for early detection to be useful.

The screening tests that actually meet the ideal criteria are few and many more that are successfully used even if they do not meet all of those criteria. Screening may still be useful as long as we are aware of its limitations and willing to accept inherent problems.

F. Examples of Screening Tests on Non-communicable Diseases and Ideal Criteria

Screening has been successful for a variety of noncommunicable diseases including breast cancer and colon cancer, as well as future conditions, including vision and hearing impairment. Four criteria must be met for an ideal screening program. Meanwhile, if any, health conditions actually meet all four requirements, these criteria provide a standard for assessing the potential of screening programs. These criteria are:

1. Disease results in substantial death and/or disability.
2. Early detection is possible and improves outcomes.
3. There is a feasible testing strategy for screening.
4. Screening is accepted in terms of loss, cost and patient acceptance.

The first criterion is probably the easiest to evaluate. Conditions, such as breast cancer and colon cancer, result in considerable rates of death and disability. Breast cancer is the second most common cancer in terms of cause of death and the most common cause of cancer-related in women in their 50s. Colon cancer is one of the most common causes of cancer death in both men and women. Childhood conditions, such as hearing loss and visual impairment, are not always obvious, but they cause considerable disability.

Determining whether early detection is possible and will improve outcomes is not always easy. Screening can result in early detection, but if effective treatment is not available it may simply alert doctors and patients to the disease at an earlier point in time without offering hope of an improvement outcome. Smoking screening for lung cancer using X-rays would seem natural because lung cancer is the number one cancer killer of both men and women. However, X-ray screening of smokers has been advantageous only

in terms of early detection. By the time lung cancer can be seen through a chest X-ray, it is too late to heal. This early detection without improving results is called lead-time bias.

As indicated in the third criterion, in order to implement a successful screening program, there must be a feasible testing strategy. This usually requires identifying high-risk populations. It also requires a strategy to use two or more tests to distinguish so-called false positives and false negatives from people who actually have and do not have the disease. A false positive is an individual who has a positive result on a screening test but turns out not to have the disease. Similarly, false negatives are those who have a negative result on a screening test but are found to have the disease.

For example, mammography has a large number of false negatives. A 50-year-old woman with positive mammography has only about a 10 to 15 percent chance of having breast cancer. That is, most initial positive results will turn into false positives.

Therefore, screening for diseases such as breast cancer almost always requires two or more tests. This test needs to be combined with a testing strategy. The most commonly used testing strategy is called sequential testing or two-stage testing. This approach implies that the initial screening test is followed by one or more definitive or diagnostic tests.

Finally, the ideal screening test should be accepted in terms of loss, cost and patient acceptance. The dangers should be assessed by looking at the entire testing strategy not just the initial test. A physical exam, blood tests, and urine tests are often used as initial tests. This test is almost harmless.

Patient admission is key to successful screening. Many minor problems of screening strategies are present with patient admission. However, colon cancer screening has had challenges with acceptance of patience as many consider it an invasive and uncomfortable procedure. Far fewer than half of those people eligible for screening under the recommendations are currently pursuing and receiving colon cancer screening. This is in dramatic contrast to mammography where most now receive recommended screening.

G. Strategy for Identification and Intervention on Risk Factors in Non-communicable Disease Control

Identification of risk factors affecting the results or outcomes produced. Grouping several risk factors into certain classes can make it easier to determine the disease that will arise, and groups that are more susceptible to the disease can also be used in disease intervention plans. And this also makes it easier to identify and control diseases when there are 2 or more risk factors that arise so as to estimate the greater impact that will arise.

From the identification and grouping of risk factors can be taken several intervention strategies that can be used in disease control, namely:

1. Substance mortality and morbidity: how much a risk factor can cause illness or death
2. *Early detection possible and alter* outcome : allows early detection of a disease so as to reduce / change the outcome or risk level of a disease.
3. *Screaning is feasible* (*can identify a high risk population and a testinng strategy*): determine easily which can identify high-risk populations and intervention testing strategies.
4. *Screening acceptable in terms of harms, costs, and patien acceptance*: can determine the examination acceptable to the patient in terms of loss, and the benefit to the patient when screening.

H. Cost Effective Interventions in Controlling Non-communicable Diseases

Intervention *cost effective* is a concept that combines benefits and disadvantages with expenses. It considers the gains and losses to be received from the intervention/action to be taken to decide whether an action is effective (*net-effectiveness*). *Net-effectiveness* This means that the gains/benefits must be better than the losses, even better than the value/usefulness of an intervention.

Cost-effective It is a department that considers the cost and consequences aspects of an alternative problem solving. It is a decision-making tool designed to let decision makers know exactly which alternative solutions are most efficient and at minimum cost.

Results of *Cost-effective* The analysis has had an impact on a number of clinical procedures such as home remedies.*Home Health Care*. This effort is included in *cost effective* In the procedure *health care* Routine is the key to maximizing the benefits / benefits of cost savings incurred for health care.

By applying *cost effective* In routine interventions and with effort can better estimate the disease that will arise and what treatment or treatment should be done. *Cost-effective analysis* get Improve the ability to predict disease and plan interventions so that it can help us in knowing when, how, and what interventions to do. So this can reduce the cost of treatment because it can adjust to the needs and abilities of patients. So patients who have health problems / diseases can continue to do examinations according to their needs without having to spend a lot of money.

With effective and inexpensive treatment or examination, many of the public will routinely do *Medical Check Up* So that their risk factors can be known early and can be treated early as well. This greatly facilitates data collection and control of infectious diseases because risk factors can be known early, who are the vulnerable groups, and the effects of these risk factors so that interventions can be immediately carried out to reduce / prevent the occurrence of diseases due to these risk factors.

I. Genetic Counseling and Intervention in Controlling Noncommunicable Diseases

As prospective parents, who will carry out the reproductive process certainly have various kinds of hopes for their offspring in the future. The expectation of having a normal child is common for every couple, but sometimes reality does not match expectations. Various non-communicable diseases such as Down syndrome can infect our descendants.

Therefore, for parents who have the potential to have offspring of the disease, it is better to do early detection. Down syndrome can also be detected in early pregnancy. In this case, counseling can be done to prospective partners or prospective mothers in prenatal examinations. *Test down syndrome* This is

supposed to be a standard prenatal check, but in fact in many large countries this test is done after birth. Even though if the examination is in early pregnancy, it can minimize the impact of the disease *Down syndrome* such in children.

The major discoveries of the human genome project in the early years of the 21st century have sparked interest in expanding the application of genetic interventions in medicine and public health. For example, the gene for cystic fibrostic, the most common disorder among white Americans has been identified, allowing for a large number of partner screenings. Even among whites without a history of cystic fibrostic, the chance of carrying the gene is three percent. If the father and mother are both carrier genes, the chance of having a child with cystic fibrostic is 25 percent in each pregnancy.

Today there are several known genetic developments

1. Genetic prevention. This approach combines efforts to prevent the occurrence of a single gene or a combination of multiple genes that are likely to produce disease. These include: Expanded use of genetic counseling, prenatal testing, and early abortion or fetal therapy
2. Genetic detection before the disease. This approach includes efforts aimed at detecting genetic defects and the implementation of early interventions to prevent so-called phenotypic expression of genes
3. Environmental protection. Genetic testing makes it possible to define combinations of genes that identify individuals to develop diseases when they are exposed to certain environments, such as interactions that occur in work settings where workers are exposed to certain chemicals often at low doses. The identification of gene-environment interactions can lead to the identification of those at high risk if they work in certain work settings.
4. Genotype-based screening for early disease. The combination of genes can identify groups that are at high risk of common diseases and that can be targeted for screening. For example, studies show that for certain common cancers, for example those

of the breast, prostate, and colon, genetic factors are associated with 30-40 percent of these diseases. The search for genetic patterns predisposing early in life may be useful for identifying those in need of earlier or more intensive screening for early detection.

It would be better if we did *screening* and early detection so that the disease that will occur does not have too bad an impact on health.

J. Actions to Take When There Is No or No Effective Intervention to Control a Noncommunicable Disease

In looking at the control of a non-communicable disease we can use the example of Alzeimer's disease. The disease reflects the challenge of what to do when the cause of the disease is unknown and treatment is not very effective. Alzheimer's is one of those rapidly increasing conditions among those we classify as a non-communicable disease. Population aging is associated with Alzheimer's disease and affects quality of life by affecting memory, especially short-term memory.

For the treatment of these cases, effective medications may serve to relieve symptoms. In addition, it can also train the mind and stimulate it to keep working and trained. Population health efforts also allow sufferers to work independently and may be given regular assistance.

The population health approach to people with Alzheimer's also emphasizes the need for additional research. Population health approaches, however, need to acknowledge the basic need to understand the biology that causes alzeimer. Thus, population health approaches to people with Alzheimer's and other diseases of unknown cause, make us ask fundamental questions about the biology of these diseases and study their causes. Fortunately, recent advances and sound financial efforts make it possible to understand the causes of alzeimer.

Population health strategies to address noncommunicable diseases include screening, hereditary risk factors, cost-effective treatment, genetic counseling, and further research.

K. Examples of the use of combination strategies in the control of non-communicable diseases

A variety of interventions that combine health care, traditional public health approaches, and social interventions are often required to address the complex problems presented by noncommunicable diseases. The combination and integration of the use of multiple interventions is central to population health approaches.

Examples of the use of a combination of strategies in noncommunicable diseases: Alcohol Abuse and Population Health Approaches.

Alcohol has been a feature of American public control and drugs in public health since the country's inception. Alcohol entered most early painkillers and was used routinely to allow surgeons to perform amputations during the Civil War and previous conflicts.

Efforts to control the consequences of alcohol took a new direction after World War II. Americans began to focus on the consequences of disease, including liver disease, fetal alcohol syndrome, car accidents, and intentional and unintentional violence.

Population health interventions are the focus of alcohol control efforts. For example, alcohol taxation under the 1950 legislation raised the price of alcohol enough to substantially reduce consumption. Restrictions on advertising and higher taxes on liquors with greater alcohol content eventually contributed to greater use of beer and wine. Although alcohol consumption continues to grow, the number of cases of liver disease and other alcohol-related health problems has declined. In recent years, efforts to alert pregnant women to the health effects of drinking alcohol through product labeling and other health communication efforts have had an impact.

The road safety impact of alcohol use led to population health efforts in collaboration with the transport department and police. Greatly increased police efforts to catch drunk drivers and strip away abuse of freedom from repeat criminals have become routine and have been linked to impressive reductions in alcohol-related

automotive accidents. Efforts such as the driver-designed movement derived from Mothers Against Drunk Driver (MADD) have demonstrated the often critical role that citizens can play in implementing population health interventions.

A focus on high-risk groups, as well as using "improving-the-average" strategies, has had an important impact. Alcoholics Anonymous (AA) and other peer support groups have focused on encouraging individuals to admit their alcohol problems. These groups often provide important encouragement and support for long-term abstinence.

Medical efforts to control alcohol consumption have been aimed primarily at those with clear evidence of alcohol abuse. Medications are available that provide simple relief in controlling an individual's alcohol consumption. Screening for alcohol abuse has become a widespread part of health care. These interventions have been aimed at people with the highest levels of risk. A combination of individual, group, and population interventions has reduced the overall impact of alcohol use without requiring a period of liquor prohibition. In fact, modest levels of consumption, up to one drink per day for women and two for men, may help protect against coronary artery disease.

The issue of alcohol and public health has not gone away. Today's focus has returned to identifying high-risk groups and interventions to prevent poor outcomes. The key risk factor today is binge drinking with a risk of acute alcohol poisoning, as well as unintentional and intentional violence. College students are one of the highest risk groups. One episode of binge drinking dramatically increases the likelihood of additional episodes, suggesting that intervention strategies are needed to reduce risk.

From the example above, it is known that a combination of non-communicable disease strategies, namely:

- Health care: By screening. For people with the highest level of risk of alcohol abuse.
- Traditional public health approach: For example, there is alcohol taxation under the 1950s legislation which raises the price of alcohol, restrictions on advertising and higher taxes on liquor

with greater alcohol content. As well as efforts to remind pregnant women of the health effects of drinking alcohol through product labeling and other health communication efforts.

- Social intervention: Working with transportation departments and police to catch drunk drivers, driver movement efforts designed from *Mothers Against Drunk Drivers (*MADD), as well as *Alcoholics Anonymous* (AA) and other peer support groups have focused on encouraging individuals to admit their alcohol problems. These groups often provide important encouragement and support for long-term abstinence.

Learning Activity 7
INFECTIOUS DISEASES

A. Infectious Disease Burden

For centuries, infectious diseases were the leading cause of death and disability among all ages, especially among young and old. Infectious diseases are not only the cause of major epidemics, but also the cause of routine deaths. Infectious disease is a disease caused by organisms that have the ability to transmit from animal to animal, animal to person, person to person, person to animal, either directly or indirectly / with intermediaries. This infectious disease is characterized by the presence of agents or causes of disease that live and can move and attack the host or host (sufferer).

Infectious diseases include a role in maternal deaths associated with infant delivery and early childhood mortality as well as deaths from malnutrition in infants and children. Examples of infectious diseases include: HIV/AIDS, Pneumonia, Tuberculosis, diarrhea, SARS, malaria, hepatitis B, bird flu, Lyme Disease, etc.

The last half of the 20th century saw a brief respite from death and disability caused by infectious diseases and other infections. This is due in large part to medical efforts to treat infections with medications and public health efforts to prevent infection (often with vaccines) and to eradicate or control other infections. But when These bacteria resistant to antibiotics began to appear. Staphylococcus organisms resistant to today's antibiotics began to plague hospitals in the 1950s until new antibiotics were developed. Gonorrhea and pneumococcus resistance to various antibiotics is becoming widespread. WHO and U.S. government-sponsored programs, such as promoting the eradication of malaria and tuberculosis, cannot have a sustained impact and goals are trimmed back to control rather than to eradication.

At the beginning of the 21st century, there has been a resumption of infections previously under control, as well as the emergence of new diseases. tuberculosis, a major epidemic In the 18th and 19th centuries, it has partially returned as a result of HIV/AIDS.

More than a few years earlier unknown infections had emerged in the last decade, the majority of which were believed to have originated in animal species. In the United States, the presence of Lyme Disease and West Nile Virus was unknown until the late 20th century, but has now spread over a wide area. Old diseases, such as malaria, expand geographic ranges. Influenza is anticipated to return again in the form of a pandemic, as it has repeatedly done in previous centuries. Pandemics are most likely to occur when persistent mutations produce new strains capable of transmitting from person to person. History shows that public health and medical interventions have and will continue to have a major impact on the burden of infectious diseases.

The GBD (Global Burden Disease) approach or also called the Burden of Disease Study is intended to create *Global Public Good* who can provide appropriate input in the formulation of public health policies at the national and regional levels.

In Indonesia and other developing countries, in the last two decades, there has been a health transition. This is due to increasing life expectancy, increasing number of elderly population and increasing incidence of Non-Communicable Diseases (NCDs).

Indonesia has succeeded in reducing infant and child mortality, so that the disability component of the disease burden has replaced the premature mortality component (premature death or under-life expectancy). The main cause of premature death is by infectious diseases such as tuberculosis, diarrhea, pneumonia and road traffic accidents.

In the last two decades, Murray said, Indonesia has succeeded in reducing 37 percent of deaths from TB. However, TB remains the second highest cause of death.

B. An example of the burden of infectious diseases!

Currently, in developed countries there have been differences in disease patterns from infectious diseases to non-infectious diseases, but this does not mean that developed countries have been free from infectious disease problems, such as influenza in the UK, Morbili in Italy, and AIDS. In Indonesia alone, infectious diseases are a major factor causing mortality and morbidity.

In the world:

The history of TB goes back to ancient times, but beginning in the 18th century it became central in most of Europe and America. It is estimated that in the two centuries from 1700 to 1900, tuberculosis was responsible for the deaths of about one billion people. The annual rate of TB when Koch made his discovery was about seven million people. That day would be the equivalent of more than 30 million people given the current population.

Acquired Immunodeficiency Syndrome or***Acquired Immune Deficiency Syndrome*** (abbreviated**AIDS**) is a set of symptoms and infections (or:syndrome) arising from damageimmune system human body due to viral infectionHIV;[1] or infection with other similar viruses affecting other species (SIV,FIV, etc.).

Currently recorded, about 34 million people in the world have the HIV virus that causes Aids and most of them live in poverty and in developing countries. Sub-Saharan Africa is by far the most exposed region to HIV/Aids.

But the viral epidemic, which has killed more than 25 million people in the world in the 30 years since HIV was first discovered, has so far shown signs of decline. HIV/AIDS Programs The United Nations, UNAIDS said the death toll of the disease in 2011 was recorded at 1.7 million deaths. This figure shows a decrease compared to 2005 which reached the highest peak with 2.3 million deaths or in 2010 which was recorded at 1.8 million.

The latest WHO data also shows an increase in the number of people HIV is getting treatment. In 2012 there were 9.7 million people. This figure is an increase of 300,000 more people than a decade earlier. Indian generic drug companies are currently the main supplier of antiretroviral drugs for people living with HIV to Africa and many other poor countries.

In Indonesia:

Indonesia is still included in the 10 countries with the highest burden of Tuberculosis (TB) in the world. Total new cases of TB are reported as many as 450 thousand per year and prevalence is around 690 thousand per year, as reported by the United Nations Organization for Health (WHO) in its Global Report 2011.

"Since 2010, WHO no longer mentions country rankings, but Indonesia is still among the top 10 countries with the largest TB problem burden out of a total of 22 countries with the largest TB burden," said Director General of Disease Control and Environmental Health (P2PL) of the Ministry of Health, Tjandra Yoga Aditama in his statement in Jakarta, Thursday (24/5).

According to data from the Directorate General of PPM and PL of the Ministry of Health of the Republic of Indonesia in the first quarter, January to March 2011, additional AIDS cases were reported to reach 351. 'Case'*acquired immune deficiency syndrome or acquired immunodeficiency syndrome* (AIDS)' and 'human immunodeficiency virus (HIV)' was most reported in DKI Jakarta as many as 3. 995 and HIV cases amounted to 15,769," he said.

He explained, cumulatively cases of people with HIV / AIDS from January 1, 1987 to March 2011 reached 24,482 cases with a death rate of 4. 603 people," said Dewi. Based on the cumulative number of AIDS cases by sex, namely men 17,840, due to injecting drug users (IDU) 8,553, women 6,553, due to IDU 665 and unknown 89, due to IDU 52.Furthermore, he said, the cumulative number of AIDS cases according to risk factors, namely due to heterosexual 13,000, homo-bisexual 734, IDU 9,274, blood transfusion 49, pinatal transmission 637 and unknown 783.

The following is data on infectious diseases that occurred in DKI Jakarta from 2007 - 2010:

Tahun	Jenis penyakit	Jumlah
2007	Malaria	77
2007	Gastro enteritis	213247
2007	Kholera	1028
2007	Kusta	489
2007	TBC	35240
2008	Malaria	68
2008	Gastro enteritis	9593
2008	Kusta	0
2008	TBC	22506
2009	Malaria	71
2009	Gastro enteritis	10349
2010	Malaria	103
2010	Gastro enteritis	184341
2010	Demam Berdarah DHF	21151
2010	TBC	5788

C. Forms of public health approaches that can be used for infectious disease control, especially in the prevention of infectious diseases

There are several approaches or ways that can be done in controlling infectious diseases, namely:

- *Barrier Protections*, including isolation and quarantine
- Immunization
- Screening and finding cases
- Treatment/medication
- Efforts to maximize the effectiveness of treatment and prevent resistance.

1. *Barrier Protections*

Barrier protection It aims to separate healthy individuals and populations from disease by preventing or monetizing exposure to disease.

An example of the simplest barrier protection is hand washing, and another example is

a. The use of insecticide-treated mosquito nets is the main way in preventing malaria.
b. The use of condoms is believed to successfully prevent the transmission of sexually transmitted diseases.
c. The use of effective masks reduces the spread of disease in health care institutions such as hospitals.
d. Sanitation was a major way to reduce TB outbreaks in the 19th and early mid-20th centuries.
e. Isolation and quarantine can also be used in the prevention of infectious diseases to prevent the spread of disease to healthy communities. But its implementation must have a legal basis.

2. Immunization

Immunization is a procedure for preventing infectious diseases given to children from infancy to adolescence and some can be given as adults. Through this program, the body is introduced to certain bacteria or viruses that have been weakened or turned off with the aim of stimulating the immune system to form antibodies. Antibodies formed after

immunization are useful to protect the body from attacks by these microorganisms in the future.

3. ***Screening* and *finding case***

   Screening For infectious diseases are often associated with public health practices known as *case finding*. *Case finding* implies confidential interviews of those diagnosed with the disease and requested their recent physical or close sexual contact.

   Technique *case finding* It has been key to controlling syphilis, and to prolonging TB both before and after the availability of effective treatment.

   The advent of effective treatment means it is beneficial both for those diagnosed with the disease and healthy people through the discovery of such cases.

4. **Treatment/medication**

   Treatment of symptoms of the disease allows to reduce the risk of spread or transmission of confidence from inside or outside the individual. In addition to direct treatment, public health tools known as medication or epidemiological contact care have been effective in controlling many infectious diseases.

5. **Efforts to maximize the effectiveness of treatment and prevent resistance.**

   Attempts to control resistance are easier when compared to fighting resistance to the drug itself. Things that can cause a person to develop resistance include: overuse of prescribed antibiotics.

D. Conditions Necessary to Enable Disease Eradication

The eradication of a disease becomes the dream of all nations in the future. Conditions where infectious diseases are no longer found are the main targets of health actors. Eradication is a condition where the disappearance of an infectious disease from the face of the earth and cannot come again in the future. The only disease that successfully eradicates is smallpox. Another disease approaching eradication is polio. But polio is also still difficult to reach the eradication stage. This is because polio has different

disease characteristics from smallpox. Actually, smallpox has unique disease characteristics so it is not difficult to eradicate.

These characteristics include:

1. Can not be transmitted through animals. Smallpox is a disease that is specific to humans. That way no animal can transmit this disease. No other species can affect the spread of this disease. In other words if the disease is eliminated from humans, there is nowhere else to hide and then it will disappear from the human population.
2. Short endurance in the environment. Smallpox virus requires contact with humans and cannot last longer than a few moments in an environment without a human host. Thus, droplets when sneezing or coughing should immediately find the victim because it cannot be transmitted easily without direct contact.
3. Does not carry the virus for a long time. When a person recovers from smallpox, he or she no longer carries the virus and cannot transmit it to others. In contrast to HIV / AIDS or hepatitis B whose sufferers carry the virus for a long time and can transmit it to others.
4. Produces long-term immunity. When cured of smallpox, then a person will get immunity so that smallpox disease will not recur in him.
5. Immunization creates long-term immunity. Like the disease, immunization also succeeded in creating long-term immunity. The smallpox virus does not mutate to become more virulent than before the vaccine.
6. Herd immunity protects those who are vulnerable. Long-term immunity from both disease and immunization makes it possible to protect large populations.
7. Easy to identify. Smallpox disease is easily identified by observing the characteristics of the affected people. This allows for early diagnosis and protects others from exposure to the disease.
8. Immunization is effective after exposure. Smallpox immunization is effective even after exposure to smallpox.

The following is a table of eradicated diseases, according to the book Public Health, 2009

	Smallpox	**Polio**	**Measles**
Cannot be transmitted through animals	Yes	Yes	Yes
Short endurance in the environment	Yes	Yes	Yes
Does not carry the virus for a long time	Yes	Yes, the possibility of absence occurs in individual immune compromises	Yes, the possibility of absence occurs in individual immune compromises
Produces long-term immunity	Yes	Yes, but it may not be maintained in the individual's immune system	Yes, but it may not be maintained in the individual's immune system
Immunization creates long-term immunity.	Yes	Yes, but it may not be maintained in the individual's immune system Viruses have the potential to infect	Yes, but it may not be maintained in the individual's immune system
Herd immunity protects those	Yes	Yes	Yes

who are vulnerable			
Easy to identify	Yes	Yes/no. Diseases are relatively easy to identify, but many infections are asymptomatic	Not. Allows the same with other similar diseases
Immunization is effective after exposure	Yes	Not. Ineffective	Not. Not effective

E. Various Forms of Intervention Available in Efforts to Control the HIV/AIDS Epidemic

Transmission routes	Estimated transmission rate per exposure	Intervention
– Blood transfusion. – Blood and blood products previously used in the U.S. by hemophilia patients	– More than 90% contaminated blood allows transmission; Residual blood can increase infection	– Blood screening for early HIV detection. – Using one's own blood for surgery
– Sexual-anal contact is more potent than vaginal and more potent than oral	– The range from 0.1% to 10% of unprotected sex is extremely risky – Circumcision reduces some of the resik	– Rubber condoms – Circumcision – With only 1 pair – Monogamy

	– Changing partners increases the risk of transmission	
– Transmission from ib to child	– 15% to 40% higher in developing countries – Highest transmission through vaginal fluids	– Faults – Medication treatment during pregnancy
– Breastfeed	– Exposure is very low, but more than 25% chance when breastfeeding for more than 1 year.	– Continuous drug consumption is a treatment that reduces but does not eliminate transmission.
– Exposure to syringes – Risk of health care workers	– Less than 0.5% of HIV positive is found in needle stick transmission	– Treatment after exposure to medication is an effective prevention
– Use of injectable drugs	– Less than 1% result from sharing needles	– The needle replacement program has been used.

Learning Activity 8
SETTLEMENT OF HEALTH WORKER DISPUTES BY MEDIATION

A. Bekalang Background

Conflicts can occur between colleagues of health workers, partner institutions and patients, the development of health service financing systems also from the Health Law, the Law on Medical Practice to the latest Law, namely the Health Workers Law. In the relationship between health workers, especially doctors and patients, there are changes due to advances in science and technology, which originally had a paternalistic relationship where doctors have full authority over their patients and patients surrender to what is given by doctors, patients are considered weak parties while doctors are considered superior parties into contractual or symmetric relationships that make the status of patients and doctors have the same degree, Patients are considered entitled to know what action or therapy will be given.

People are increasingly aware of their rights as *users in health services so that they often critically question about diseases, examinations, treatments, and actions that will be taken regarding their diseases and seek opinions from other doctors (second opinion*) this is actually respected by *providers in health services both doctors and other health workers who are directly* In relation to patients, in fact, patients tend to still be defeated by the power of health care providers, since the enactment of Law 8 of 1999 concerning consumer protection, consumer claims against health services are still rare. This is because the relationship between doctors and patients is a special relationship known as therapeutic transactions, but after the birth of Law 29 of 2004 concerning Medical Practice, Law 36 of 2009 concerning Health, Law 36 of 2014 concerning Health Workers and the implementation of Law 40 of 2004 concerning National Health Insurance opened the door to new conflicts between health care agencies and health facilities and between health care agencies and health insurance participants aforementioned. The law also regulates how to resolve conflicts that occur in health services, starting from conflicts that can occur between colleagues, health workers, partner institutions, and patients.

Currently, the media has begun to highlight several cases of health malpractice, due to the development of information through the internet and the media, making more and more lawsuits filed against health facility providers and doctors because patients feel unhealed In the implementation of medical services to patients, information plays a very important role. Information is not only important for patients, but also for doctors to be able to compile and convey correct medical information to patients for the benefit of the patients themselves. The role of information in health care relations means that the importance of the role of information must be seen in relation to the obligations of patients as individuals who need help to overcome complaints about their health, in addition to in relation to the obligations of doctors as professionals in the health sector.

In order for medical services to be provided optimally, correct information from the patient is needed in order to facilitate doctors in diagnosis, therapy, and other stages needed by patients. In other words, the delivery of information from the patient about his illness can affect the patient's care. With regard to the losses often suffered by patients due to errors (deliberate / negligence) of health workers because they do not practice in accordance with professional standards, now the community has fulfilled sufficient knowledge and awareness of applicable laws, so that when the health services they receive are considered less than optimal and even cause unwanted conditions or are considered to have occurred medical malpractice, The community will file a lawsuit both to health care facilities and to health workers who work in them for the losses they suffer.

Dispute resolution in health services should not be through the court, but through non-litigation channels (*Alternative Dispute Resolution*) such as mediation because basically the doctor's motive is to strive for his patients to be more prosperous (relieve suffering, seek healing and improve the quality of life) Based on the description in the background above, problems are formulated; How is the resolution of health disputes through mediation reviewed normatively?

B. Definition of Conflict

Conflict comes from the Latin verb *configere* which means to hit each other. Sociologically, conflict is defined as a social process between two or more people (it can also be groups) in which one party tries to get rid of the other party by destroying it or making it helpless. Conflict is motivated by differences in the characteristics that individuals bring in an interaction. These differences include physical characteristics, intelligence, knowledge, customs, beliefs, and so on. With the inclusion of individual characteristics in social interaction, conflict is a natural situation in every society and no society has never experienced conflict between its members or with other groups of people, conflict will only disappear with the disappearance of society itself.(Newstorm and Davis, 2000).

The definition of conflict according to Indra and Suryono (2011) is sebag.ai follows:

1. Conflict as perception

   Conflict is a conflict that arises because of the needs, interests, and desires of different values from one person to another. Conflict as a perception only burdens the individual concerned (internal conflict) but nevertheless without realizing it can also be actualized in communication, policy making. Displeasure with the doctor's behavior that is stored in the patient's mind or vice versa the patient who is always advised never to obey is in the state of conflict as perception.

2. Conflict as a feeling

   Conflict is triggered by emotional reactions to situations and interactions that show incompatibility. The reaction is shown by fear, sadness, disappointment, anger and despair often hit the patient or family, especially in conditions where the disease suffered by the patient is a deadly disease or has not found a cure. Poor communication with information about the disease and prognosis of treatment is often a trigger for emotional conflict.

3. Conflict as action

Conflict as an action is the expression of feelings and the articulation and perception into an action to obtain something that needs that enter the territory of another person's needs. Here it is clear that violations against others explicitly or tangibly, in the world of health manifest through expressions of dissatisfaction with services described in the form of anger, protests against institutions or reporting the institution to the police, NGOs, and others.

C. Definition of Malpractice

Literally "mal" means "wrong" while "practice" means "execution" or "action", so malpractice means "wrong execution or action".

The definition of health profession malpractice is the negligence of a doctor or nurse to use the level of intelligence and knowledge in treating and treating patients, which is commonly used against patients or injured people according to the size in the environment that According to M.Jusuf Hanafiah & Amri Amir (1999), malpractice is:

"The negligence of a physician to use the level of skill and knowledge commonly used in treating patients or injured persons of the same size in the same environment". What is meant by negligence here is a lack of caution, that is, not doing what someone with a cautious attitude does naturally, but instead doing what someone with a cautious attitude would not do in that situation. Negligence is also defined by performing medical actions below the standards of medical services (professional standards and standard operational procedures)".

According to M.Jusuf Hanafiah &; Amri Amir (1999), namely:

1. There is an element of error / negligence committed by health workers in carrying out their profession.
2. There are actions that are not in accordance with standard operational procedures.
3. There is serious injury or death, resulting in the patient being disabled or dying.

4. There is a causal relationship, where the severe injuries suffered by patients are the result of the actions of doctors who are not in accordance with medical service standards.

Examples of malpractice are when a doctor or health worker:

1. Leaving gauze inside the patient's uterus
2. Forgetting the keteter inside the patient's stomach;
3. Postponing childbirth so that the fetus dies in its mother's womb;
4. Suturing the surgical wound carelessly so that the patient is exposed to severe infection;
5. Not following professional standards and standard operating procedures

Henry campell black gives the following definition of malpractice: *Malpractice is professional misconduct on the part of a professional person such as physician, dentist, vetenarian, malpractice may be the result of skill or fidelity in the performance of professional duties, intentionally wrong doing or illegal or unethical practice*. (Malpractice is a mistake in the exercise of profession as a doctor, dentist, veterinarian. Malpractice is the result of indifference, negligence, or lack of skill, lack of caution in carrying out professional duties, in the form of intentional violations, violations of law or violations of ethics.

D. Definition of Mediation

Mediation comes from the Latin, *meicarewhich means to be in the middle. This meaning refers to the role displayed on the third party as a mediator in carrying out his duties of mediating and resolving disputes between* parties. "Being in the middle" also means the mediator must be neutral and impartial in resolving disputes. The mediator must safeguard the interests of the disputing parties fairly and equally so as to foster trust from the disputing parties. (Eddy Junaidy, 2011).

Thus from this definition of mediation can be defined the essential elements of mediation, namely:

1. Mediation is a way of resolving disputes through negotiations based on a consensus approach or consensus of the parties.

2. The parties ask for help from other parties who are impartial, namely mediators.
3. The mediator does not have the authority to decide but only assists the parties to the dispute in finding a settlement acceptable to the parties

E. Alternative Health Conflict Resolution

1. **Health Conflict Resolution Through the Judiciary**
2. The process through the judiciary (litigation) in resolving health conflicts resulting in adversarial agreements that have not been able to embrace common interests tends to cause dissatisfaction between several parties, and can even cause new problems The multilevel justice system will take a very long time and produce very expensive costs. Technically, the judicial function or task of adjudicating is formulated as examining and deciding cases, the definition of "deciding cases" here is not the same as resolving the case or dispute because here the judge decides the case based on the evidence submitted to him and on the judge's belief. If the patient sues the doctor civilly, it must be seen the value of the loss, if the patient sues criminally, it must be seen whether the action taken by the doctor is a criminal act that all elements must meet the criminal offense, most patients do not understand this and only follow the orders of their lawyers, in this case the one who benefits greatly is the patient's lawyer because they get compensation for services. The patient does not know that if the patient sues the doctor, the patient must prove it (*Principle Actori incumbit probatio*) while to prove the existence of loss or negligence in a medical action is not easy because the loss / pain obtained can be due to the development of the disease, the risk of medical action.

   While the doctor who is sued will feel very aggrieved as a result of the lawsuit, the doctor's practice will die because other patients do not believe, this is because.

   Medical services are faith-based services, although the results later declare doctors innocent, it has become a stigma in

society that doctors who are exposed to legal problems are not competent doctors.

3. **Health Conflict Resolution Outside the Judiciary**

Alternative dispute resolution can be limited as a set of procedures or mechanisms that function to provide alternatives or choices regarding a dispute resolution procedure through alternative forms of dispute resolution in order to obtain a final and binding decision on the parties. (Indra and Suryono, 2011).

According to H. Priyatna in the book Indra and Suryono health dispute resolution (2011) Dispute resolution outside the court has advantages, including:

a. This type of dispute requires different approaches and the parties to the dispute design specific procedures / procedures for settlement based on deliberation.
b. The procedures / procedures for settlement are on the basis of kinship with the disputing party
c. The results of dispute resolution in the form of a memorandum of peace can be used as a peace tool that has the legal force of the executor.
d. If the settlement is settled out of court, it will result in *a win-win solution* guaranteed confidentiality.

Based on Law No.30 of 1999 concerning Arbitration and Alternative Dispute Resolution In general, what includes settlement outside the court institution is consultation, negotiation, mediation, conciliation or expert assessment.

4. **Mediation as an Effort to Resolve Health Conflicts**

Mediation according to PERMA No. 1 of 2008 article 1 number 7 is dispute resolution through the negotiation process of the parties assisted by a mediator, the mediator is a neutral party who is impartial and serves to assist the parties in finding various possible dispute resolutions.

Through mediation, it can provide great access to the parties to fulfill a sense of justice with a settlement that benefits both parties. In health law, the resolution of health conflicts is

regulated in Law 36 of 2014 concerning health workers article 78 which reads "in the event that health workers who are suspected of negligence in carrying out their profession cause losses to health service recipients, disputes arising from such negligence must first be resolved through dispute resolution outside the court in accordance with statutory provisions"

As well as Law No. 36 of 2009 concerning Health article 29 which requires a mediation approach in resolving health disputes. PERMA No.1 of 2008 encourages the use of mediation in civil cases as an effective instrument strongly recommended by the Supreme Court.

Every health case should use the mediation route because basically every medical service has a motive to make patients prosperous (reduce suffering and treat patients) and on the basis of effort (*inspaningverbentenes*) the advantages of resolving health conflicts using a mediation approach are;

a. Save time and cost
b. High probability of executing the deal
c. Control relationship maintainers more easily estimate outcomes
d. For doctors, the protection of their names and horrors is maintained because they are closed and there is more certainty
e. Gives an equal atmosphere *so as to put better self-esteem*

Learning Activity 9

STRATEGY FOR IMPLEMENTING *THE INTERNATIONAL HEALTH REGULATION* (2005) IN FEDERAL STATES

IHR (2005) reflects a dramatic new approach to combating public health emergencies. However, the success of IHR may be hampered due to problems that federal states may face in meeting IHR requirements. IHR (2005), originally established through a series of sanitary conventions in the mid-19th century, is intended to form the basis for Member States' response to public health emergencies, with particular attention to preventing the international spread of a disease without causing unnecessary disruption to trade or travel activities. Recognizing the limitations of previous versions, as well as a growing awareness of the growing threat of infectious diseases in an eternally interconnected world, prompted a revision process to expand the IHR, which began in 1995 and concluded with unanimous approval in May 2005.

IHR (2005) reflects a substantial change in the approach to international health governance, through the protection of the international community from public health threats that in certain circumstances are given priority over national sovereignty. Some more dramatic examples of this change in approach include: new requirements for countries to report potential public health emergencies within 24 hours, WHO's authority to use non-governmental sources of information for surveillance purposes and WHO's ability to issue public health recommendations as well as those concerning travel activities, with or without agreement from potentially affected States Parties impact. Furthermore, a major reform in the IHR (2005) is a detailed requirement for States Parties to develop stratified capacity (referred to as the primary capacity to be possessed) to effectively address public health threats (Table 1). The revised IHR imposes a firm obligation on all WHO Member States to develop, strengthen and maintain the ability to detect, report and respond to outbreaks. When combined, the required capacities form a blueprint for detecting public health emergencies as well as a comprehensive and fully integrated response system.

The IHR outlined "key capacities for designated airports, seaports and land crossings". This requirement should not be a problem for most federal states in implementing IHR because international entry is generally within the jurisdiction of national Governments. However, compliance problems may occur in the event that the federal government does not have firm jurisdiction over the primary capacities that must be possessed. For example, surveillance authority may be at the level of regional governments (such as states, provinces or territories) in many federal states, so the federal government does not have the authority to implement local-level surveillance or guarantee the movement of epidemiological data from the local level to the national level to meet the requirements of IHR (2005). More complicative is the fact that voluntary local level requirements cannot be considered, due to limited local level resources or fear of the economic consequences associated with early reporting of possible emergencies.

The possible difficulty in reconciling the Government with the federal system with IHR (2005) can be illustrated by the American request for an Article stating that the United States will implement IHR in the manner most consistent with its federal system Government. The rejection of the American request shows that other federal states do not see their system of government as an insurmountable hurdle in implementing IHR (2005). On the contrary, unanimous approval of IHR (2005) by all Member States of the World Medical Association, including its federal states, is evidence of worldwide recognition of the importance of IHR (2005), as well as demonstrates the willingness of States Parties to take the necessary measures to overcome domestic hurdles related to IHR implementation.

Table 1. The main capacity that must be possessed in the field of surveillance and response.

Obligations of States Parties to IHR (2005)	**Local Level**	**Intermediate Level**	**National Level**
Main capacity	▪ Detect events/ outbreaks ▪ Report key epidemiological information to relevant intermediate and national authorities ▪ Implement the main monitoring measures as soon as possible	▪ Evaluate and verify epidemiological data ▪ Implement additional monitoring measures as necessary ▪ Report to national authorities	▪ Assess all urgent reports within 48 hours by consolidating inputs from and disseminating information to relevant administrative sectors ▪ Report assessment results as required within 24 hours to WHO through national *focal points* that should be accessible at all times for communication
Entrance capacity	Provide and maintain facilities and expertise to conduct inspections (of goods and conveyance) and diagnostic and treatment interviews (of persons travelling) at designated entrances.		

Cross-cutting *capacity*	▪ Conduct surveillance and inspection, reporting, notification, verification, response and cooperation with domestic and international public health authorities 24/7 ▪ Develop and maintain trained expertise and specialized facilities for health data collection, laboratory investigation and operational/logistical support (including communications, transportation and supply chain), and detailed public health emergency plans that define multi-sectoral response teams ▪ Implement IHR (2005) and conduct public health interventions "with full respect for human dignity, human rights and fundamental freedoms" (and based on the UN Charter and the WHO Constitution) ▪ Assess the existing national capacity to meet IHR requirements (2005) within 2 years (and to achieve full compliance within 5 years) from the time of entry into force IHR (2005)
Capacity building in low-resource countries	Assist in the development of public health capacity everywhere by WHO and States Parties, including the provision of technical cooperation and logistical support, as well as the mobilization of financial resources to facilitate the implementation of IHR

Implementation in Federal States

Responding to the challenges of domestic governance that arise along with the increasing demand for the world's public health regime is not an easy task. At a time when all countries share the concern of addressing the world's public health emergency through IHR (2005), it is important for countries to distinguish that it will have an impact on the viability of various strategies for implementation. Each country has a unique system of government, as well as a legal framework (constitutional or otherwise) that places restrictions on the design of policies and activities. These countries also have a unique history,

including experience of dealing with public health emergencies and acceptance of national Government interventions. In some federal states, such as India, National Government intervention in local matters is more acceptable, especially if it provides the resources needed to address public health threats.

There is no set of policy options that will work for all federated states. To determine the most appropriate approach for federal states, the following basic questions need to be answered first: (1) To what extent can federal states ensure compliance with IHR requirements in the context of a decentralized approach to public health? (2) If federal states adopt a more centralized approach to public health, how should they address the possible negative impacts of renewing their relationships with regional and local public health authorities? In other words, to what extent can the federal Government justifiably compel regional Governments to ensure that public health coordination is necessary to meet the requirements of the IHR?

Choices the Federal Government Can Make.

To effectively implement IHR, the federal government needs to take steps to centralize governance, or at least to improve harmonization of public health policies and activities at the regional government level. Increased harmonization requires the establishment of structures within which regional governments are encouraged to develop appropriate local public health capacity and the necessary public health laws and regulations to enable the country to meet IHR requirements. The federal government can utilize the different instruments at its disposal to achieve this goal. These include direct legislation programs in public health areas, legislation programs in parallel areas covering issues, funding arrangements, the use of intergovernmental agreements and the issuance of national guidelines. Each instrument has advantages and disadvantages so it is important to identify the incorporation of existing instruments in order to optimize successful fulfillment of IHR requirements, while striving to mitigate adverse potentials (Box 1).

Drafting Laws and Regulations (Legislation Program).

Among the options available to the federal government, the legislative approach may be perceived as the most disruptive or least valued by regional sovereignty. However, this approach is also one of the most effective mechanisms for implementing IHR (2005). The ability of the national or federal Government to utilize this option in many ways will depend on the division of powers in its constitution. If the federal government has clear constitutional jurisdiction, the federal government by law may impose the fulfillment of the requirements on local or regional public health authorities. This legislation program can provide for regional surveillance capacity building, mandatory reporting of public health threats and enable federal intervention in public health emergencies. The IHR decision instrument (2005) to identify public health emergencies of global concern (PHEIC) can be adopted as a test of federal jurisdiction for future problems: if a public health emergency is considered to be troubling the world based on the algorithm contained in the instrument, then the federal government will automatically have jurisdiction in that regard. For example, India has proposed new legislation that explicitly empowers the federal government in the event that the WHO declares a PHEIC.

However, constitutions in many countries are generally silent on the division of public health-related powers among levels of Government, so that in many cases IHR-related activities become common jurisdiction. On the other hand, parallel constitutional powers often provide a mechanism by which the federal Government can obtain the legislative powers it needs. For example, in Canada the powers of criminal law are used by the federal Government to regulate public health. In America, the federal government's tax and spending powers and its ability to regulate state commerce provide an opportunity for the federal government to expand its influence on public health matters. The constitutions of some federal states also contain a variety of "supremacy clauses" in which conflicts between regional and federal legislation (including treaty law) are resolved in favor of federal legislation.

The use of this alternative approach should be considered with special caution. The expansion of federal powers into territories not otherwise stated constitutionally runs the risk of being considered a usurpation, and could damage fundamental cooperative relations between governments. What's more, unilateral statements of federal power, whatever the legal basis, will not be effective without regional cooperation, and at worst can generate hostility that could undermine the response needed during a public health emergency. Such measures and approaches can therefore only be considered when other alternatives do not work, and only when the federal Government judges that the federal Government's lack of legislative power may pose a significant threat to its people or to the international community.

An interesting and controversial approach to establishing a legislative basis for federal authorities to intervene during a public health emergency is through the use of security powers. It's an option the U.S. and Australia, which have recently enacted legislation linking public health surveillance to national security.

Public health secrecitation has an impact that needs to be carefully considered. The main advantage of public health securiation is that it can give the federal government the powers it needs to take aggressive action early in the event of a public health emergency. In addition, public health as a key component of security also strengthens the profile and visibility of the federal government, which in turn can increase resources for population health. However, secrecitation is at direct odds with the basic ethos of public health based on cooperation. Secrecitation also always makes attention to health problems secondary to security issues, so that ultimately the authority over public health emergencies will be owned by security forces, as opposed to public health officials.

Most importantly, the considerations underlying any legislative approach must also respect other aspects of the country's constitution, especially human rights provisions. Explicit respect for human rights has also been made mandatory in IHR (2005), which requires that domestic implementation be carried out in accordance with the UN Charter, the WHO Constitution and "with full respect for human dignity, human rights and fundamental freedoms".

Box 1. Key messages from the symposium

Symposium participants included senior public health experts from the following countries, but did not officially represent those countries: Australia, Canada, China, France (China and France are examples of decentralized unitary states), India, the Russian Federation, Senegal (as general representatives of regional Governments in Africa), the Americas and WHO. The views, opinions and conclusions expressed in this paper do not necessarily reflect the views, opinions and conclusions of WHO or participating countries.

Each country involved has a different unique experience in implementing IHR. Australia, Canada and the United States are faced with the challenge that authority over some key capacities is primarily at the state or provincial level. Each of these countries has mechanisms that could potentially centralize power, although such a process would contradict the country's history of federalism and could be seen as harmful to the integrity of the public health system.

The intention of these countries is to regulate existing problems through cooperative approaches such as harmonization of laws and regulations, funding arrangements and memorandums of understanding. Brazil, India and the Russian Federation have systems in which the necessary legislative powers are at the federal level and regional governments rely on the central government for funding, making it possible to regulate through funding. These countries have more governance mechanisms to implement IHR, although public health capacity at the local or regional level remains a critical issue. The representative from Senegal explained the need for coordination from the Government, which is not only carried out within each country but also with adjacent countries and frequently crossed borders in daily activities and with countries from which the spread of disease can occur.

Funding Power

In the end, legislative power at the federal level will be meaningless without the necessary capacity at the regional or local level. Moreover, strengthening public health capacity to meet the requirements of IHR (2005) will require significant resource

commitments in most countries. One way to increase capacity, along with ensuring that local and regional authorities provide relevant public health-related information to national Governments, is through conditional funding arrangements. This will most likely include agreements between federal and local governments to share the cost of developing surveillance infrastructure so as to ensure the movement of epidemiological information to the national level. From a political perspective, such an arrangement might be considered more appropriate when compared to a legislative approach that could cause chaos. Funding arrangements also have the potential to achieve similar or better results, particularly at a time of large financial gaps between national and regional governments. However, some regional governments may still consider arrangements through funding based on the federal currency to be coercive and potentially limit optimal use of the currency at the local level. This is especially true in developing countries dealing with public health threats such as HIV, tuberculosis and malaria, which generally do not have sufficient resources to address these public health threats.

Intergovernmental Agreements

Another option that is more appropriate than the legislative approach that is likely to cause chaos is the creation of agreements that have been formally negotiated between different levels of Government. Intergovernmental agreements will be mutually agreed upon and will therefore respect jurisdictional boundaries. The memorandum of understanding in particular will be effective for issues such as data movement and can be used to formalize funding arrangements. The memorandum of understanding may establish the level of authority that the federal Government will have in the event of a regional public health emergency that may be of national or international concern. Canadian federal and provincial authorities have considered the use of a Memorandum of Understanding on data movement, which is based on the PHEIC algorithm proposed in the decision-making instrument in Annex 2 of the IHR (2005), while Australia has developed an interstate agreement outlining a mechanism for declaring a public health emergency. However, such agreements will be difficult to

implement in the absence of additional funding arrangements or compensation plans. Disputes may arise when regional governments are faced with an actual decision to report a public health emergency, which could risk disrupting local economies. One approach to de-escalating disputes is through intergovernmental agreements to establish an independent body that can oversee public health activities (during emergencies and vice versa) that can act as an extension of the Government.

National Guidelines

Another approach that is considered less chaotic is the establishment of national guidelines, for example on standardizing the collection, storage and reporting of data. Regional and national data standardization remains a major hurdle in most countries, where there is a need to develop information technology programs for the collection, analysis and communication of compatible, if not fully integrated, information during public health emergencies . Non-binding national guidelines can be used to encourage harmonization and can lead to increased cooperation from local governments if they are involved to participate in the guideline formulation process. Another advantage of the national guideline approach when compared to the legislative approach is the nature of the guidelines that can be changed quickly to reflect developments in technology, science and public health practice. National guidelines are most likely to be effective when used in combination with other strategies, particularly with conditional funding arrangements. For example , *the Pandemic and All-Hazards Preparedness Act in America* provides examples of how federal funding to states can be made conditional on meeting federal standards.

CHAPTER III
COVER

3.1 Conclusion

Public health science is closely related to various fields that support the creation of a prosperous and healthy society. *holistic*. Healthy communities *holistic* is the goal of all existing types of public health programs. Public health science itself has a distinctive uniqueness, namely the program is more emphasized on promotion and prevention, where the target of the program is not only people who are already sick, but also healthy humans who need to continue to improve their healthy level.

Public health is not a rigid and closed science, but an integrated management concept that involves various aspects in the implementation of its programs. This is because health can be created if various related parties jointly condition it. As a student who will serve the community, you must understand and master these related fields. This is related to the level of public health in the future which is expected to improve.

The following are the basic aspects that we must understand, including

1. Public Health Principles
2. Public Health Based on Individual
3. Health Communication and Information
4. Social and Behavioral Sciences
5. Legal Ethics and Health Policy
6. Non-communicable diseases
7. Infectious Diseases

By studying all these aspects, we came to understand the difference between public health and medicine as well as the function and history of public health. We also master public health based on *evidence-based*, differences in communication and health information and basic types of public health data. Not to forget also the social and behavioral sciences and culture that we must

understand. Health laws, policies and ethics must also be understood to apply public health science in the future. And we also of course have to know and understand all aspects of non-communicable diseases and infectious diseases along with the differences between the two.

3.2 Suggestion

As humans who are studying, of course we still have many shortcomings, especially in making this paper. But we hope that the maximum benefit can also be taken from the results of our work. As our knowledge grows, so does our responsibility and obligation to put it into practice for a better future of public health. Various challenges and obstacles must always accompany our journey there, but with strong determination we will be able to continue to learn and pray for the creation of community welfare.

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Born in Bone, South Sulawesi Province on December 5, 1969, is the fourth of five children. The author was born to Mr. Alm H. Dg. Mallipu and Mrs. Alm Hj. Dg. Macinnong. The author is married to Dr. H. Haeruddin, M.Si and has been blessed with a son named Muhammad Sabiq Dzakwan, S.Kom., M.Kom one of the Young Lecturers at STIKES Mutiara Mahakam Samarinda as the first child, the second child named Sya'idah Alawiah Dzakwan S.Ked (prospective General Practitioner) who is currently undergoing coas as a young doctor at AWS Hospital Samarinda, and the third child Syahirah Afifah Dzakwan who is currently pursuing Medical Education at Brawijaya University Malang. The author completed his elementary school education and graduated in 1982, then continued junior high school and graduated in 1985, then continued his education in high school and graduated in 1988, then continued his undergraduate education majoring in economics at the University of Muhammadiyah East Kalimantan and graduated in 1993. The author continued to his Postgraduate in economics at Mulawarman University graduating in 2014. The author completed his Postgraduate education in Public Health at the University of Eastern Indonesia, majoring in Health Promotion, graduating in 2015. The author also studied health sciences and completed his Strata 1 education at Widyagama University, Faculty of Public Health, graduating in 2016. The author received a scholarship from the Mutiara Mahakam Midwifery Academy Foundation for further studies in the S-2 Public Health Science and S-

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Working Experiences:

1. October 5, 2022. The costumers awarenes toward water supply and service management provided by be'e Timor-Lesté.
2. October 7, 2022. The agricultural value chain improvements' particpation in Timor-Lesté.
3. The influence of the experience auditor and the professional ethics of auditor towards the quality auditing *(At the office of Inspeção Geral do Estado, Dili Timor-Lesté).*
4. In 2015, did a research on the concept of a strategy to diversify the economy in the non-petroleum sector.

5. In 2014, did a research on thesis / analysis of Doctorate entitled: Understanding Organizational Learning, external environment and the image of private tertiary institutions on the performance of private higher education institutions through the competence of private higher education institutions as a variable intervention in Timor-Leste.
6. In 2015, did a research on the concept of influence interested, capital, job hunting, toward entrepreneurship on industrial brick business (case study: Dili Market)
7. In 2008, an investigation was conducted on the title: the effect of the development of salary on employee motivation to increase employee satisfaction on work in CCT Company.
8. In 2009, did cooperation between UNPAZ and Melbourne University, Australia worked on research on violence and poverty from the post-conflict in Timor-Leste.
9. In 2010, did cooperation between UNPAZ and TAB University from America, on International Democracy and INSIGHT INGO supported USAID and conducted a research on the culture value and its profile in Timor-Leste.
10. In 2011, UNPAZ and INSIPRET did cooperation on community prevention by doing a research regarding the performance of the Timor-Leste National Police.
11. The effect of organization learning, external emvironment and image of private universities towards the proformance of private universities' competency as an intervening variable in Timor-Lesté.
12. Career development, salary and employee/staff motivation influence on job satisfaction in Timor cooperativa café *(company CCT, Timor-Lesté.*

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