

Prevention and Control

“Prevention is better than cure”

Prevention

- The goals of medicine are to promote health, to preserve health, to restore health when it is impaired, and to minimize suffering and distress.
- These goals are embodied in the word "prevention"

Prevention; Definition and Concept

- **Actions** aimed at **eradicating, eliminating** or **minimizing** the **impact of disease** and **disability**, or if none of these are feasible, retarding the progress of the disease and disability.
- In modern day, the concept of prevention has become broad-based. It has become customary to define prevention in terms of four levels:
 - **primordial prevention**
 - **primary prevention**
 - **secondary prevention**
 - **tertiary prevention**

Determinants of Prevention

- Successful prevention depends upon:
 - a knowledge of causation,
 - dynamics of transmission,
 - identification of risk factors and risk groups,
 - availability of prophylactic or early detection and treatment measures,
 - an organization for applying these measures to appropriate persons or groups, and
 - continuous evaluation of and development of procedures applied

Primordial prevention

- Primordial prevention 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.
- It is the **prevention** of the **emergence** or **development** of **risk factors** in countries or population groups in which they have **not yet appeared**
- For example, many adult health problems (e.g., **obesity**, **hypertension**) have their early origins in childhood, because this is the time when lifestyles are formed (for example, smoking, eating patterns, physical exercise).
- In primordial prevention, efforts are directed towards discouraging children from adopting harmful lifestyles
- The main **intervention** in primordial prevention is through **individual and mass education**

Primary prevention

- Primary prevention can be defined as the action taken **prior to the onset of disease**, which removes the possibility that the disease will ever occur.
- It signifies **intervention in the pre-pathogenesis phase** of a disease or health problem.
- Primary prevention may be accomplished by measures of "Health promotion" and "specific protection"
- It includes the concept of "**positive health**", a concept that encourages achievement and maintenance of "an acceptable level of health that will enable every individual to lead a socially and economically productive life".
- Primary prevention may be accomplished by measures designed to **promote** general **health** and well-being, and quality of life of people or by **specific protective measures**

Primary prevention

Achieved by

Health promotion

- Health education
- Environmental modifications
- Nutritional interventions
- Life style and behavioral changes

Specific protection

- Immunization and seroprophylaxis
- chemoprophylaxis
- Use of specific nutrients or supplementations
- Protection against occupational hazards
- Safety of drugs and foods
- Control of environmental hazards, e.g. air pollution

Approaches for Primary Prevention

- The WHO has recommended the following approaches for the primary prevention of **chronic diseases** where the risk factors are established:
 - **a. Population (mass) strategy**
- Directed at the whole population **irrespective of individual** risk levels.
- For example, studies have shown that even a small **reduction** in the average **blood pressure** or **serum cholesterol** of a population would produce a large **reduction** in the incidence of **cardiovascular disease**
- The population approach is directed towards socio-economic, behavioral and lifestyle changes
 - **b. High -risk strategy**
- Aims to bring **preventive care** to **individuals** at **special risk**.
- This requires detection of individuals at high risk by the optimum use of clinical methods.

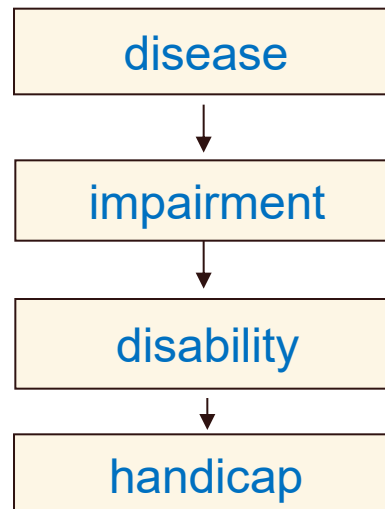
Secondary prevention

- It is defined as “ action which **halts the progress of a disease** at its incipient stage and **prevents complications.**”
- The specific **interventions** are: **early diagnosis** (e.g. screening tests, and case finding programs....) and adequate **treatment.**
- Secondary prevention attempts to arrest the disease process, restore health by seeking out unrecognized disease and treating it before irreversible pathological changes take place, and reverse communicability of infectious diseases.
- It thus protects others from in the community from acquiring the infection and thus provide at once secondary prevention for the infected ones and primary prevention for their potential contacts.

Tertiary prevention

- It is used when the disease process has advanced beyond its early stages.
- It is defined as “all the **measures** available **to reduce or limit impairments and disabilities**, and to **promote** the patients’ **adjustment to irremediable** conditions.”
- **Intervention** that should be accomplished in the stage of tertiary prevention are **disability limitation**, and **rehabilitation**.

Disability limitation:

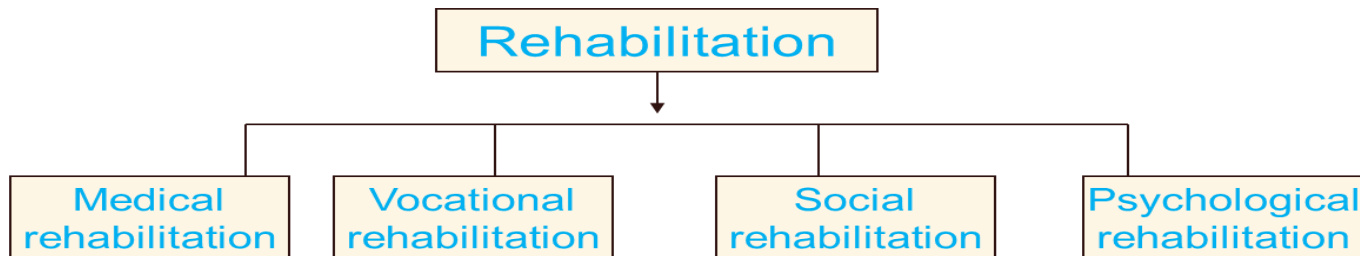


Impairment: is “any loss or abnormality of psychological, physiological or anatomical structure or function.”

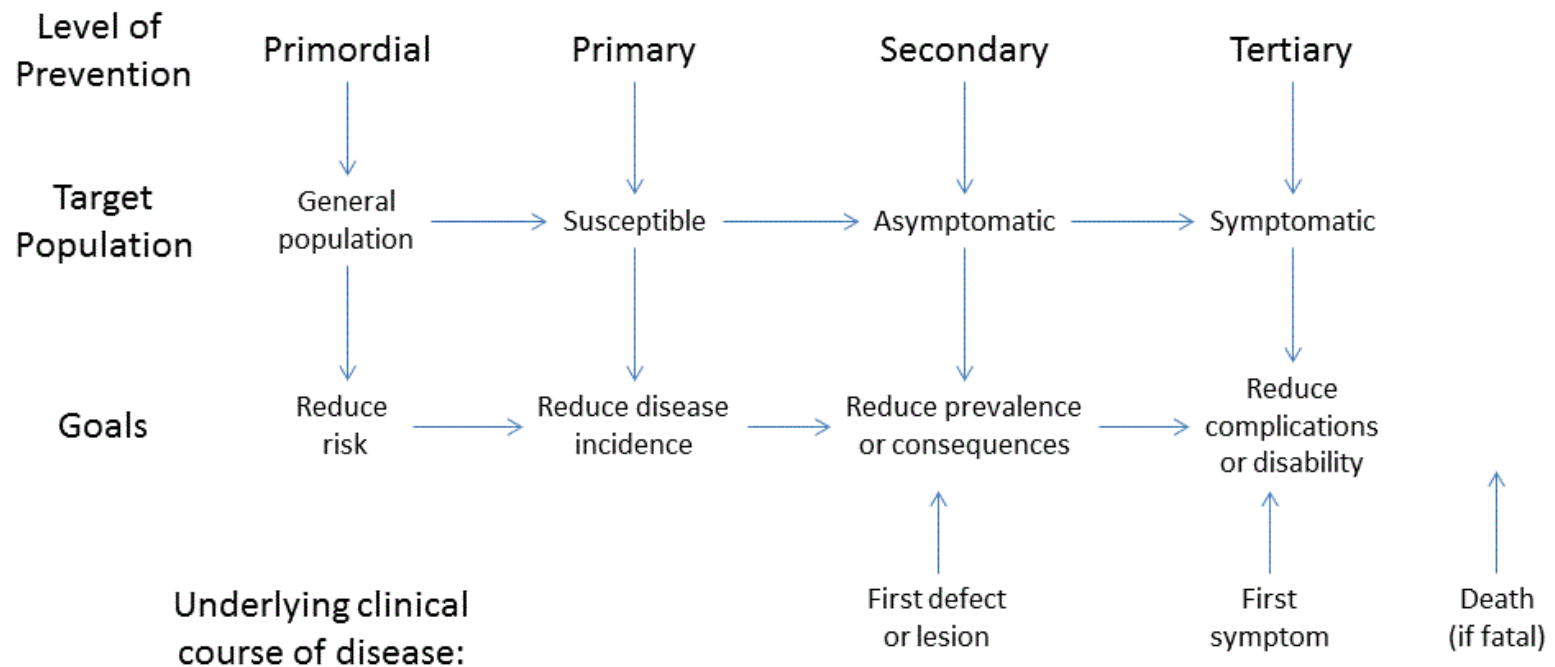
Disability: is “any restriction or lack of ability to perform an activity in the manner or within the range considered normal for the human being.”

Handicap: is termed as “a disadvantage for a given individual, resulting from an impairment or disability, that limits or prevents the fulfillment of a role in the community that is normal (depending on age, sex, and social and cultural factors) for that individual.”

Rehabilitation: is “ the combined and coordinated use of medical, social, educational, and vocational measures for training and retraining the individual to the highest possible level of functional ability.”

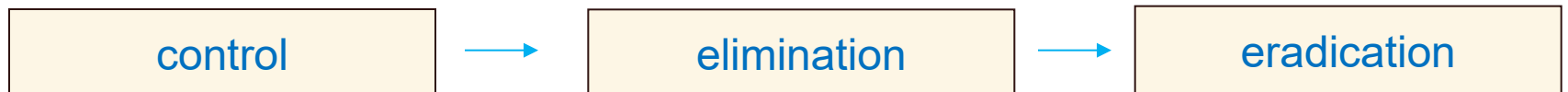


A Classification of Preventive Strategies



Control

- **Concept of control:** The term disease control describes ongoing **operations aimed at reducing:**
 - The incidence of disease
 - The duration of disease and consequently the risk of transmission
 - The effects of infection, including both the physical and psychosocial complications
 - The financial burden to the community.
- Control activities focus on primary prevention or secondary prevention, but most programs combine both.



Disease Elimination

- Between control and eradication, an intermediate goal has been described, called "regional elimination"
- The term "elimination" is used to describe interruption of transmission of disease, as for example, elimination of measles, polio and diphtheria from large geographic regions or areas
- Regional elimination is now seen as an important precursor of eradication

Disease Eradication

- Eradication literally means to "tear out by roots".
- It is the process of "Termination of all transmission of infection by extermination of the infectious agent through surveillance and containment".
- Eradication is an absolute process, an "all or none" phenomenon, restricted to termination of an infection from the whole world. It implies that disease will no longer occur in a population.
- To-date, only one disease has been eradicated, that is **smallpox**.

Surveillance

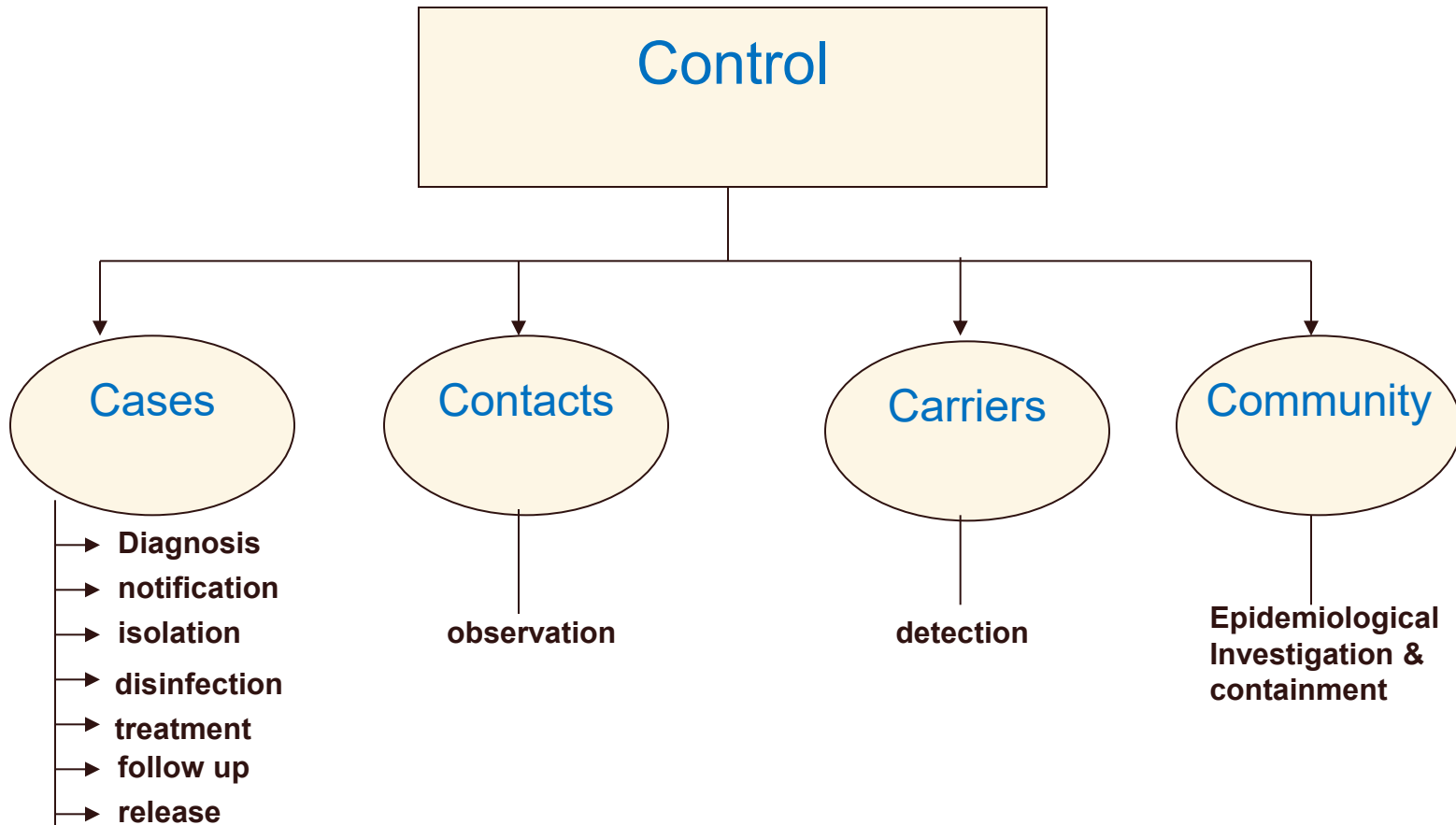
surveillance means to watch over with great attention, authority and often with suspicion

According to another, surveillance is defined as "the continuous scrutiny (inspection) of the factors that determine the occurrence and distribution of disease and other conditions of ill-health"

- **The main objectives of surveillance are:**

- **(a)** to provide information about new and changing trends in the health status of a population, e.g., morbidity, mortality, nutritional status or other indicators and environmental hazards, health practices and other factors that may affect health
- **(b)** to provide feed-back which may be expected to modify the policy and the system itself and lead to redefinition of objectives
- **(c)** provide timely warning of public health disasters so that interventions can be mobilized.

Control of infectious diseases (the 4 “C”s)



Evaluation of control

- Evaluation is the process by which results are compared with the intended objectives, or more simply the assessment of how well a program is performing.
- Evaluation should always be considered during the planning and implementation stages of a program or activity.
- Evaluation may be crucial in identifying the health benefits derived (impact on morbidity, mortality, sequelae, patient satisfaction).
- Evaluation can be useful in identifying performance difficulties.
- Evaluation studies may also be carried out to generate information for other purposes, e.g., to attract attention to a problem, extension of control activities, training and patient management, etc.