Introduction to Community Medicine or, Preventive Medicine & Public Health

**Community Medicine:** Is the science that concerns with the promotion of health, prevention, control, and management of diseases, disabilities, and other health problems in the community.

It is the branch of medicine that deals with community rather than individual.

**Public Health:** Is the combination of sciences, skills, and beliefs directed toward maintenance and improvement of health of all people through collective or social actions.

The mission of Public Health is to assure conditions in which people can live healthy. Its efforts are organized by comprehensive activities of society. The society must balance illness care with wellness care in order achieve definition of health "Complete physical, mental and social wellbeing and not merely the absence of disease or infirmity-WHO 1948". Then add spiritual, and in recent years the statement is amplified to include the ability to lead a socially and economically productive life.

**Aims of Preventive Medicine Specialty**

1. Promote and preserve health and longevity in individuals and community by adoption of healthy life style and health education.
2. Prevent and limit diseases, injuries, and other ill health effects.
3. Enhance quality of health care system and assure that all populations have access to appropriate and cost effective care.
4. Use epidemiology to assess and monitor the health of communities and populations at high risk to identify health problems.

**Prevention:** Is the anticipatory action taken to reduce the possibility of an event or condition occurring or developing, or to minimize the damage that may result from the event or condition if it does occur.

Prevention may take place at any point along the spectrum of the disease, from the prevention of the disease or injury to the prevention of impairment, disability or dependency.

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<th>Disease or injury</th>
<th>Impairment</th>
<th>Disability</th>
<th>dependence</th>
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<td><img src="#" alt="Primary prevention" /></td>
<td><img src="#" alt="Secondary prevention" /></td>
<td><img src="#" alt="Tertiary prevention" /></td>
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Three categories of disease prevention:

1- **Primordial prevention**: (Acting on risk factor) consists of actions and measures that inhibit the emergence of risk factors in the form of environmental, economic, social, and behavioral conditions and cultural patterns of living etc.

2- **Primary prevention**: (Acting before disease occurrence) Activities designed to prevent onset of disease. We act before the development of the sign and symptoms of the disease. Ex: Immunization, ban on smoking, speed limit, seat belts.

3- **Secondary prevention**: (Acting after disease occurrence) Early identification of health problems to reduce the risk of progression or transmission. Ex: Early diagnosis of HT, DM, cervical CA, breast CA, STD.

4- **Tertiary prevention**: (Acting after complications occurrence) Focused on rehabilitation to reduce the impairment. Ex: Learning to walk after stroke, adjusting diet and lifestyle after MI, learning to live with DM.

So, prevention is any intervention that seeks to reduce or eliminate diagnosable conditions and may be applied at individual level, as in immunization, or the community level, as in the chlorination of the water supply.

**History of public Health**

"An ounce of prevention is worth than a pound of cure"

Henry De Bracton, 1240

In many ways, Public Health is largely a modern concept, although it has roots in antiquity. The value of primary prevention was known to mankind for many centuries. Unfortunately, even today its benefits are not always recognized due to preoccupation with high tech modern medicine.

Early in human civilization, it was recognized that polluted water and lack of proper waste disposal may spread vector-born disease. By Roman times, it was well understood that proper diversion of human waste was a necessary tenet of public health in urban areas.

The practice of vaccination did not become prevalent until the 1820s, following the work of Edward Jenner. The science of epidemiology was found by John Snow's identification of polluted public water as the cause of an 1854 cholera outbreak in London.

Microorganisms were first identified in 1880s by the germ theory of Robert Koch and Louis Pasteur and the production of artificial vaccines revolutionized the study of infectious diseases and introduced the modern era of public health.

Public Health has become an important specialty in developed countries in the early of 19th century. The development of public health policies and programs required intersectoral collaboration to understand the cause and prevention of diseases.
Medicine is one of the most ancient professions that evolved over time and developed further by different civilization. Until the 18th century all the doctors were general medical practitioners who treat all people from all diseases. The 20th century has witnessed a real revolution of medicine and considered as the era of specialization in medicine.

The 4 major medical specialties of "curative medicine": General Medicine, General Surgery, Pediatrics, and gynecology & Obstetrics have paved the way for more and more specialties later on. The Preventive (Community) Medicine have stand hand by hand with other specialties concentrating more on preventive aspects and act as bridge between practice of medicine and Public Health.

**Family Medicine** as specialty was recognized in Europe and America in the 1950s. Although it is new and modern specialty, some may see it as the father of all medical specialties as it resembles the general medical practitioner. The benefits of incorporating prevention into medical practice have become increasingly apparent over the past 30-40 years, as many serious diseases have decline in incidence following the introduction of effective clinical preventive services: Ex: Poliomyelitis which occur in regular epidemic waves (over 18300 cases in 1954), have become rare in the USA as well as many other countries as a results of childhood vaccination. Other Ex: Rubella epidemics occurred regularly in the USA every 6-9 years (in 1964 caused 12 million rubella infections, 11000 fetal losses and about 20000 infants born with congenital rubella syndrome. But now rubella is very rare since 1969 when the vaccine first became available.

**Evidence Based Medicine (EBM)** was first described in 1992. It was hailed as a new approach to teaching medicine and was once describe as "revolution" in the medical practice. EBM is defined as the conscientious, explicit, and judicious use of current best available evidence in making decision about the care of the patients. The practice of EBM calls for the integration of individual clinical expertise with the best available external evidence from systemic researches.

**Preventive Medicine sciences:** Include a set of biological, epidemiological, statistical, social, and economical sciences and practices intended to measure, protect, and promote health on a population level. It provides an exciting opportunity for physicians who are interesting in developing and intermingling skills in clinical and preventive health services to promote health and reduce the risks of disease, disability, and death in individual and population.

**Issues of Preventive Medicine**

1. General Epidemiology & biostatistics: Measures the occurrence and distribution of diseases in population.

2. Primary Health Care, Includes:
   - Health education.
   - Maternal and child health care including family planning.
   - Mental health.
Accidents and injuries.
Geriatric Health
3. Nutritional Health Nutritional Disorders.
5. Health Services Administration.
6. Infectious Diseases.
7. Non-Communicable Diseases e.g. HT, DM.

Public Health Problems
1. In Developing Countries:
   - Infectious diseases e.g. TB, malaria…etc.
   - Malnutrition.
   - Poor health education.
   - Limit access to health services.
   
   ((Problems associated with poverty and overcrowding))
2. In Developed Countries:
   - Chronic diseases e.g. IHD, HT, DM…etc.
   - Over nutrition and obesity.
   - Violence and drug addiction.
   - Sexually transmitted diseases (STD)
   - Environmental pollution e.g. air pollution, ozone layer depletion…etc.

   ((Problems associated with industrialization, affluence, aging, violence, and medical intervention))