

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the name of **ALLAH**
the most Beneficent and the most merciful



COMMUNICABLE DISEASES-6

TUBERCULOSIS

TUBERCULOSIS

- Tuberculosis is a specific infectious disease, caused by *M. tuberculosis*. The disease primarily affects the lungs and causes pulmonary tuberculosis
- It can also affect other tissues like intestines, meninges, bones/joints, lymph glands, skin etc.

TUBERCULOSIS

- The disease is usually chronic with varying clinical manifestations
- The disease also affects animals like cattle: this is known as '*bovine tuberculosis*', which may sometimes be transmitted to man

TUBERCULOSIS

- Tuberculosis remains a world-wide public health problem, despite that highly effective drugs and vaccine are available making it a preventable and curable disease
- Most new cases and deaths occur in the developing countries

TUBERCULOSIS

- During the year 2008, there were an estimated 9.4 million incident cases and 11.1 million prevalent cases of the disease and 1.8 million deaths globally
- Most new cases and deaths occur in the developing countries, where infection is often acquired in childhood

TUBERCULOSIS

- Childhood deaths from tuberculosis are usually caused by meningitis or disseminated disease.
- As far the age group is concerned, 8 out of 10 of all those struck by tuberculosis are in economically productive age group of 15-49 years

TUBERCULOSIS

- It is estimated that about one third of the current global population is infected with Tuberculosis asymptomatically, of whom 5-10% will develop clinical disease during their lifetime

TUBERCULOSIS

- Pakistan is fifth among the list of TB affected countries of the world
- 500,000 cases of tuberculosis are reported annually in Pakistan
- While the deaths occurring due to tuberculosis annually in Pakistan are 65,000

TUBERCULOSIS

TB DOTS

It is a strategy, recommended by Pakistan National Tuberculosis Control Program (PNTCP) and WHO, and includes:

- ❖ Commitment of the government & all concerned
- ❖ Diagnosis by sputum smear microscopy

TUBERCULOSIS

(TB DOTS)

- ❖ Treatment with standardized regimens, by a doctor trained in TB DOTS, including direct observation of treatment in the intensive phase for all new smear positive cases & during the whole of a re-treatment regimen
- ❖ Un-interrupted supply of drugs, to the patient from the nearest facility

TUBERCULOSIS

(TB DOTS)

- ❖ Standardized recording, reporting and monitoring of outcome of treatment

*Globally, the **DOTS** strategy has been recognized as the best cost-effective approach to tuberculosis control. It is now presented as “**Stop TB Strategy**”*

TUBERCULOSIS

ADVANTAGES OF DOTS

- a) Accuracy of diagnosis is more than doubled
- b) Treatment success rate is up to 95 %
- c) Prevents the spread of TB infection, thus reducing its incidence and prevalence

TUBERCULOSIS

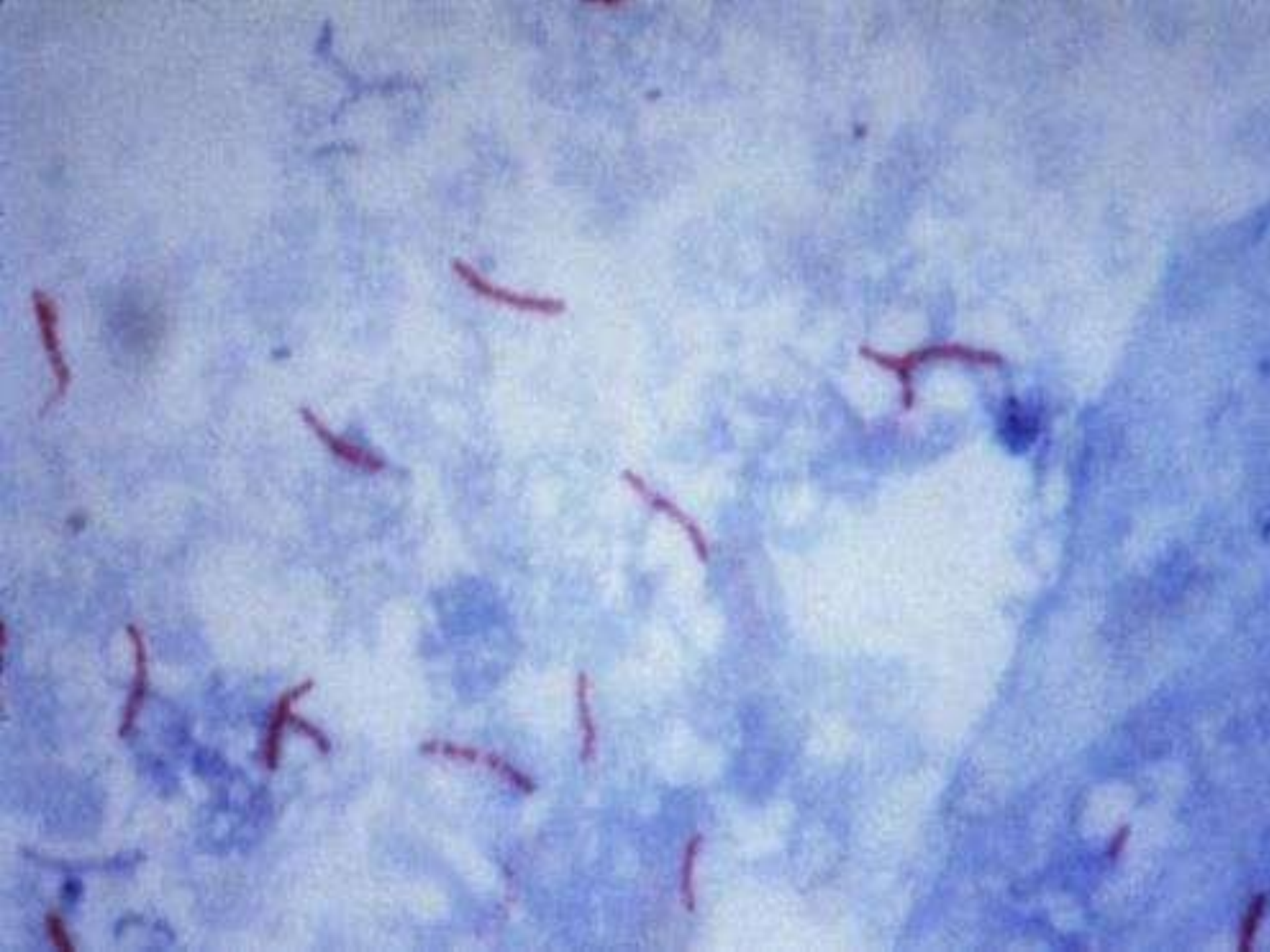
ADVANTAGES OF DOTS

- d) Removes stigma associated with TB
- e) Prevents failure of treatment & multi drug resistant (MDR)-TB
- f) Helps alleviate poverty in several ways
- g) Lends credibility to TB control efforts

TUBERCULOSIS-SOME DEFINITIONS

Case of Tuberculosis: A patient in whom tuberculosis has been confirmed by bacteriology or diagnosed by a clinician

Sputum smear examination: Laboratory technique to screen sputum for tuberculosis, where AFB are stained, identified and counted using microscopy



TUBERCULOSIS-SOME DEFINITIONS

Smear positive Tuberculosis: At least one initial sputum smear positive for AFB

Smear negative tuberculosis: At least two negative smears, but tuberculosis suggestive symptoms and X-ray abnormalities or positive culture

TUBERCULOSIS-SOME DEFINITIONS

Compliance: Person takes appropriate drug regimen for required time

New case: A patient with sputum positive pulmonary tuberculosis who has never had treatment for TB or has taken anti-tuberculosis treatment for less than 4 weeks

TUBERCULOSIS-SOME DEFINITIONS

Relapse: A patient who returns smear positive having previously been treated for TB and declared cured

Failure case: A patient who was initially smear positive, who began treatment and who remained or became smear positive again at five months or later during the course of treatment

TUBERCULOSIS-SOME DEFINITIONS

Return after default: A patient who returns sputum smear positive, after having left treatment for at least two months

Cured: Initially smear positive patient who completed treatment and had negative smear result on at least two occasions (one at treatment completion)

TUBERCULOSIS-SOME DEFINITIONS

Treatment completed: Initially smear negative patient who received full course of treatment, or smear positive who completed treatment, with negative smear at the end of initial phase, but no or only one negative smear during continuation phase and none at treatment end

TUBERCULOSIS-SOME DEFINITIONS

Transferred in: A patient recorded in another area register and transferred **into** another administrative area to continue treatment

Transferred out: Patient transferred out to another area

TUBERCULOSIS

AGENT FACTORS

(a) **AGENT:** *M. tuberculosis* is an intracellular parasite, that is, it is readily ingested by the phagocytes and is resistant to intracellular killing. Both, *human* and *bovine* strains are important to man. The human strain is responsible for the vast majority of cases.

TUBERCULOSIS

(AGENT FACTORS)

(b)SOURCE OF INFECTION: Human case is the commonest source. An estimated annual average of 10-15 persons contract infection from one case, which can discharge bacilli for years

TUBERCULOSIS

(AGENT FACTORS)

(c) COMMUNICABILITY: Patients are infective as long as they remain untreated. Effective anti-microbial treatment reduces infectivity by 90% *within 48 hours*

TUBERCULOSIS

HOST FACTORS

- (a) **AGE:** Tuberculosis affects all ages
- (b) **SEX:** More prevalent in males than in females
- (c) **HEREDITY:** It is not a hereditary disease

TUBERCULOSIS

(HOST FACTORS)

- (d) **NUTRITION:** Malnutrition is widely believed to predispose to tuberculosis
- (e) **IMMUNITY:** Man has no inherited immunity against tuberculosis. It is acquired as a result of natural infection or BCG vaccination.

TUBERCULOSIS-SOCIAL FACTORS

- TB is a social disease with medical aspects
- All of the following social factors contribute to the occurrence and spread of tuberculosis e.g. *poor quality of life, poor housing, population explosion, overcrowding, under nutrition, lack of education, large families, early marriages, lack of awareness of causes of illness etc.*

TUBERCULOSIS-TRANSMISSION

Tuberculosis is transmitted mainly by droplet infection and droplet nuclei generated by sputum positive patients with pulmonary TB. Coughing generates the largest number of droplets of all sizes. Tuberculosis is not transmitted by fomites such as dishes and other articles used by the patients

INCUBATION PERIOD

It may be in weeks, months or years

TUBERCULOSIS-CONTROL

It means reduction in the prevalence and incidence of TB in the community

- The control measures consist of a **curative** component - namely case finding and treatment; and a **preventive** component – BCG vaccination
- The most powerful weapon however, is the combination of case finding and treatment

TUBERCULOSIS

CASE FINDING: The first step in TB control program is early detection of *sputum positive cases* (a patient whose sputum is positive for tubercle bacilli). Persons with persistent cough are the most fertile group for case finding.

TUBERCULOSIS

Sputum Smear Examination: by direct microscopy is now considered the method of choice. This enables us to discover the epidemiologically most important cases of pulmonary TB, that is, those secreting tubercle bacilli in their sputum

TUBERCULOSIS-TREATMENT

The development of effective treatment for tuberculosis has been one of the most significant advances during last and this century. Chemotherapy is indicated in every case of active tuberculosis. The objective of treatment is CURE - that is, the elimination of TB bacilli from the patient's body.

TUBERCULOSIS

ANTI-TUBERCULOSIS DRUGS

Bactericidal Drugs: Rifampicin,
Pyrazinamide, INH, Streptomycin

Bacteriostatic Drugs: Ethambutol,
Thiacetazone

Second Line Drugs: Fluoroquinolones,
Ethionamide, Capreomycin, Kanamycin,
Amikacin, Cycloserine, Macrolides

TUBERCULOSIS

PATIENT COMPLIANCE is critically important: the patient must take the *correct drugs*, at the *correct dosage*, for the *correct length of time*. Incomplete treatment puts the patient at risk of relapse and the development of bacterial resistance and, importantly the community at risk of infection with resistant organisms

TUBERCULOSIS

DOTS CHEMOTHERAPY

DOTS is a strategy to ensure cure by providing the most effective medicines and confirming that these are taken, as advised. In **DOTS** during the *intensive phase* of treatment, a health worker or other trained person watches, as the patient swallows the drugs

TUBERCULOSIS

(DOTS CHEMOTHERAPY)

The consumption of medicines, is checked in the *continuation phase* also, by other means.

Thank you

