



TB Case Management in Practice - 2

Patient Care in the Out-patient Setting

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TB Nurse Case Managers use their nursing skills and knowledge of tuberculosis on a daily basis in the management of the TB patient

- The ability to critically assess the effectiveness of the patient's treatment plan is essential

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What the Guidelines Say

Treatment of Tuberculosis (ATS/CDC/IDSA) 2003

- Responsibility for successful treatment rests with private provider or public health program, not the patient
- Emphasis on patient-centered case management
- Development of an adherence plan that includes directly observed therapy (DOT)

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**TB** Diagnosing Pulmonary TB

- Medical history
- Physical examination
- Chest x-ray (PA and lateral)  
*Occasionally other: apical lordotic or oblique*
- Sputum specimens (= 3 specimens obtained 8-24 hrs apart, one being an early morning specimen) for AFB

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**TB** Antituberculosis Drugs Currently in Use

<b>First-Line Drugs</b>	<b>Second-Line Drugs</b>
• Isoniazid	• Streptomycin
• Rifampin	• Cycloserine
• Pyrazinamide	• p-Aminosalicylic acid
• Ethambutol	• Ethionamide
• Rifabutin*	• Amikacin or kanamycin*
• Rifapentine	• Capreomycin
	• Levofloxacin*
	• Moxifloxacin*

\* Not approved by the U.S. Food and Drug Administration for use in the treatment of TB.

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**TB** Regimen for Initial Phase

- Duration = 2 months
- RIF, INH, PZA, EMB (“RIPE”) standard regimen
  - PZA omitted in most pregnant females, and in persons with gout or severe liver disease
- Combination of drugs needed:
  - To kill the TB bacilli rapidly
  - To prevent the emergence of drug resistance
  - To eliminate persistent bacilli, leading to relapse or treatment failure

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 Rationale for 4 drugs – 1

- **Drugs that have early bactericidal activity reduce the chance of resistance developing**
  - INH has the most potent ability to kill rapidly multiplying *M.tb* followed by EMB, RIF, and SM (PZA is poor in this regard)

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 Rationale for 4 drugs – 2

- **Sterilizing activity of a drug is defined by its ability to kill bacilli, mainly in the subpopulations of *M.tb* that persist beyond the early months of therapy**
  - RIF and PZA have the greatest sterilizing activity followed by INH and SM
  - The sterilizing activity of RIF persists throughout the course of therapy but the same is not true for PZA

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 Initiation of Therapy

- **May be based on high index of suspicion**
  - Don't delay treatment waiting for smear and culture results in ill patients
  - Absence of AFB on smear or granulomas on biopsy does not rule out tuberculosis, nor does negative TB culture
  - Remember that TST is negative in 25% of active cases and 25% have no symptoms

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**TB** Additional Routine Examinations at Start of Treatment

- Weight (calculate doses on mg/kg basis)
- Baseline HIV testing and counseling
- Viral serology for groups at high risk for hepatitis B or C (Asia, Africa, & domestic high risk groups)
- Baseline lab tests: liver function tests (AST, ALT, alkaline phosphatase, and bilirubin), creatinine and platelets

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**TB** Continuation Phase

- Duration = 4 months (7 months if PZA was not given in the initiation phase of treatment)
- INH and Rifampin continued as long as drug sensitivities do not indicate resistance
- Intermittent therapy may be an option

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**TB** Why Extend Continuation Phase?

- Decisions to prolong the continuation phase should be made on an individual basis for patients with either cavitary disease or positive culture at 2 months

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**TB** Monitoring – 1

Monthly visits should include a brief physical exam and a review of:

- Rationale for treatment
- Signs/symptoms of adverse drug reactions
- Screening for use of alcohol and other potentially hepatotoxic drugs
- Plans for sputum, x-rays, drug susceptibility testing at appropriate intervals
- Importance of adherence to therapy until cure

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**TB** Monitoring – 2

- **Repeat chest X-ray:**
  - At completion of initial phase (patients with initial negative cultures)
  - At end of treatment (culture-negative TB)
  - Generally not necessary for patients with culture positive TB
- **Renal function, AST, ALT, bilirubin, alkaline phosphatase &/or platelet count if abnormalities were detected at onset of treatment**
- Monthly testing of visual acuity and color vision if EMB used > 2 months or doses > 15-20 mg/kg

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**TB** Measures of Effective Treatment

- **Decreased symptoms**
- **Clinical improvement**
- **Conversion of sputum to smear and culture negative**
- **Improvement of chest radiograph**

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Managing Treatment Interruptions

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Therapy Deviations

- **Significance of treatment interruptions depends upon:**
  - Bacillary load at time of interruption
  - Time in treatment course when interruption occurred (initial or continuation phase)
  - Duration of interruption
- **Split dosing of first line agents**
  - Lowers serum concentration levels

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Treatment Interruptions - Initiation Phase

- **If lapse >14 days, start from beginning**
- **If lapse <14 days, continue treatment to complete total doses warranted (if it can be completed within 3 months)**

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**TB** Treatment Interruptions – Continuation Phase

- **If patient has received  $\geq 80\%$  of total doses:**
  - Consider bacillary load at time of interruption to decide if additional treatment needed
- **If patient has received  $< 80\%$  of total doses:**
  - Consider duration of lapse and ability to complete full four months of Rx within 6 months time

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**TB** Completion of Therapy Defined – 1

- **Completion of treatment defined by number of ingested doses within specified time frame (not solely on duration of therapy)**
- **For example:**
  1. 6-month daily regimen (7 days/wk) = at least 182 doses of INH and RIF, and 56 doses of PZA
  2. 6-month daily regimen (5 days/wk) = at least 130 doses

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**TB** Completion of Therapy Defined – 2

- **In cases of drug toxicity or non-adherence to regimen, all specified number of doses must be administered within:**
  - 3 months for initial phase
  - 6 months for 4-month continuation phase
- **If the specified number of doses are not administered within the targeted time period, patient is considered to have interrupted therapy**

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**TB** Recognizing Treatment Failure

- Relapse is defined as clinical deterioration or reversion to positive culture after treatment completion
- Treatment failure is defined as positive cultures after 4 months of treatment in patients for whom medication ingestion was ensured (by DOT)

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**TB** Successful Treatment - 1

- Depends on more than just the science of chemotherapy
- Chemotherapy must be provided in a clinical and social framework that is based on an individual patient's circumstances

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**TB** Successful Treatment - 2

- For case management use patient-centered service delivery
- When prescribing treatment:
  - Use preferred regimens
  - Extend treatment for cavitation and/or (+) sputum cultures at 2 months
  - Calculate # doses within prescribed time frame
  - Use DOT to ensure treatment completion
- Special situations
  - Be mindful of additional guidelines for pregnant or breastfeeding women, HIV (+) persons, patients with renal or liver disease

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**TB** Successful Treatment - 3

- **Goals for treatment of TB**
  - Cure the individual patient
  - Minimize transmission of *M.tb*
- **Successful treatment benefits the individual patient and the community**
- **Responsibility lies with health care provider, not only for prescribing appropriate regimen, but for ensuring successful completion of therapy**

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**TB**

The Ultimate Goal

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**TB** Before ....



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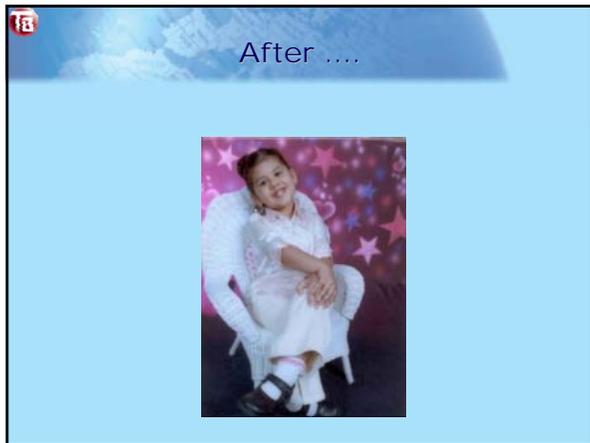
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