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Implementation of TB Isolation Guidelines- a Holistic Approach

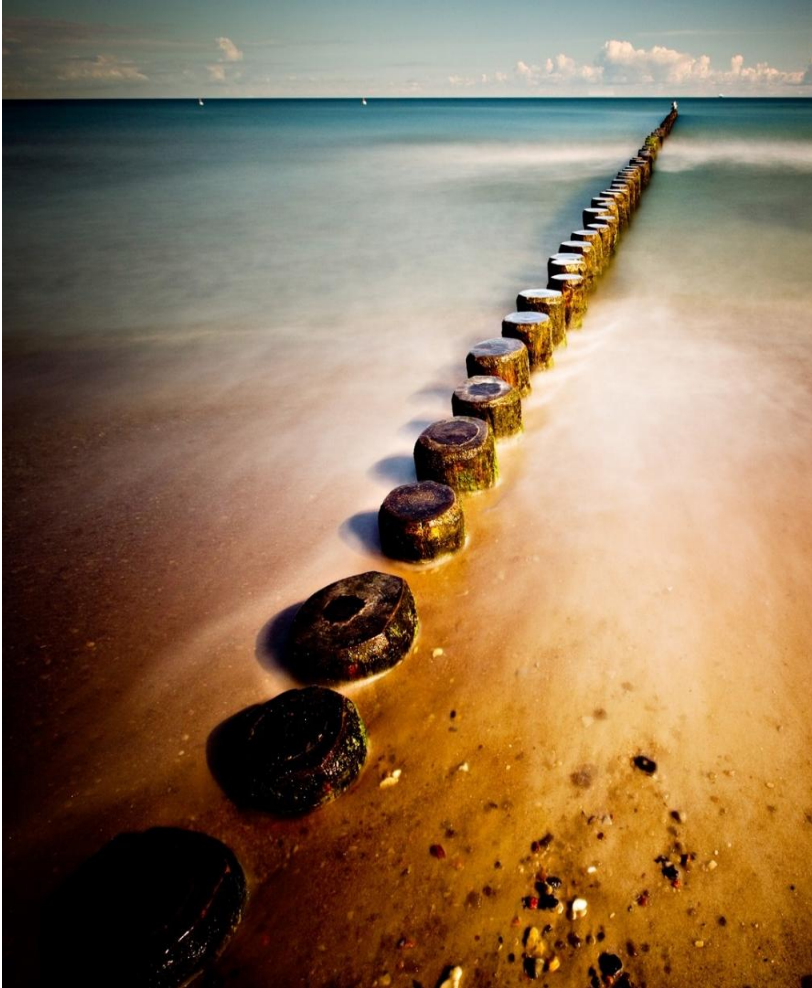
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5 Recommendations for RIR

- Recommendation 1: Decisions on restrictions and isolation should consider the overall community and individual benefits and harms
- Recommendation 2: Respiratory isolation and restrictions should be conceptualized as a spectrum of tailored interventions
- Recommendation 3: Treatment rapidly reduces infectiousness among PWTB, irrespective of bacteriologic studies (i.e., smear) collected during treatment
- Recommendation 4: Most PWTB can be removed from community based RIR after 5 days of effective treatment, with some exceptions for higher risk scenarios (e.g., very high pre-treatment bacterial burden, and anticipated exposure to vulnerable populations).
- Recommendation 5: Moderate restrictions are appropriate when community based RIR is indicated. PWTB should be offered support to mitigate harms of RIR.

Holistic step-wise approach to ISOLATION



- **I**NFECTIOUSNESS/ BACTERIAL BURDEN
- **S**YMPTOMS & SENSITIVITIES
- **O**CCURANCE OF TRANSMISSION
- **L**ANGUAGE BARRIERS
- **A**SSESS HOME SITUATION
- **T**REATMENT ASSESSMENT
- **I**MPACT TO PATIENT
- **O**BSERVATION
- **N**URSING CASE MANAGEMENT

2. RIR should be conceptualized as a spectrum of tailored interventions.

I= INFECTIOUSNESS



INITIAL BACTERIAL
BURDEN



IMAGING

INITIAL RISK?
(None, Low,
Moderate, High)

3. *Prior to effective treatment initiation, PWTB with higher respiratory bacterial burden (i.e., sputum smear and/or NAAT positivity, cavitation on chest imaging) may be considered as relatively more infectious than those with lower bacterial burden, with individual variability.*

S = SYMPTOMS & SUSCEPTIBILITIES

- REVIEW CLINICAL SYMPTOMS
- IS RESISTANCE A CONCERN?
- DRUG SENSITIVITIES

3. Determining infectiousness and transmission risk

O = OCCURANCE OF TRANSMISSION

COMMUNITY WELL-
BEING

HOW MUCH
TRANSMISSION CAN BE
AVERTED THROUGH
RESTRICTIONS?

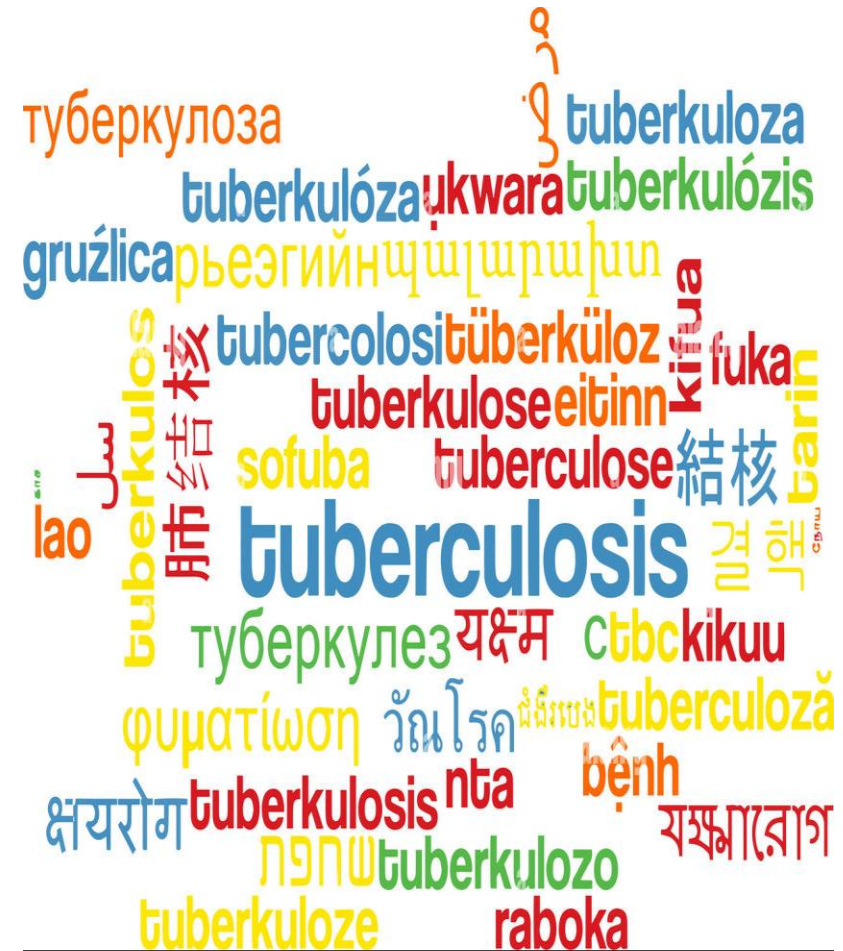
PATIENT WELL-BEING



INITIAL
RESTRICTIONS?
(None, Moderate,
Extensive)

L= LANGUAGE BARRIERS

- PATIENT INTRODUCTION
- INTERVIEW
 - Contacts
 - Patient Harm



A= ASSESS HOME SITUATION



**SAFE HOME
SITUATION**



**CONTACTS AT
HOME?**



**ACCESS TO
SUPPORT,
FOOD, INCOME**

T= TREATMENT RE-ASSESSMENT

Infectiousness:

**Community
risks:**

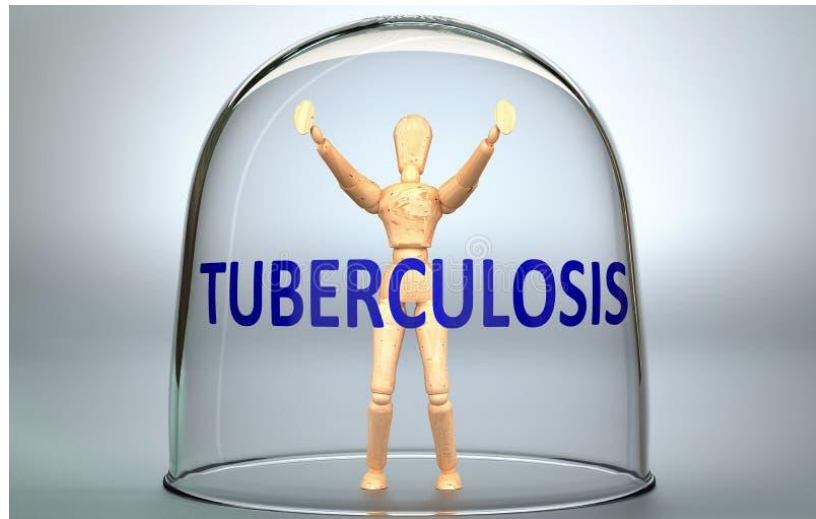
**Restriction
Patient harms:**

Do Restrictions
need to continue?

4. Determine if Restrictions need to Continue or be discontinued

I= IMPACT TO PATIENT

AVOID SELF-HARM



- SOCIAL ISOLATION
- MENTAL HEALTH
- STIGMA
- FINANCES
- JOB, FOOD, HOUSING

1. The decision to recommend TB respiratory isolation and restriction (RIR) should **consider the potential benefits and harm** for both the **community and the PWTB.**

PATIENT SURVEY



HOUSING

1. Do you have a consistent and safe place to live while receiving TB treatment? Yes No
2. Are you worried that you will be asked to move due to TB treatment or isolation Yes No
3. Do you have children under the age of 5 at home? Yes No
4. Are there any individuals in the home that are immunocompromised? Yes No

FOOD

1. In the past year were you ever hungry but did not eat because there wasn't enough money for food? Yes No
2. Are you concerned about access to food? Yes No

JOB SECURITY

1. Do you have a job? Yes No (If yes, complete additional questions below)
 - 1a. Do you think you may lose your job if you need to take time off from work due to TB treatment or isolation)? Yes No
 - 1b. Do you work outside your home? Yes No
 - 1c. Are you able to work remotely? Yes No

MENTAL HEALTH

1. Do you use drugs or drink at least 4 drinks of any kind in a single day? Yes No
- 2.. Have you experienced any of the following problems within the past 2 weeks?
 - Feeling down Yes No
 - Feeling depressed Yes No
 - Feeling worried or frightened? Yes No
 - Any thoughts of harming yourself? Yes No

FINANCES

- 1.) In the past year- have you had trouble paying for Rent /Mortgage? Yes No
 - Medical care? Yes No
 - Other bills? Yes N
- 2.) Have you borrowed any money this year? Yes No

SOCIAL

- 1.) Are you afraid to tell your family/friends about your diagnosis of TB? Yes No
- 2.) Are there activities you are worried you will not be able to do because of TB? Yes No

Comments _____

GENERAL

Do you anticipate any challenges to being isolated? Yes No

Comments:

O= OBSERVATION

HOME

DIRECTLY OBSERVED
THERAPY

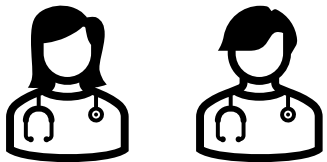
TOLERANCE

ADHERENCE



N= NURSING CASE MANAGEMENT

- **HOLISTIC APPROACH**
- **WEEKLY CASE REVIEWS**
- **COLLECTION OF SPUTA & LABS**





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**Case-study 1: Low bacterial burden,
Low Community Risk, Moderate
patient harm**

Case Study 1: Initial Evaluation

34 yo M, from Honduras, works on local farm and presents to the hospital with intermittent fevers and cough x 3 months with weight loss.

- Pre-treatment smear negative, GXP positive with no rpoB mutation
- **Tolerating medication and has taken 3 days by DOT/vDOT**
- Contact investigation initiated- **recommended home-isolation (moderate restrictions)**
 - 4 HH & contacts & 5 five close friends
 - No employment related contacts identified
- **Expresses concerns for missing work, as he is paid on an hourly basis. Is worried employer will not retain him if he misses too many days of work**

Assess duration of treatment and re-assess infectiousness

3 days of HRZE by time of initial Health Dept evaluation

Recommendation 3: Determining infectiousness			Recommendation 4: Determining RIR	Recommendation 5: Level of RIR	Notes
Treatment Status	Pre-treatment Respiratory bacterial burden ¹	Assessment of individual infectiousness*	Is RIR indicated?	What level of RIR to choose? (Rec. 2, Table 2)	Specific Recommendations should balance community and patient risks and benefits (Rec 1)
Pre-treatment	High	Highest (Rec. 3.1)	Yes (Rec 4.3)	Extensive	Support should be provided to mitigate harm to PWTB (Rec 5.3).
	Low	Moderate (Rec 3.1)	Yes (Rec 4.3)	Extensive or Moderate (Rec 5.1)	
Treatment <= 5 days	High	Moderate (Rec 3.2)	Yes (Rec 4.3)	Moderate (Rec 5.1)	
	Low	Moderate/Low (Rec 3.2)	Yes (Rec 4.3)	Moderate (Rec 5.1)	
Treatment > 5 days	High	Low (Rec 3.3) ²	Not indicated in most situations (Rec 4.2) ³	None	Individual exceptions to continue RIR may be considered (Rec 5.2) ³
	Low	Lowest (Rec 3.3)		None	

PWTB with low initial treatment burden is anticipated to have rapid decline in infectiousness

Re-assess after > 5 days of treatment: Discontinue RIR

- **Infectiousness:** non-infectious or low likelihood of infectiousness (5 days of effective therapy)
 - Completed 5 days of HRZE with DOT/vDOT & clinically improving
- **Community risks:** (low or modest)
 - Has remained in home isolation during this time
- **Patient harms:** patient experiencing stress/anxiety, financial insecurity]
 - Growing anxious about ongoing missed days of work

Recommendation: *PWTB on effective¹ treatment for at least five days should be considered non-infectious or low likelihood of infectiousness, regardless of sputum bacteriologic status during treatment (i.e., smear-microscopy, NAAT or culture status), with certain exceptions²*

Reassess indication for RIR—balance community & patient benefits and harms

Recommendation 3: Determining infectiousness			Recommendation 4: Determining RIR	Recommendation 5: Level of RIR	Notes
Treatment Status	Pre-treatment Respiratory bacterial burden ¹	Assessment of individual infectiousness*	Is RIR indicated?	What level of RIR to choose? (Rec. 2, Table 2)	Specific Recommendations should balance community and patient risks and benefits (Rec 1)
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Treatment <= 5 days	High	Moderate (Rec 3.2)	Yes (Rec 4.3)	Moderate (Rec 5.1)	
	Low	Moderate/Low (Rec 3.2)	Yes (Rec 4.3)	Moderate (Rec 5.1)	
Treatment > 5 days	High	Low (Rec 3.3) ²	Not indicated in most situations (Rec 4.2) ³	None	Individual exceptions to continue RIR may be considered (Rec 5.2) ³
	Low	Lowest (Rec 3.3)		None	

Evaluate needs for financial, housing, food support. Consider details of restrictions—outdoor employment could be considered (with masks if coming into close contact with others)



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**Case-study 2: High bacterial burden,
Moderate/High Community Risk, high
patient harm**

Case Study 2: Initial Evaluation

47 yo HIV-negative, non-diabetic, from Laos with ETOH use (7beers/day)

- **Pre-treatment:** smear-positive, GeneXpert MTB/RIF positive (no rpoB)
 - Extensive Cavitation on CXR (5.9cm x 5.8cm)
 - Other Symptoms: Fevers, weight loss (20lbs)
- **Community Transmission?**
 - Works as a dishwasher in a restaurant
 - 6 individuals in the household: none with HIV, no children
- **Patient Harm:** expresses concern about finances, missing work, living situation

Initial Assessment Smart Note

A. Date of diagnosis	08/21/25	
B. Date of treatment start date	08/24/25	
C. Any restriction start date.	08/21/25	
D. Initial pre-treatment bacterial burden	[High]	Smear pos, GXP positive, cavitation
E. Initial community risk assessment (assess env, contact frequency, duration, intensity, vulnerable populations)	[High]	Indoors, close proximity, high frequency/duration
F. Community Assessments # HH contacts & vulnerable people at home -Does patient have a job? # Work/social contacts?	6HH; YES-JOB 15 Work associates	
G. Is there drug-susceptibility testing?	PENDING;/No Concern for MDR	GXP rpoB negative, no prior treatment history
H. Is there the risk of Potential Harm to the patient?	[Moderate]	FINANCIAL AND EMPLOYMENT CONCERNS
g) Initial Restriction determination	[Extensive/Moderate]	Moderate once started on therapy

Determine indication for RIR—Pre-treatment

Recommendation 3: Determining infectiousness			Recommendation 4: Determining RIR	Recommendation 5: Level of RIR	Notes
Treatment Status	Pre-treatment Respiratory bacterial burden ¹	Assessment of individual infectiousness*	Is RIR indicated?	What level of RIR to choose? (Rec. 2, Table 2)	
Pre-treatment	High	Highest (Rec. 3.1)	Yes (Rec 4.2)	Extensive	Support should be provided to mitigate harm to PWTB (Rec 5.3).
	Low	Moderate (Rec 3.1)	Yes (Rec 4.3)	Extensive or Moderate (Rec 5.1)	
Treatment <= 5 days	High	Moderate (Rec 3.2)	Yes (Rec 4.2)	Moderate (Rec 5.1)	
	Low	Moderate/Low (Rec 3.2)	Yes (Rec 4.3)	Moderate (Rec 5.1)	
Treatment > 5 days	High	Low (Rec 3.3) ²	Not indicated in most situations (Rec 4.2) ³	None	Individual exceptions to continue RIR may be considered (Rec 5.2) ³
	Low	Lowest (Rec 3.3)		None	

Re-evaluation: High initial bacterial burden, moderate community risks, on therapy

- Patient started isolation in hospital pending evaluation (DAY 1)
- **Started therapy Day 4:**
- **Discharged Day 9:** (5 days of treatment)
- Weigh initial high bacterial burden with higher community risk:
 - Decision to **CONTINUE moderate restrictions (no work)**
 - Moderate RIR: Agreed to limit movement to the home.
 - **Very concerned for housing, food, and financial insecurity**
 - Contact investigation has not yet been initiated at the site of employment
- Clinical: Decision to dose intensify Rifampin to achieve improved EBA

Determine indication for RIR > 5 days on therapy

Recommendation 3: Determining infectiousness			Recommendation 4: Determining RIR	Recommendation 5: Level of RIR	Notes
Treatment Status	Pre-treatment Respiratory bacterial burden ¹	Assessment of individual infectiousness*	Is RIR indicated?	What level of RIR to choose? (Rec. 2, Table 2)	Specific Recommendations should balance community and patient risks and benefits (Rec 1)
Pre-treatment	High	Highest (Rec. 3.1)	Yes (Rec 4.3)	Extensive	Support should be provided to mitigate harm to PWTB (Rec 5.3).
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Treatment > 5 days	High	Low (Rec 3.3) ²	Not indicated in most situations (Rec 4.2) ³	None	
	Low	Lowest (Rec 3.3)		None	

2. May **consider initial bacterial burden**, adherence and response to treatment when assessing infectiousness
3. Additional restrictions or longer duration may be considered in **scenarios of higher-risk community settings**, **balancing community well-being and patient impact.**

Re-assess after > 5 days of treatment:

II. WEEKLY RE-EVALUATION ON TREATMENT	
1. Duration of effective treatment?	5 DAYS OF TREATMENT
2. New Clinical Data.	Remains smear +; completed 5 days of txt; patient's cough decreasing
3. New Microbiology:	Gxp probe/INH molecular/PZA molecular/FQ molecular/RIF phenotypic DST, INH phenotypic DST
4. Assessment of current infectiousness	[LOW]
5. Restriction Harm assessment	Financial: YES; Stigma: YES Housing: YES; Food: NO Mental Health: YES
6. Should restrictions continue?	[Continue]- HOME ISOLATION
III. ISOLATION SUMMARY	
A. Length of Hospital Stay	9 Days
B. Hospital Isolation Start date:	08/21/25
C Hospital isolation end date	08/29/25
D. Community restriction start date	08/29/25
E. Community restriction end date	09/09/24
F. Community Isolation Duration	11 days
G. Duration of Isolation from community and work	19 days

Day 14: Steps in re-evaluation for RIR

- **Re-assess infectiousness:** low/uncertain based on assessment of DST and clinical response (fourteen days of therapy)
 - Given high pre-treatment bacterial burden, desire for additional certainty about treatment efficacy
 - Micro: remained smear-positive—*Not expected to reliably correlate with infectiousness*
 - *Smear grade declining*
 - Reached out to lab: DST now available—pan-S (molecular)
 - Clinically: cough improving on dose intensified therapy
- **Re-assess community risk:** Low/Moderate
 - Employment: prolonged (6-8 hours) contact but plan is for a contact investigation
- **Re-assess patient harms (as result of community RIR):** High
 - Did lose employment, experience stigma at workplace

Decision: Continue moderate restrictions until 14 DOT/vDOT doses- then discontinue. Wear mask in any crowded areas.

CHANGES



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-
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