



Developing a TB Patient Care Plan

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Introduction to TB Nurse Case Management Online
Wednesdays, January 15 – February 5, 2025
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Jacqueline I. Maldonado, DNP has the following disclosures to make:

- No conflict of interests
- No relevant financial relationships with any commercial companies pertaining to this educational activity





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What is a Care Plan?

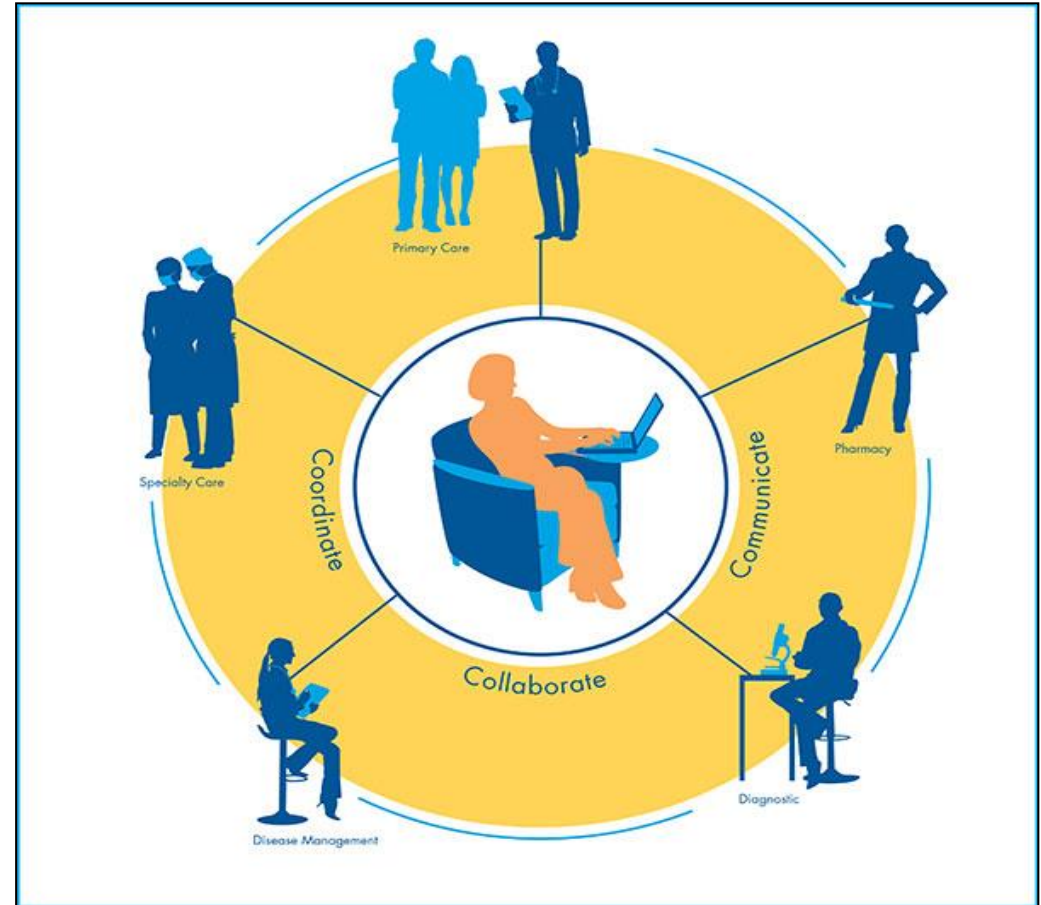
1. A formal process that

- provides direction
- helps to identify existing needs
- recognize potential needs or risks.

2. Main focus

- facilitate standardized, evidence-based and holistic care.

3. Provide a means of communication to achieve health care outcomes.



Objective: Have TB Nurse Case Manager develop a TB Patient Care Plan

- By understanding the following:
 - ✓ Description of treatment regimen
 - ✓ Methods of monitoring for adverse reactions
 - ✓ Methods of assessing and ensuring adherence to treatment
 - ✓ Methods for evaluating treatment response



TB Treatment Goals:

1. Cure the patient
2. Prevent death, disability or drug resistance
3. Prevent further transmission



Patient-Centered Care

“Patient-centered care is providing care that is respectful of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions.”

- Institute of Medicine (IOM)



Patient Education Topics:

- TB Disease Process
- What medication should be taken, how much and how often
- Possible adverse reactions to the medications
- When to seek necessary medical attention
- Consequences of not taking their medicine correctly
- TB infection, restriction measures, and isolation precautions



Understand Your Patient

- Patient's perception & knowledge of TB
- Sociocultural influences
- Home and work habits
- Patient's support system



TREATMENT REGIMEN



Official American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America Clinical Practice Guidelines: Treatment of Drug-Susceptible Tuberculosis

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CDC Recommendation for Treatment of Drug-Susceptible TB is a 4 drug regimen, aka **RIPE:**

Rifampin – RIF

Isoniazid – INH

Pyrazinamide – PZA

Ethambutol - EMB

Doses are based on weight and age of patient

Dosing Recommendations for Adult Patients with Drug-Susceptible Organisms

Drug	Normal Renal Function	Change in Frequency for Reduced Renal Function?	Creatinine Clearance <30 mL/min*
Ethambutol	<u>Standard dose</u> ^b : 15-20 mg/kg once daily	Yes	20-25 mg/kg 3x/weekly (not daily)
Isoniazid	<u>Standard dose</u> : 5 mg/kg daily (max 300 mg) Vitamin B6 daily 25-50 mg <u>Intermittent dose</u> : 15 mg/kg (max 900 mg) <u>High dose therapy</u> : 13-18 mg/kg daily	No	No dose adjustment
Pyrazinamide	<u>Standard dose</u> ^b : 25-35 mg/kg daily	Yes	25-35 mg/kg (maximum 3000 mg) 3x/weekly (not daily)
Rifabutin	<u>Standard dose</u> : 300 mg daily	No	Monitor drug concentrations to avoid toxicity
Rifampin	<u>Standard dose</u> : 10 mg/kg daily	No	No dose adjustment

*Including adult patients receiving hemodialysis

^bBased on estimated lean body weight. Optimal doses for obese patients are not established.

Please note: Standard doses are given unless there is intolerance; there should be careful monitoring of neurotoxicity; the medications should be given after hemodialysis on the day of hemodialysis; and monitoring of serum drug concentrations should be considered.



Tuberculosis Treatment Guidelines

Drug Regimens for Microbiologically Confirmed Pulmonary Tuberculosis Caused by Drug-Susceptible Organisms

Dosing Recommendations for Adult Patients with Drug-Susceptible Organisms

Adapted from the Official American Thoracic Society, Centers for Disease Control and Prevention, Infectious Disease Society of America Clinical Practice Guidelines: Treatment of Drug-Susceptible Tuberculosis Clinical Infectious Diseases • 2016

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2 Phases of Treatment

Initial Phase + Continuation Phase = Length of Treatment

8 weeks + 18 weeks = 6 months of treatment

8 weeks + 31 weeks = 9 months of treatment



Initial Phase of Treatment

RIPE + B6

24 doses if receiving 3 times/week

40 doses if receiving 5 days/week

56 doses if receiving 7 days/week

8 weeks

This phase must be completed before proceeding to the continuation phase



Continuation Phase of Treatment

RIF + INH + B6

54 doses if receiving 3 days/week

90 doses if receiving 5 days/week

126 doses if receiving 7 days/weeks

18 weeks or 31 weeks



Why Directly Observed Therapy (DOT)?

1. Provides visual evaluation/observation of patient tolerance of medication
2. Provides visual evaluation/observation of patient response to treatment
3. Provides daily opportunity for patient education



Side Effect vs. Adverse Drug Reaction (ADR)

Side Effect:

- a less precise term, often refers to milder, predictable effects of taking a medication.
- Examples:
 - Discolored body fluids from Rifampin
 - Decrease effectiveness of birth control pills/implants from Rifampin

Adverse Drug Reaction (ADR):

- As defined by the World Health Organization (WHO), an Adverse Drug Reaction is a response to a drug that is noxious and unintended and occurs at doses normally used in man for the prophylaxis, diagnosis or therapy of a disease.
- Examples:
 - Hepatitis
 - Rash

MONITORING FOR ADVERSE REACTION

- Patient education
- Daily by DOT Provider
 - Observation
 - Toxicity screen
- Monthly or as ordered by licensed healthcare worker
 - Observation
 - Toxicity assessment
 - Labs



Blood Analysis:

- Baseline
- Monthly
- Complaint or adverse reaction
- Special situations



ADHERENCE TO TB TREATMENT

- **Assessing Adherence > daily CM's duty**
 - Designated place and time for DOT
 - Appointments met and rescheduled
- **Ensuring Adherence > possible challenge**
 - Incentives (rewards given to patients to encourage taking DOT or attend clinic appointments, such as food, clothing or personal products)
 - Enablers (ex. helps patient receive treatment, such as transportation vouchers to get to the clinic, appointment reminders and social service assistance)



EVALUATING TREATMENT RESPONSE

- Clinical
- Bacteriological
- Radiographic



Clinical

- Medication tolerance
- TB symptom improvement
- Appetite status
- Activity level
- Affect – mental status



Bacteriological

- AFB Smear
- AFB Culture/Susceptibilities

**Texas Department of State Health Services
Tuberculosis Bacteriology Monitoring Log**

Name: _____ **DOB** ____ / ____ / ____ **MRN/SSN:** _____

Genotype Number: _____

Specimen			Results				Drug Susceptibility Studies										
Date/ Time	Source	Lab No	Smear*	NAA/ PCR	Prelim ID	Final ID	INH	EMB	RIF	SM	PZA	ETH	KM	CAP	RBT	OF	Other



Radiographic Imaging

- After 2 months of TB medication
 - CXR or CT (depending on site of disease)
 - Improved from baseline?
- At end of TB treatment
 - CXR or CT (depending on site of disease)
 - Improved from previous image
- As needed based on patient findings



Indicators of poor response to Treatment

- Clinically - No improvement
- Bacteriologically – minimal to no improvement
- Radiologically – no improvement or worsening



Reasons for Poor Response

- Poor DOT adherence
- Patient vomiting after taking TB medication
- Poor absorption of medications
- Development of Drug Resistance
- Patient “Cheeking” Pills



Patient Centered Care

- Build a relationship with your patient
- Educate your patient and their family
- Provide the Right drugs, Right dosage, and Right number of doses
- Perform Baseline evaluations
- Use logs and graphs to monitor progress
- Document and communicate with the TB team
- Screen regularly for medication side effects and adverse reactions.
- Evaluate for improvement clinically and diagnostically



Questions?



References

- American Thoracic Society, Center for Disease Control and Prevention, Infectious Diseases Society of America Treatment of tuberculosis. MMWR 2003.
- Brenner, Ben. (2017). What is Patient Centered Care and How to Provide It. MedPro Disposal. <https://www.medprodisposal.com/practice-management/patient-centered-care-provide/>
- Center for Disease Control. (2014). Core Curriculum Chapter 6: Treatment of tuberculosis disease. Division of Tuberculosis Elimination. <https://www.cdc.gov/tb/education/corecurr/pdf/chapter6.pdf>
- Center for Disease Control. Controlling tuberculosis in the United States: Recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005; 54 (No. RR-12). www.cdc.gov/mmwr/preview/mmwrhtml/rr5412a1.htm
- Infectious Disease Society of America. (2016). Official American Thoracic Society/Infectious Diseases Society of America/Centers for Disease Control and Prevention Clinical Practice Guidelines: Diagnosis of Tuberculosis in Adults and Children. <https://www.thoracic.org/statements/resources/tb-opi/diagnosis-of-tuberculosis-in-adults-and-children.PDF>
- Treatment of Tuberculosis: Guidelines. 4th edition. Geneva: World Health Organization; 2010. 6, Supervision and patient support. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK138737/>
- Tuberculosis Nursing: A Comprehensive Guide to Patient Care, 2nd Edition, v. 06/13/11.

