

DEPARTMENT OF PREVENTIVE AND SOCIAL MEDICINE



DISEASE PREVENTION AND
CONTROL

GSVM MEDICAL COLLEGE

Disease - Prevention



- ◎ Activities designed to protect patients and other members of the public from actual or potential health threats and their harmful consequences.

from: Mosby's Medical Dictionary, 8th edition 2009.

Levels of Prevention

◎ 4 levels

1. Primordial prevention
2. Primary prevention
3. Secondary prevention
4. Tertiary prevention

Primordial Prevention

- ⦿ Prevention of emergence or development of risk factors in countries or population groups in which they have not yet appeared.
- ⦿ INTERVENTION: Individual and mass education.
- ⦿ EXAMPLES: National programmes and policies on
Food and nutrition
Against smoking and drugs
To promote regular physical exercise

Primary Prevention

- Action taken prior to onset of disease, which removes the possibility that a disease will ever occur.
- INTERVENTION: Prepathogenesis stage of disease.
- MODES OF INTERVENTION: Health promotion and Specific protection

Secondary Prevention

- ⦿ Action which halts the progress of the disease at its incipient stage and prevents complication.
- ⦿ INTERVENTION: Early pathogenesis stage
- ⦿ MODES OF INTERVENTION: Early diagnosis and Adequate/prompt treatment.

Tertiary Prevention

- All measures available to reduce or limit impairments and disabilities and minimize suffering caused by existing departures from good health and to promote the patients adjustment to irremediable conditions.
- INTERVENTION: Late pathogenesis stage
- MODES OF INTERVENTION: Disability limitations and Rehabilitation

Disease - Control

- ① Disease control is reducing the transmission of disease agent a low level that it ceases to be a public health problem.
- ① It describes operations aimed at reducing-
 1. The incidence of disease.
 2. The duration of disease, and consequently the risk of transmission.
 3. The effects of infection, including both the physical and psychosocial complications.
 4. The financial burden of the community.

Disease control involves-

◎ Controlling the reservoir

1. Early diagnosis
2. Notification
3. Epidemiological investigations
4. Isolation
5. Quarantine

◎ Interruption of transmission

◎ The susceptible host

1. Active immunization
2. Passive immunization
3. Combined passive and active immunization
4. Chemoprophylaxis
5. Non specific measures

Early diagnosis

◎ Needed for-

1. Treatment of patient
2. Epidemiological investigation for ex to trace the source of infection from the known or index case to the unknown.
3. To study the time, place and person distribution.
4. For the institution of prevention and control measures.



Notification

◎ Once a infectious disease has been detected or suspected is should be notified to local health authority.

◎ Disease under surveillance by WHO

- | | |
|-----------------------------|-------------------|
| 1. Louse borne-typhus fever | 5 relapsing fever |
| 2. Paralytic polio | 6 malaria |
| 3. Viral influenza A | 7 SARS |
| 4. small pox | |

◎ Disease under International Health Regulation(IHR)-
Cholera, Plague and Yellow fever.

Epidemiological Investigation

- ◎ The outbreak investigation helps to identify-
 1. The source of infection
 2. Factors influencing the Spread.
- ◎ These may include
 1. Geographical situations
 2. climatic condition, social and behavioral patterns
 3. The character of the agent , reservoir, the vector and vehicles and susceptible host population.

Isolation

- ⦿ *Separation for the period of communicability of infected persons or animals from others in such places and under such conditions, as to prevent or limit the direct or indirect transmission of the infectious agent from infected to susceptible.*
- ⦿ The duration of isolation depends on duration of communicability of disease and effect of chemotherapy on infectivity .
- ⦿ **E.g. chicken pox until all lesions crusted ,usually about 6 days after onset of rash.**

Treatment

- ◎ The objectives of treatment are-
 1. To kill the infectious agent when it is still in the reservoir before it is disseminated.
 2. Reduce the communicability of disease.
 3. Cut short the duration of illness and
 4. Prevent development of secondary cases

Quarantine

- ⦿ Defined as “ the limitation of freedom of movement of such well person or domestic animal exposed to communicable disease for a period of time not longer than the longest usual incubation period of disease in such manner as to effective contact with those not so exposed”
- ⦿ 3 types-
 - Absolute
 - Modified
 - Segregation

Interruption of transmission

- Means changing some components of man's environment to prevent the infective agent from a patient or carrier from entering the body of susceptible person.
- E.g. simple chlorination to complex water treatment will prevent water borne disease.
- Vector control.
- Personal hygiene.

Active & Passive Immunization

- ◎ Active - strengthening of host defence ; control of some infectious disease is solely based on active immunization-
e.g. polio , tetanus, diphtheria and measles.

- ◎ Passive – 3 types of preparations are available
 1. Normal human Ig
 2. Specific (hyperimmune) human immunoglobulin
 3. Antisera or antitoxin

NATIONAL IMMUNIZATION SCHEDULE

National Immunization Schedule (NIS) for Infants, Children and Pregnant Women (India)

Vaccine	When to give	Dose	Route	Site
For Pregnant Women				
TT-1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT-2	4 weeks after TT-1 *	0.5 ml	Intra-muscular	Upper Arm
TT-Booster	If received 2 TT doses in a pregnancy within the last 3 years*	0.5 ml	Intra-muscular	Upper Arm
For Infants				
BCG	At birth or as early as possible till one year of age	0.1 ml (0.05 ml until 1 month age)	Intra-dermal	Left Upper Arm
Hepatitis B	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
OPV-0	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks	2 drops	Oral	Oral
DPT 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks	0.5 ml	Intra-muscular	Antero-lateral side of mid thigh
Hepatitis B 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles	9 completed months-12 months. (give up to 5 years if not received at 9-12 months age)	0.5 ml	Sub-cutaneous	Right upper Arm
Vitamin A (1st dose)	At 9 months with measles	1 ml (1 lakh IU)	Oral	Oral
For Children				
DPT booster	16-24 months	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
OPV Booster	16-24 months	2 drops	Oral	Oral
Measles (2nd dose)	16-24 months	0.5 ml	Sub-cutaneous	Right upper Arm
Japanese Encephalitis **	16-24 months with DPT/OPV booster	0.5 ml	Sub-cutaneous	Left Upper Arm
Vitamin A*** (2nd to 9th dose)	16 months with DPT/OPV booster. Then, one dose every 6 months up to the age of 5 years.	2 ml (2 lakh IU)	Oral	Oral
DPT Booster	5-6 years	0.5 ml.	Intra-muscular	Upper Arm
TT	10 years & 16 years	0.5 ml.	Intra-muscular	Upper Arm

Chemoprophylaxis

- ⦿ Implies the protection from, or prevention of, disease.
- ⦿ Achieved by –
 1. Causal prophylaxis-early elimination of invading or migrating causal agent.
 2. Clinical prophylaxis- prevention of clinical symptom.

Non specific measures

- Mainly interrupt pathways of transmission.
- Improvements on the Quality of Life (eg better housing, water supply, nutrition, education)
- Formulation of legislative measures and integrated program.
- Have played a dominant role in decline of diseases like TB, Cholera, Leprosy and Child Mortality.

Surveillance

- ◎ SURVEILLANCE must follow control measures.

Defined as “the continuous scrutiny of all aspects of occurrence and spread of disease that are pertinent to effective control.”

- ◎ The ultimate objective of surveillance is “PREVENTION”.

Types of surveillance

◎ 4 types

1. Individual surveillance- surveillance of infected person until they are no longer a significant risk to other individual..
2. Local population surveillance- surveillance of malaria.
3. National population surveillance- surveillance of small pox after it has been eradicated.
4. International surveillance- WHO maintains surveillance of important diseases like influenza, malaria ,polio.

THANK YOU