

CONCEPTS OF PREVENTION

"The goals of medicine are embodied in the word
PREVENTION"

GOALS OF PREVENTION

The main goals are:

- To promote health
 - To preserve health
 - To restore health when it is impaired
 - To minimize suffering and distress
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SUCCESSFUL PREVENTION DEPENDS ON

Successful prevention requires:

- Knowledge of causation
- Understanding dynamics of transmission

- Identification of risk factors & risk groups
 - Availability of prophylactic measures or early detection & treatment
 - Presence of an organized health system
 - Continuous evaluation and improvement of applied procedures
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LEVELS OF PREVENTION

Prevention operates at four levels, depending on the stage of disease.

OVERVIEW FLOWCHART

Health

- Primordial prevention → Prevent emergence of risk factors
- Primary prevention → Prevent disease occurrence

- Secondary prevention → Prevent complications & disability
- Tertiary prevention → Limit disability & rehabilitate

Death (if prevention fails)

LEVELS OF PREVENTION - CONCEPTUAL FRAMEWORK

Primordial Prevention

Risk factors → Absent

Disease → Absent

Disability → Absent

Mode of intervention:

→ Education to prevent emergence of risk factors

Primary Prevention

Risk factors → Present

Disease → Absent

Disability → Absent

Mode of intervention:

→ Health promotion

→ Specific protection

Secondary Prevention

Risk factors → Present

Disease → Present

Disability → Absent

Mode of intervention:

→ Early diagnosis

→ Prompt treatment

Tertiary Prevention

Risk factors → Present

Disease → Present

Disability → Present

Mode of intervention:

→ Disability limitation

→ Rehabilitation

MODES OF INTERVENTION


Intervention is defined as:

→ Any attempt to interrupt the natural history of disease

PRIMORDIAL PREVENTION

Definition

Prevention of the emergence of risk factors in populations or countries where they have not yet appeared.

 Best level of prevention for Non-Communicable Diseases (NCDs)

MODES OF INTERVENTION IN PRIMORDIAL PREVENTION

- Individual & mass education
- Modification of social and environmental conditions
- Discouraging children from adopting harmful lifestyles

 Focus is on future generations

POSITIVE HEALTH ✨

Positive health refers to:

- Promotion and maintenance of an acceptable level of health

→ Enables individuals to live a socially and economically productive life

 Health is seen as a resource, not merely absence of disease.

PRIMARY PREVENTION

Definition

Action taken before the onset of disease, which removes the possibility that a disease will ever occur.

- Intervention during pre-pathogenic phase
- Promotion of positive health

 Especially important for chronic diseases:

- Cardiovascular diseases
 - Diabetes mellitus
 - Hypertension
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PRIMARY PREVENTION IS A HOLISTIC APPROACH

It relies on:

- Health promotion
 - Specific protection
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COMPONENTS OF PRIMARY PREVENTION

A. HEALTH PROMOTION

Definition:

“The process of enabling people to increase control over the determinants of health and to improve health.”

Key features:

- Directed towards strengthening the host
 - Not aimed at any specific disease
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HEALTH PROMOTION - MAJOR ELEMENTS

1. Health Education

Target groups:

- General public
 - Patients
 - Priority groups
 - Health care providers
 - Community leaders
 - Decision makers
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2. Environmental Modifications

- Safe drinking water
 - Sanitary toilets
 - Control of insects & rodents
 - Improved housing
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3. Nutritional Interventions

- Food distribution
 - Nutritional support to vulnerable groups
 - Child feeding programs
 - Food fortification
 - Nutrition education
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4. Lifestyle & Behavioral Changes

- Paramount importance in changing:
 - Attitudes
 - Behaviors
 - Habits

 Central to prevention of NCDs

B. SPECIFIC PROTECTION

Measures aimed at preventing specific diseases.

Examples:

- Immunization against communicable diseases

- Adequate nutrition to prevent deficiency diseases
 - Chemoprophylaxis
 - Protection against occupational hazards → Masks, protective gear
 - Protection against accidents
 - Avoidance of allergens
 - Control of air & noise pollution
 - Safety of drugs and foods
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WHO-RECOMMENDED APPROACHES FOR PRIMARY PREVENTION (NCDs)

1. Population (Mass) Strategy

- Directed at entire population, irrespective of risk level

Focus areas:

- Socio-economic changes
- Behavioral changes
- Lifestyle modifications

Examples:

- Anti-smoking campaigns
 - Promotion of physical activity & healthy diet
 - Immunization drives
 - Mental health awareness programs
 - Sun-safety campaigns
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2. High-Risk Strategy

- Targets individuals with special or increased risk

Examples:

- Genetic screening programs
- Cancer risk assessment
- HIV pre-exposure prophylaxis
- Smoking cessation programs
- Obesity management in high-risk groups
- Screening for osteoporosis (postmenopausal women)
- Diabetic retinopathy screening
- Focused immunization of vulnerable groups

📌 EXAM POINTS ★

- Primordial = risk factors not yet present
- Primary = health promotion + specific protection
- Secondary = screening + early treatment
- Tertiary = rehabilitation
- NCDs → Primordial + Primary prevention most effective

SECONDARY PREVENTION 🕒

Definition

Secondary prevention is defined as:

“Action which halts the progression of disease at its incipient stage and prevents complications.”

KEY FEATURES OF SECONDARY PREVENTION 📌

- Largely a domain of clinical medicine
 - More expensive and less effective than primary prevention
 - Involves early diagnosis and prompt treatment
 - Critical in reducing morbidity/mortality
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WHO DEFINITION OF EARLY DETECTION (1973)

Early detection of health disorders is:

“The detection of disturbances of homeostasis and compensatory mechanisms while biochemical, morphological and functional changes are still reversible.”

SECONDARY PREVENTION – STAGE OF INTERVENTION

- Pre-pathogenesis ✗
- Early pathogenesis ✓
- Late pathogenesis ✗

SPECIFIC INTERVENTIONS IN SECONDARY PREVENTION

1. SCREENING TESTS

Used to detect disease before symptoms appear.

Examples:

- Breast self-examination
- Pap smear test
- Blood pressure monitoring
- Radiological examinations
- Urine examination for diabetes mellitus

2. DIAGNOSTIC TESTS

Confirm disease in suspected cases.

Examples:

- Sputum smear for AFB (Tuberculosis)
- Peripheral smear for malarial parasite

3. RADIOLOGICAL EXAMINATION & CASE FINDING

→ Identification of cases

→ Prompt treatment to prevent complications

Example:

→ DOTS (Directly Observed Treatment - Short Course) for TB

MASS TREATMENT

Definition

Mass treatment refers to treatment of the entire population or large groups, irrespective of individual disease status.

USES OF MASS TREATMENT

Used in control of:

→ Yaws

→ Trachoma

→ Filariasis

RATIONALE OF MASS TREATMENT

Clinical cases = 1

Latent infections = 4-5

Flow concept:

Clinical case → Multiple latent infections in community →

Latent cases may later develop disease → Mass treatment breaks transmission

TERTIARY PREVENTION

DEFINITION

Tertiary prevention signifies intervention at the late pathogenesis stage and is defined as:

“All measures available to reduce or limit impairments and disabilities, minimize suffering caused by existing departure from good health, and promote the patient’s adjustment to irremediable conditions.”

KEY POINTS ★

- Extends prevention into the field of rehabilitation
 - Aims at quality of life improvement
 - Disease is already established
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CONCEPT OF DISABILITY LIMITATION

SEQUENCE

Disease → Impairment → Disability → Handicap

📌 Objective → Prevent progression from impairment → disability → handicap

DEFINITIONS 📖

Impairment

Loss or abnormality of:

- Psychological
 - Physiological
 - Anatomical structure or function
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Disability

- Restriction in ability to perform a function
 - Resulting from an impairment
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Handicap

- Social disadvantage
 - Limits or prevents fulfillment of a normal role
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TERTIARY PREVENTION - INTERVENTIONS

Interventions include:

- Disability limitation
 - Adequate medical treatment
 - Rehabilitation
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REHABILITATION

Definition

“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.”

AIM OF REHABILITATION

- Restore lost skills
 - Achieve maximum self-sufficiency
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CLINICAL COURSE OF DISEASE

Onset of disease

- Signs & symptoms
 - Series of consequences
 - Impairment
 - Disability
 - Handicap
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DISEASE - ILLNESS - SICKNESS (SOCIOLOGICAL TRIAD)

Disease

- What the doctor diagnoses and treats
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Illness

- Patient's subjective experience
 - Feelings due to bodily changes
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Sickness

- Socially defined condition
- Role assigned by society to a diseased person

 *Very common short note / viva question.*

LEVELS OF PREVENTION – COMPARATIVE SUMMARY

PRIMARY PREVENTION

- Implemented before disease occurs
- Aim: Reduce or eliminate risk factors

Example:

- Encourage exercise & healthy diet to prevent obesity
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SECONDARY PREVENTION

→ Implemented after disease has begun but before symptoms

→ Aim: Early detection & treatment

Example:

→ BMI screening during routine health checkups

TERTIARY PREVENTION

→ Implemented after disease is established

→ Aim: Prevent complications & sequelae

Example:

→ Weight reduction in obese individuals to prevent severe outcomes

QUIZ

Q1. A community health worker provides vaccines in an immunization clinic?

✓ Primary Prevention (Specific protection)

Q2. A hospital offers yearly cholesterol screening to the public?

✓ Secondary Prevention (Screening)

Q3. Mr. X is referred to cardiac rehabilitation after CABG surgery?

✓ Tertiary Prevention (Rehabilitation)

EXAM POINTS

- Screening = Secondary prevention
 - Rehabilitation = Tertiary prevention
 - Mass treatment = Secondary prevention
 - Disease → impairment → disability → handicap
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-> The End <-