



# Dose Counting

Salma Lerma, MSN, RN

A Deeper Dive into TB Nurse Case Management

San Antonio, Texas

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**Salma Lerma, MSN, RN** has the following disclosures to make:

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



# Goals for Treatment

## Our goals

- ❖ Primary goal is to cure the patient of TB disease
- ❖ Ensure adequate treatment is met to avoid relapse

## Patient goals

- ❖ Cure TB disease with minimal adverse drug reactions
- ❖ Avoid disruptions in everyday life while on treatment
- ❖ Complete treatment as fast as possible



# Most asked question by patients **WHEN WILL I BE DONE WITH TREATMENT?**

- ❖ Answer depends on :
  - Extent of disease
  - Response to therapy
  - Adherence
  - Location of disease



*Be honest with patient that length of treatment is variable*



# Standard Dosing Concepts

- ❖ Treatment should be completed 365 days from initiation of therapy (if applicable)
- ❖ Count doses and weeks not just months of therapy
- ❖ Months are counted in weeks and days, not all months are 4 weeks
- ❖ 5 days/week is shown to be as effective as 7 days/week of directly observed therapy, either is provider-dependent
- ❖ Any interruption of treatment in initial phase longer than 14 days means treatment should be restarted



# Standard Dose Counting

*Typical duration for pulmonary tuberculosis is:*

- 2-month *initial phase* + 4-month equivalent *continuation phase*  
**= 6 months of therapy**

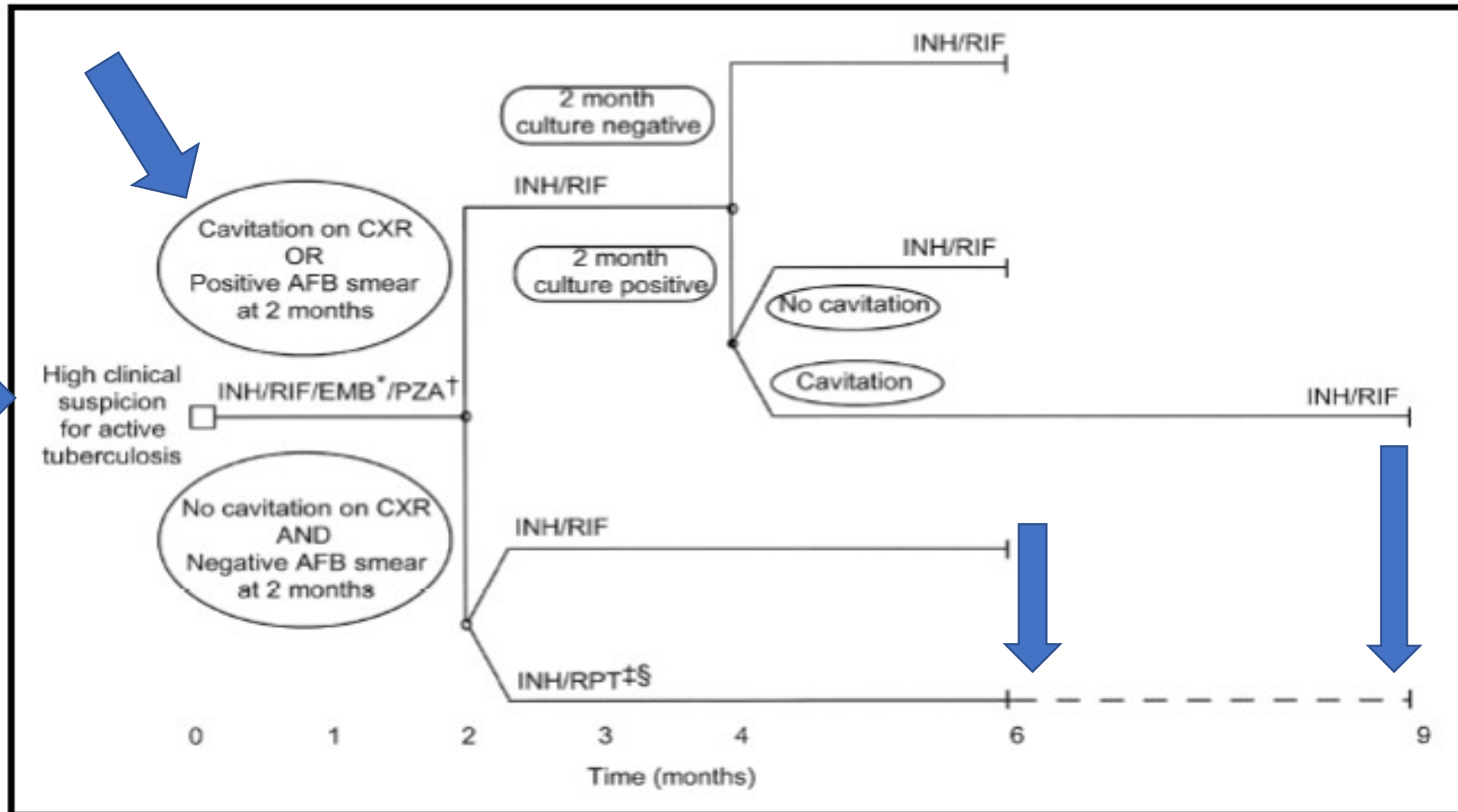
**Or**

- 2-month *initial phase* + 7-month equivalent *continuation phase*  
**= 9 months of therapy**




# Treatment Algorithm for TB Disease

FIGURE 1. Treatment algorithm for tuberculosis.



**Table 2.**  
Drug Regimens for Microbiologically Confirmed Pulmonary Tuberculosis Caused by Drug-Susceptible Organisms

Regimen	Intensive Phase		Continuation Phase		Range of Total Doses	Comments <sup>c,d</sup>	Regimen Effectiveness
	Drug <sup>a</sup>	Interval and Dose <sup>b</sup> (Minimum Duration)	Drugs	Interval and Dose <sup>b,c</sup> (Minimum Duration)			
1	INH RIF PZA EMB	7 d/wk for 56 doses (8 wk), or 5 d/wk for 40 doses (8 wk)	INH RIF	7 d/wk for 126 doses (18 wk), or 5 d/wk for 90 doses (18 wk)	182–130	This is the preferred regimen for patients with newly diagnosed pulmonary tuberculosis.	<div>Greater</div> 
2	INH RIF PZA EMB	7 d/wk for 56 doses (8 wk), or 5 d/wk for 40 doses (8 wk)	INH RIF	3 times weekly for 54 doses (18 wk)	110–94	Preferred alternative regimen in situations in which more frequent DOT during continuation phase is difficult to achieve.	
3	INH RIF PZA EMB	3 times weekly for 24 doses (8 wk)	INH RIF	3 times weekly for 54 doses (18 wk)	78	Use regimen with caution in patients with HIV and/or cavitary disease. Missed doses can lead to treatment failure, relapse, and acquired drug resistance.	
4	INH RIF PZA EMB	7 d/wk for 14 doses then twice weekly for 12 doses <sup>e</sup>	INH RIF	Twice weekly for 36 doses (18 wk)	62	Do not use twice-weekly regimens in HIV-infected patients or patients with smear-positive and/or cavitary disease. If doses are missed, then therapy is equivalent to once weekly, which is inferior.	



# Drug Regimens

## Treatment of Drug-Susceptible Culture Confirmed Tuberculosis for Adults

First-Line TB Treatment Regimens							Regimen Effectiveness Greater   <
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[https://www.heartlandntbc.org/wp-content/uploads/2021/12/Treatment of Drug-Susceptible Culture Confirmed Tuberculosis for Adults.pdf](https://www.heartlandntbc.org/wp-content/uploads/2021/12/Treatment%20of%20Drug-Susceptible%20Culture%20Confirmed%20Tuberculosis%20for%20Adults.pdf)

# Dose Counting: 6 MONTHS

6 months of treatment = 26 weeks of therapy total

*(8 weeks initial phase + 18 weeks in continuation phase)*

Total doses: 7 days a week = 182 doses **OR** 5 days a week = 130 doses

- ❖ Daily dosing **initial phase: 7 days a week** in 8 weeks = 56 doses (*7 days X 8 weeks*)
- ❖ Daily dosing **continuation phase: 7 days a week** in 18 weeks = 126 doses
- ❖ **Total therapy:** Daily dosing for **26 weeks** and a total of **182 doses**
  
- ❖ Daily dosing **initial phase: 5 days a week** in 8 weeks = 40 doses (*5 days X 8 weeks*)
- ❖ Daily dosing **continuation phase: 5 days a week** in 18 weeks = 90 doses
- ❖ **Total therapy:** Daily dosing for **26 weeks** and a total of **130 doses**



# Question

61 y.o male started TB treatment with  
**RIPE** five days a week on  
*January 3<sup>rd</sup>, 2022 - February 25<sup>th</sup>, 2022*

❖ How many doses did this patient take?

2022

**-JANUARY-**

S	M	T	W	T	F	S
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Wk 1: 2	3	4	5	6	7	8
Wk 2: 9	10	11	12	13	14	15
Wk 3: 16	17	18	19	20	21	22
Wk 4: 23	24	25	26	27	28	29
Wk 5: 30	31					

Doses: 21

**-FEBRUARY-**

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Doses: 40

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**-MAY-**

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**-JULY-**

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**-AUGUST-**

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**-SEPTEMBER-**

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**-OCTOBER-**

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**-NOVEMBER-**

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**-DECEMBER-**

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30	31					

Page: TrailDesign.com

Hospital: ☐ Missed: ☐ Continuation: ☐ Initial: ☐ Self-Admin: ☐

# Dose Counting: 9 MONTHS

9 months of treatment = 39 weeks of therapy total

*(8 weeks initial phase + 31 weeks in continuation phase)*

Total doses: 7 days a week = 273 doses **OR** 5 days a week = 195 doses

- ❖ Daily dosing **initial phase: 7 days a week** in 8 weeks = 56 doses (*7 days X 8 weeks*)
- ❖ Daily dosing **continuation phase: 7 days a week** in 31 weeks = 217 doses
- ❖ **Total therapy: 7 days/wk** Daily dosing for **39 weeks** and a total of **273 doses**
  
- ❖ Daily dosing **initial phase: 5 days a week** in 8 weeks = 40 doses (*5 days X 8 weeks*)
- ❖ Daily dosing **continuation phase: 5 days a week** in 31 weeks = 155 doses
- ❖ **Total therapy: 5 days/wk** Daily dosing for **39 weeks** and a total of **195 doses**



# Question

61 y.o male continued TB treatment with  
**INH/RIF** five days a week on  
*February 28<sup>th</sup>, 2022 - April 1<sup>st</sup>, 2022*

- ❖ How many doses has this patient completed **all** together since January 3<sup>rd</sup>, 2022?





# Dose Counting: Alternate Regimens

## Regimen 2

*6 months of treatment = 26 weeks of therapy total  
(8 weeks initial phase + 18 weeks in continuation phase)*

Daily dosing **initial phase**: **7 days a week** in 8 weeks = 56 doses ( *7 days X 8 weeks*)

Daily dosing **continuation phase**: **3 days a week** in 18 weeks = 54 doses

**Total therapy**: 7 days/wk (*initial phase*) 3 days a week (*continuation phase*) for **26 weeks** and a total of **110 doses**

**OR**

Daily dosing **initial phase**: **5 days a week** in 8 weeks = 40 doses ( *5 days X 8 weeks*)

Daily dosing **continuation phase**: **3 days a week** in 18 weeks = 54 doses

**Total therapy**: 5 days/wk (*initial phase*) 3 days a week (*continuation phase*) for **26 weeks** and a total of **94 doses**

## Regimen 3

**Tri- weekly (3)** dosing **initial phase** in 8 weeks = **24 doses**

**Tri- weekly (3)** dosing **continuation phase** in 18 weeks = **54 doses**

**Total therapy**: 26 weeks and **78 doses**



# Managing Interruptions

Figure 6.5  
Algorithm for Management of  
Initial Phase Treatment Interruptions

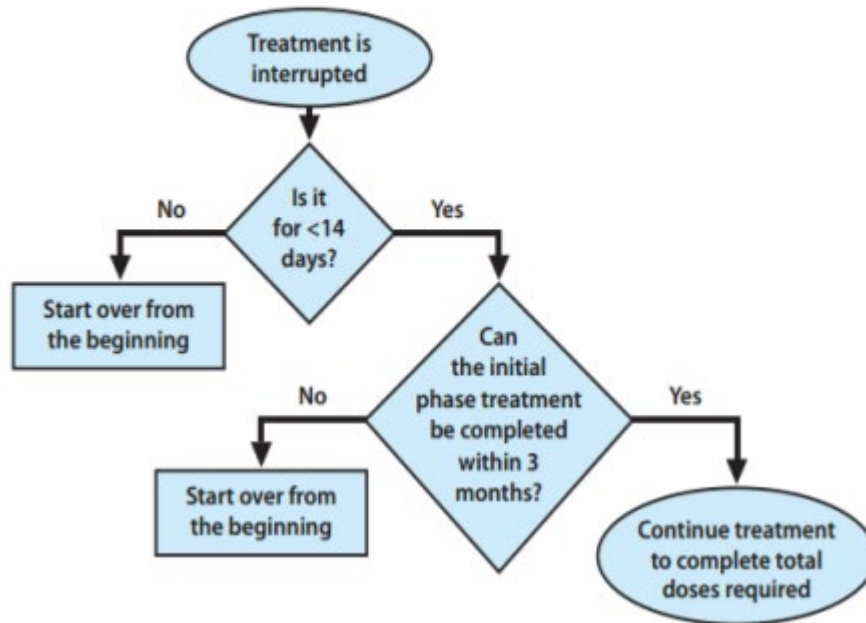
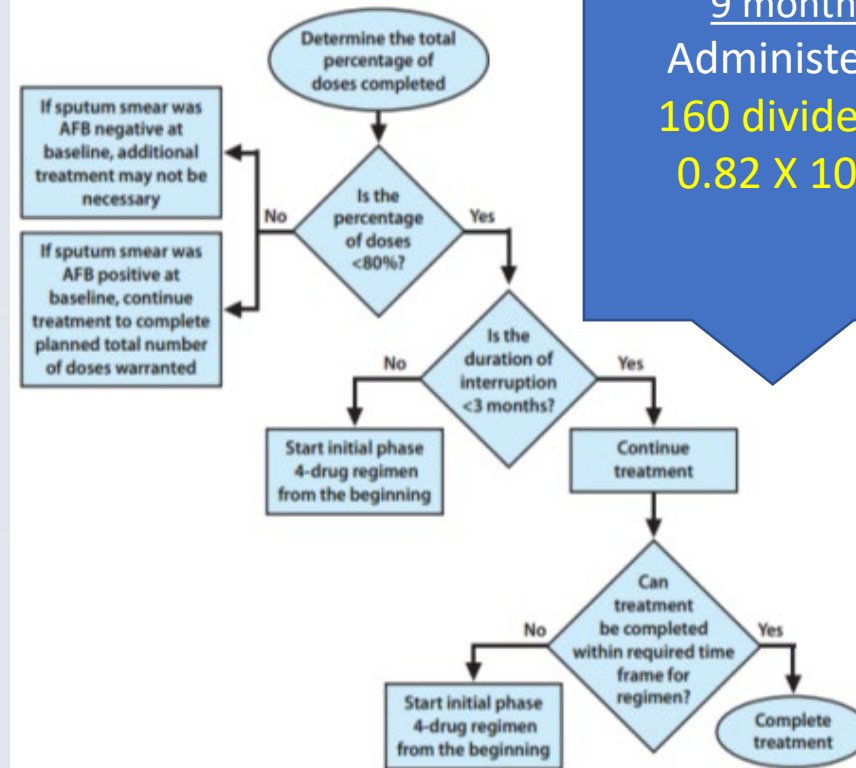


Figure 6.6  
Algorithm for Management of  
Continuation Phase Treatment Interruptions



Required Doses 195  
9 months of treatment  
Administered: 160 doses  
 $160 \text{ divided by } 195 = 0.82$   
 $0.82 \times 100 = 82 \text{ percent}$

## Question

- This patient is a 40 y/o male who started TB treatment with RIPE and is on the initial phase of treatment. Patient has missed a total of 14 doses in the initial phase.

❖ **Does this patient have to re-start treatment?**







# Acknowledgements

*Elizabeth Foy RN from DSHS*

*Matthew Whitson RN from DSHS - Region 8*



Let's Practice!

## **EXERCISE DOSE COUNTING**

*Using Case Study*

# Case Study

- 65 y/o male started TB treatment on 7/1/2022. On home visit #10 for DOT on 7/14/2022, the nurse notes the patient's eyes are jaundiced, and he complains of abdominal bloating and nausea.
- Medications are placed on hold, and labs were drawn.
- LFTS were significantly elevated, and patient was placed on hold.



# Exercise

- Treatment was taken 5 days/week
- How many doses did the patient take from 7/1/2022 to 7/14/2022 before being placed on hold on 7/14/2022?



# 2022

## -JANUARY-

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## -FEBRUARY-

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## -MARCH-

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## -MAY-

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## -JULY-

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9 DOSES

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## -SEPTEMBER-

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## -DECEMBER-

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**Hospital:**   **Missed:**   **Continuation:**   **Initial:**   **Self-Admin:**

# Exercise

- Patient resumed TB treatment.
- Treatment resumed on 7/26/2022 - 8/26/2022
- How many doses did the patient take from 7/26/2022 to 8/26/2022?



# 2022

## -JANUARY-

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## -FEBRUARY-

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## -MARCH-

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## -APRIL-

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## -MAY-

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## -JUNE-

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## -JULY-

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9 DOSES

## -AUGUST-

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24 TOTAL

## -SEPTEMBER-

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## -OCTOBER-

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## -NOVEMBER-

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## -DECEMBER-

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**Hospital:**   **Missed:**   **Continuation:**   **Initial:**   **Self-Admin:**

# Exercise

- How many doses has the patient taken all together from 7/1/2022 - 8/26/2022?
- How many weeks has this patient taken off treatment?





# 2022

## -JANUARY-

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## -FEBRUARY-

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## -MARCH-

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## -APRIL-

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## -MAY-

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## -JUNE-

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## -JULY-

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13 DOSES

## -AUGUST-

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20 DOSES

33 TOTAL

## -SEPTEMBER-

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## -DECEMBER-

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Hospital:   Missed:   Continuation:   Initial:   Self-Admin:



**THANK YOU!**



# Case Study Summary & Open-Floor Q&A