Indiana Department of Health

RESPIRATORY ISOLATION RESTRICTIONS: THE SITUATIONS ARE UNIQUE, THE PRINCIPLES ARE THE SAME

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OUR MISSION:

To promote, protect, and improve the health and safety of all Hoosiers.

OUR VISION:

Every Hoosier reaches optimal health regardless of where they live, learn, work, or play.

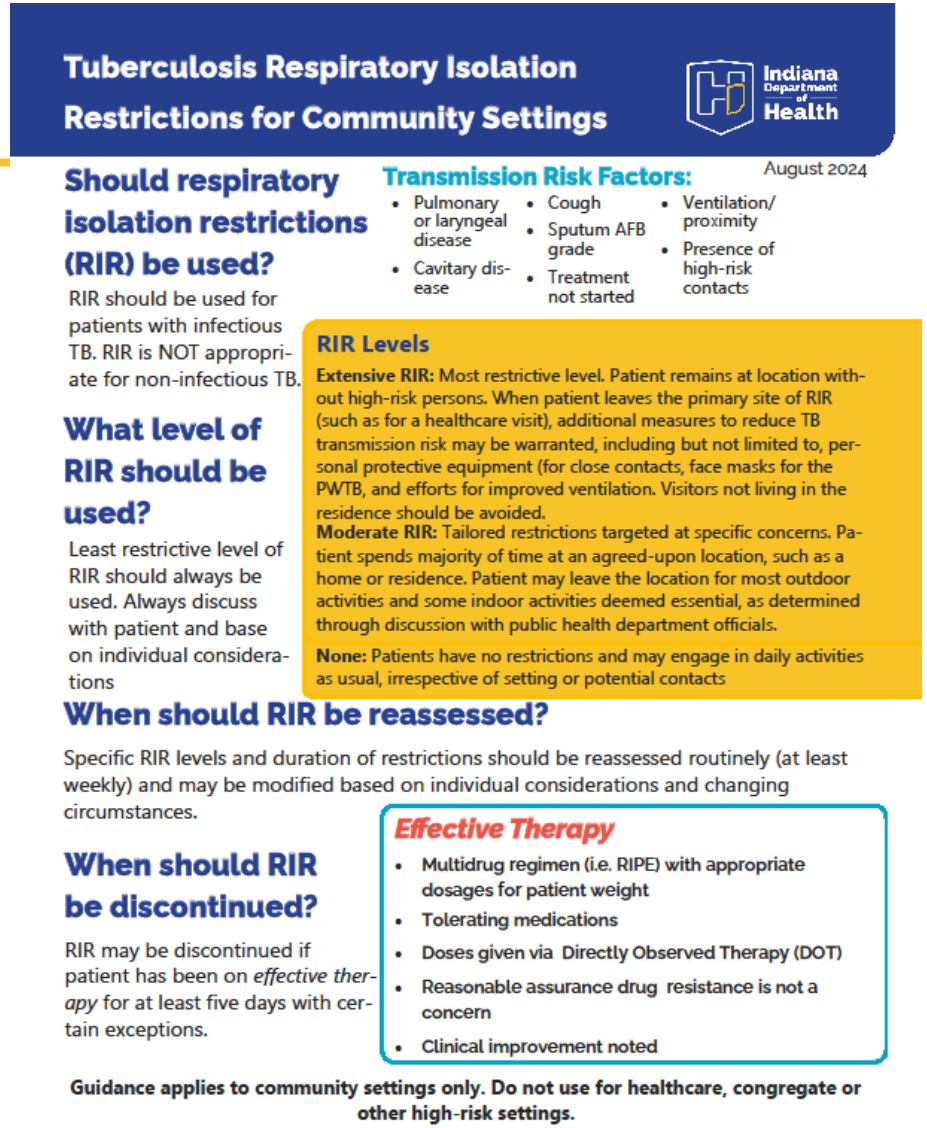
Learning Objectives

Discussion on applying updated guidance on Respiratory Isolation Restrictions (RIR) to various scenarios

Four Questions

Decisions on what restrictions are appropriate for each case start with four questions:

- Should RIR be used?
- What level of RIR is appropriate?
- When should restrictions be reassessed?
- When can restrictions be discontinued?



Tuberculosis Respiratory Isolation Restrictions for Community Settings

Indiana Department of Health

August 2024

Should respiratory isolation restrictions (RIR) be used?

RIR should be used for patients with infectious TB. RIR is NOT appropriate for non-infectious TB.

Transmission Risk Factors:

- Pulmonary or laryngeal disease
- Cavitary disease
- Cough
- Sputum AFB grade
- Treatment not started
- Ventilation/ proximity
- Presence of high-risk contacts

What level of RIR should be used?

Least restrictive level of RIR should always be used. Always discuss with patient and base on individual considerations

RIR Levels

Extensive RIR: Most restrictive level. Patient remains at location without high-risk persons. When patient leaves the primary site of RIR (such as for a healthcare visit), additional measures to reduce TB transmission risk may be warranted, including but not limited to, personal protective equipment (for close contacts, face masks for the PWTB, and efforts for improved ventilation. Visitors not living in the residence should be avoided.

Moderate RIR: Tailored restrictions targeted at specific concerns. Patient spends majority of time at an agreed-upon location, such as a home or residence. Patient may leave the location for most outdoor activities and some indoor activities deemed essential, as determined through discussion with public health department officials.

None: Patients have no restrictions and may engage in daily activities as usual, irrespective of setting or potential contacts

When should RIR be reassessed?

Specific RIR levels and duration of restrictions should be reassessed routinely (at least weekly) and may be modified based on individual considerations and changing circumstances.

When should RIR be discontinued?

RIR may be discontinued if patient has been on *effective therapy* for at least five days with certain exceptions.

Effective Therapy

- Multidrug regimen (i.e. RIPE) with appropriate dosages for patient weight
- Tolerating medications
- Doses given via Directly Observed Therapy (DOT)
- Reasonable assurance drug resistance is not a concern
- Clinical improvement noted

Guidance applies to community settings only. Do not use for healthcare, congregate or other high-risk settings.

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Considerations:

Has ***effective*** therapy been started?

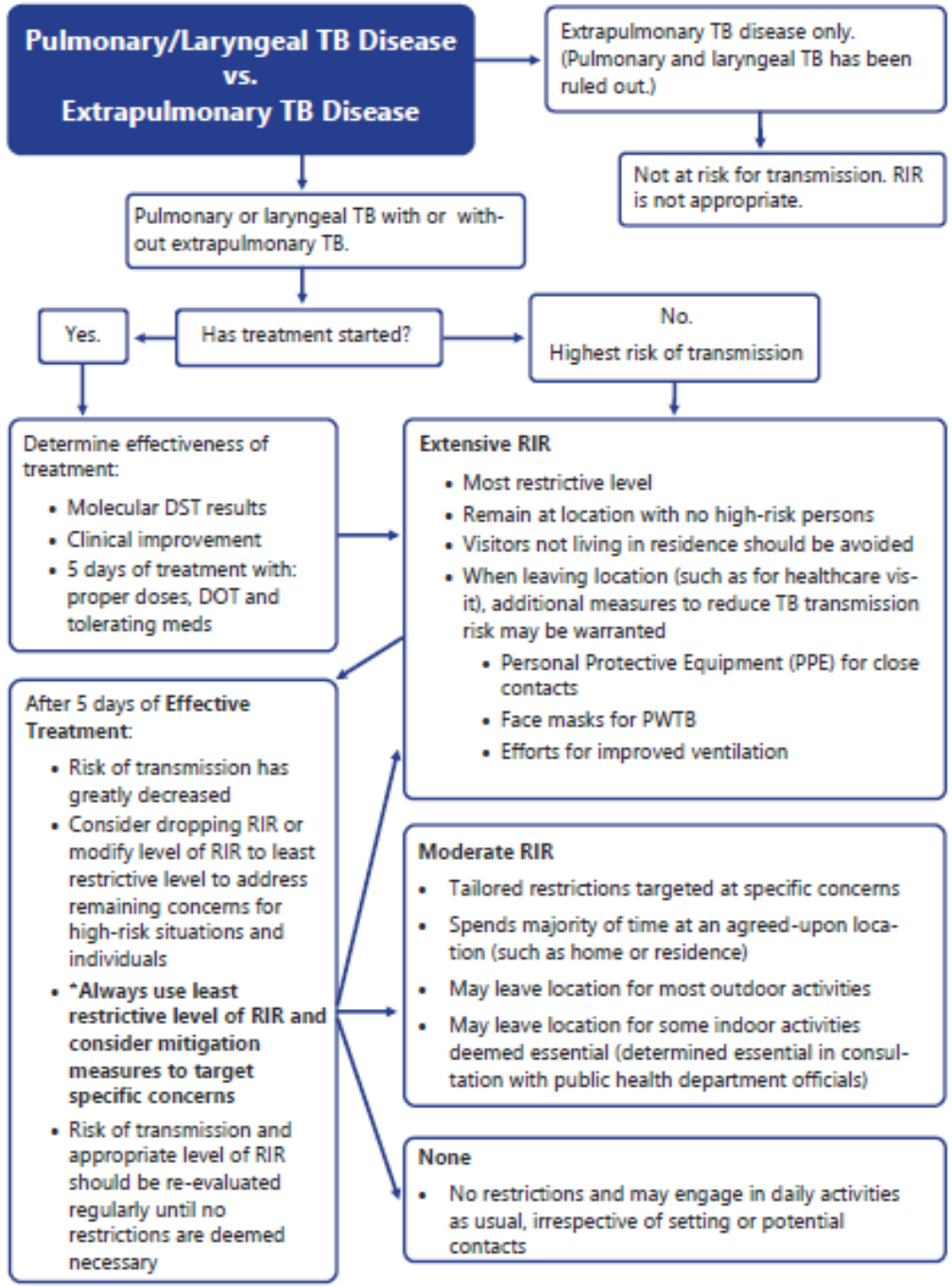
- Multidrug regimen
- Reasonable assurance drug resistance is not a concern
- Tolerating medications
- Doses given by DOT
- Clinical improvement noted

What factors hold concern for transmission?

- Patient factors
- Contact factors
- Setting

Benefit-Risk Assessment

- Purpose of restrictions is to prevent transmission
- How can we mitigate risk to community and harm to person with TB



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Scenario 1

Martha has a productive cough, chest pain and weight loss. Her chest x-ray shows a LUL opacity, no cavitation. Sputum is collected with results of 1-10 AFB/slide, PCR positive for MTB. She is diagnosed with Pulmonary TB.

- She lives at home with her husband and two children, ages 7 and 11. They are all asymptomatic. Her husband has a positive QFT, the children have negative QFTs. Her family is being followed by the LHD.
- Martha works as a CNA at a skilled nursing facility

Scenario 1

What level of RIR is appropriate for this scenario initially?

A. Extensive
B. Moderate-Normal activities except for work
C. Moderate-Normal activities with a mask
D. No Restrictions

What factors increase the risk of transmission?

Scenario 1

Martha is started on HRZE on Sept. 1. Her dosages are appropriate for her weight. She is tolerating her medications and consistent with DOT.

On Sept. 3, Martha can't find anyone to drive her kids to school. The school has a curbside drop off policy. What should Martha do?

A. Make her kids stay home from school since Martha is in Extensive RIR
B. Drive her kids to school and go back home to rest
C. Drive her kids to school and then visit her sister's newborn baby since Martha isn't going to work today anyway

Scenario 1

On Sept. 5, Martha reports she is feeling better and her cough has noticeably improved. Will you recommend easing Extensive RIR on Sept. 5, the day she takes her fifth dose of HRZE?

A. Yes
B. No

Why?

When will we reassess the restrictions in place?

A. In one week
B. After we collect three consecutive smear negative sputa
C. As soon as we have assurance drug resistance is not an issue

Scenario 1

On Sept. 7, her katG, rpoB and inhA are all reported as “mutation not detected”.

What restrictions make sense now? (May choose more than one)

A. Continue Extensive RIR
B. Return to all normal activities in community settings
C. Return to all normal activities with masking
D. Remain home from work since she is employed in a high-risk setting
E. She should avoid high-risk contacts (like her sister’s newborn baby)

Scenario 1

When can Martha return to work?

A. After two weeks of HRZE

B. After she has three smear negative sputa

C. As soon as she has clinical improvement

D. All the above

Guidance on Release from Hospital Tuberculosis Isolation[a]

Diagnostics:	Clinical Impression:	Under Airborne Isolation (AII) and discharging to:	Patient must meet all criteria:
Sputum **AFB Smear Positive** ***AND*** **NAAT Positive**	Active TB Disease	**Home**—**No** high risk individuals or individuals without prior exposure	• Follow-up plan has been made with local TB program and DOT has been arranged[b] • Started on standard TB treatment • All household members, who are not immunocompromised, have been previously exposed to the person with TB • Patient is willing to not travel outside the home until negative sputum smear results are received • No infants or children younger than 5 years of age or persons with immunocompromising conditions are present in the household who have not been evaluated and started on appropriate treatment
		Home—**WITH** high risk individuals OR **High-Risk/Congregate Setting**	Patients with infectious TB should NOT be allowed to return to a setting with high risk individuals. The patient can be *discharged* and is considered non-infectious if: • Three consecutive negative sputum smears from sputum collected in 8 - 24 hour intervals (at least one early morning specimen) ***AND*** • Started on drug regimen and tolerating for AT LEAST 2 weeks or longer ***AND*** • Symptoms have improved
Sputum **AFB Smear Negative** (or No Sputum AFB Smear Done) ***AND*** **NAAT Positive**	High likelihood of TB	**Home**—with/without high risk individuals OR **High-Risk/Congregate Setting**	• Three consecutive negative sputum smears from sputum collected in 8 to 24 hour intervals (at least one early morning specimen) • Started on standard TB treatment and tolerating for AT LEAST 5 days • A plan has been made to follow-up on culture results • No infants or children younger than 5 years of age or persons with immunocompromising conditions are present in the household who have not been evaluated and started on appropriate treatment
Sputum **AFB Smear Negative** ***AND*** **NAAT Negative**	High likelihood of TB	**Home**—with/without high risk individuals OR **High-Risk/Congregate Setting**	

AFB *- Acid-fast bacilli* ***AII*** *- airborne infection isolation* ***DOT*** *- Directly Observed Therapy* ***DST*** *- Drug Susceptibility Testing* ***MDDR*** *- Molecular Detection of Drug Resistance* ***MDR*** *- Multi-drug resistant* ***NAAT*** *- Nucleic Acid Amplification Test* ***TB*** *- Tuberculosis* ***XDR*** *- Extensively-drug resistant*

[a]Pulmonary Tuberculosis

[b]The hospital and/or treating clinician should contact the local health department prior to release of a patient with confirmed active TB disease.

https://www.heartlandntbc.org/wp-content/uploads/2021/12/guidelines_home_hospital_infectious_patients.pdf

Scenario 2

Gwen has an enlarged lymph node on her neck for the last four months. Six weeks ago, she had a biopsy and culture of the lymph node. The culture results are now positive for MTB. Gwen has had some night sweats and mild fatigue for six or seven weeks, but no respiratory symptoms. Her CXR is clear.

Is RIR appropriate for Gwen? Why?

Scenario 3

- Conner has just been diagnosed with pulmonary TB
  - His sputum Xpert test results showed: MTB Detected/rpoB mutation not detected
  - Sputum was collected three times. Two samples were low grade positive; one was smear negative.
  - His CXR has bilateral upper lobe infiltrates and mild hilar adenopathy, no cavitation
  - He has an occasional cough, chest pain and night sweats
- Conner starts taking HRZE by DOT on July 1. He is taking an appropriate dose by DOT consistently and tolerating doses.
- Conner works as a self-employed landscaper/lawn service technician. He has a business partner who rides in the truck with him each day and they work on lawns and landscaping together.
- Conner is asking if he can continue to work, even before he completes five days of treatment. He states that if he does not continue to work, he will lose both pay and regular customers.

Scenario 3

Is it reasonable to accommodate his request to work?

A. Yes
B. Yes, but only after treatment has started
C. No
D. It depends

What level of RIR is appropriate?

A. Everyone should have at least five days of Extensive RIR. After all, fair is fair.
B. He should observe moderate restrictions for five days
C. He does not need any restrictions
D. It depends on the circumstance/setting

Scenario 3

Conner is scheduled for a routine dentist appointment on July 3. Should he keep this appointment?

A. Yes- dental care is health care
B. Yes- the hygienist and dentist wear masks
C. No- If it isn't urgent, he should reschedule

Scenario 3

Other questions I want to ask Conner:

- Is his business partner healthy or high-risk?
- Can some of the jobs be postponed for a few days or handled alone by his business partner?
- Can he avoid going into client's homes or other public buildings?
- Does he have close contact with clients? Can other arrangements be made for those interactions?
- What other activities/settings/contacts outside of work might he have contact with before he has had five days of treatment?
- If he can't take five days off, can he stay home for at least a couple of days?
- How is his clinical response?
- Are there financial resources that could ease his situation and allow him to take a few days off?

What precautions can make working a safe option? What measures can make it easier for Conner to rest at home, decreasing the risk of transmission and promoting the rest he needs to recover?

Scenario 4

Michael has become progressively ill over the last eight months.

- His CXR shows cavitary lesions bilaterally in upper lobes along with nodular opacities in LLL
- He is experiencing productive cough, hemoptysis, 40-pound weight loss, poor appetite, fever/chills, night sweats, fatigue and chest pain
- His QFT is Indeterminate. His HIV is negative. He has a history of Hepatitis C and Diabetes.
- Sputum is collected and shows AFB > 50/field/PCR positive, cultures pending
- He is started on HRZE on **June 1.** He is agreeable to **Extensive RIR** at a local motel, since he has a three-year-old son and six-month-old twins at home.

Scenario 4

What factors make Extensive RIR an appropriate choice? Choose all that apply.

A. Cavitary lesion on CXR
B. Cough
C. Lack of molecular DST information
D. High risk household members
E. Length of time on treatment
F. Sputum findings
G. All the above

Scenario 4

June 3: Michael reports severe nausea and vomiting overnight. He denies other signs of hepatotoxicity. After discussing with his physician, LFTs are collected, and HRZE is held pending those results.

His wife's TST is positive, and all three children have negative TSTs. All are going for CXRs later today.

June 4: Michael's liver enzymes are within acceptable limits. He reports no new or worsening symptoms of hepatotoxicity. He states he has not vomited since the previous DOT visit. HRZE is given. He states the night sweats have lessened slightly, but he has not noticed any improvement in fatigue, appetite, chest pain or cough.

With normal CXRs for his family, 3HP is ordered for his wife and INH window prophylaxis for the children.

June 5: Day five since treatment started and he's taken four doses of HRZE.

Michael is eager to return home and is asking when he can leave the motel and rejoin his family.

Scenario 4

Will you recommend Michael can return home?

A. Yes- it is a hardship for him (and probably his wife too)
B. Yes- if he wears a mask and stays in the bedroom
C. Yes- the children are on window prophylaxis and the wife on LTBI treatment
D. No- we have not determined if his treatment if effective, let alone having had five days of treatment
E. No- there are too many factors creating concern for transmission (patient factors and contact factors)
F. Both D and E

Scenario 4

June 6: Michael reports vomiting 30 minutes after yesterday's DOT visit. He states he is still fatigued, but his temp has been below 100 degrees since June 4. His night sweats have greatly decreased. He states he has less chest pain. Though his cough is productive, he is no longer having hemoptysis. You notice he is still coughing as much as usual during your DOT visit.

His pyros are back. The rpoB is "no mutation detected", but mutations are detected on the katG and InhA. INH is discontinued, and Levofloxacin is added to his regimen.

June 7: Michael has not had anymore vomiting. He is starting to feel much better, and you note he is coughing a lot less. He is reporting increased appetite. Today is his first dose of Levofloxacin.

New prescriptions for RIF have been called in for his wife and children. Those meds should be available tomorrow.

He states he is "going crazy being trapped in this motel". He would like to take a walk outside each day.

Is this a reasonable accommodation? What precautions should be taken?

Scenario 4

Is this a reasonable accommodation? What precautions should be taken?

A. Sure- he has been on treatment seven days, and tolerated five doses of meds
B. No- he has probable INH resistance and just started Levofloxacin (two doses)
C. No- he still has a cough, had cavitation and smear positive sputa
D. Sure- he will be outdoors. If he can avoid other people and indoor public areas (and maybe take a mask with him), this might make staying at the motel easier for him.

Scenario 4

June 8: The medications for his children and wife were delivered and they started taking RIF.

Michael has been on meds a total of six days, two with levofloxacin added to the regimen. He has been tolerating meds better.

His clinical condition is overall improved, though he is still coughing some.

When will it be appropriate to allow Michael to go home to his family?

A. After the patient has taken five doses of the levofloxacin containing regimen
B. After he has taken 14 days of the levofloxacin containing regimen
C. Today- the children are on appropriate window treatment; he is tolerating meds and clinically improved
D. When he has three consecutive smear negative sputa

Summary

- Making decisions about which Respiratory Isolation Restrictions are appropriate involves taking many factors into consideration
- Patients should have the least restrictions for the shortest amount of time
- Understanding a patient's life is vital to identifying risks of transmission
- Transmission prevention measures should be tailored to specific concerns
- Once a restriction is not serving the purpose of preventing the transmission of TB, it should be discontinued
- The responsibility of protecting the public should be balanced with harms to patient from restrictions

Questions?

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