Community Respiratory Isolation and Restrictions Guidance

Based on: "National Tuberculosis Coalition of America (NTCA) Guidelines for Respiratory Isolation and Restrictions to Reduce Transmission of Pulmonary Tuberculosis in Community Settings"

- The NTCA Guideline was first shared as an accepted publication in April 2024, and released in the current format in June 2024. As with all new initiatives, there is likely to be adjustments as we learn from implementation and adopt best practices.
- The authority for placing individuals on Respiratory Isolation and Restrictions (RIR) in the community lies with the LHD and the TB control officer of that jurisdiction.
- The NTCA Guideline is intended for the community, not for hospitals or congregate settings. Hospitals should continue to follow Airborne Infection Isolation (AII) until the presumed/confirmed TB patient with pulmonary (or laryngeal) involvement is sputum smear negative x3 (consecutively) **and** has been on effective treatment for 5 days of DOT (if initially smear negative) or 2 weeks of DOT (if smear positive initially).
- The big shift is that length of effective treatment by DOT (electronic or in person) will be the criteria for release from Respiratory Isolation and Restrictions in the Community.
- Respiratory Isolation and Restrictions are a spectrum.
    - Most people, upon initiating treatment, will transition from "extensive" to "moderate" restrictions. (See Table 2, page 7 for descriptions of extensive & moderate restrictions.)
    - Most people will only need **5 days of effective treatment** to be released from respiratory restrictions.
    - Some situations may call for extending some restrictions to **2 weeks of effective treatment**.
    - It will be rare to continue on Respiratory Restrictions after 2 weeks, however there may be some restrictions based on potential community health risk in select circumstances.
- The following tables from NTCA Guidelines are available to assist in decision making tailored to your patient.
    - For New Patients, see Table 4 (pages 5 & 6)
    - **Assess weekly and adjust as needed**. (see Table 5, pages 6 & 7).
- A Summary Table is provided for quick reference. As we learn from implementation, this aid will be updated.
- Although sputum is no longer required for release from isolation, it should still be collected for monitoring response to treatment, including sputum culture conversion. Initially, 3 sputum samples are collected, followed by one a week until smear negative x3 (consecutively). Standard of care is to collect at minimum, at least one sputum a month until culture conversion is documented. While smear negative x3 is no longer necessary to remove from isolation, tracking smear trends can be useful in assessing treatment response.
- Patients may need to go back onto Respiratory Restrictions if there is an interruption in treatment that requires restarting dose counting [*Rule of thumb: more than 2 weeks break in the initial phase or more than 2 months in the continuation phase*].
- If release from community isolation will impact another health jurisdiction, best practice is to coordinate with that jurisdiction. Contact tb@azdhs.gov for assistance in interjurisdictional coordination.
- As with any new initiative, we would like to monitor the impact of these new guidelines. Please notify tb@azdhs.gov if there is evidence of spread of TB after treatment initiation.

Summary Table of Guideline Comparisons

Patient Characteristics	Hospital Guidelines (CDC 2005 Healthcare Guidelines)	Community Guidelines (NTCA 2024 Guidelines)	Possible Practical Implementation
Extrapulmonary only, Normal CXR, no pulmonary symptoms	Aerosol generating procedures at site of disease only (assuming pulmonary disease has been excluded)	No Isolation	No Isolation after reasonably excluding pulmonary involvement
Children with intrathoracic TB	Individualize based on disease characteristics and clinical judgment	No isolation for children under 10	No isolation for children, except for adolescents and the rare older child with adult type disease. Instead focus on identifying the source case. Is there an adult who is caring for them that has untreated TB? Follow isolation recommendations for that adult.
Sputum smear negative, non-cavitary	7-14 days	5 days (partial restrictions)	Low risk setting: partial or no restrictions after 1st dose High risk setting: 5 days of DOT
Sputum smear negative, NAA +, cavitary	7-14 days	5 days (may include partial restrictions limited to certain settings)	Low risk setting: 5 days of DOT High risk setting: may extend to 2 weeks
Sputum smear positive (1+ or rare), non cavitary	2 weeks & sputum smear neg x3	5 days (may include partial restrictions limited to certain settings)	Low risk setting: 5 days of DOT High risk setting: may extend to 2 weeks
Sputum smear positive 2/3/4+ or cavitary	2 weeks & sputum smear neg x3	5 days DOT to 2 weeks. May include partial restrictions limited to certain settings after 5 days	Low risk setting: at least 5 days of DOT, then possible partial restrictions. High risk setting: at least 2 weeks. If failure to show response to treatment, could be extended to 4 weeks.
MDR TB	Not specified. *Consult withTB program for recommendations.*	5 days DOT to 2 weeks. (ambiguous, not explicitly stated)	BPal/BPalM appears to be similar to above, as long as molecular results are available and there is response to treatment. In practice will likely be at least 2 weeks. High risk: 4 weeks, smear negative x3 (see Canada's guideline)

Hospital Guidelines: Centers for Disease Control and Prevention. Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings, 2005. MMWR 2005;54(RR-17). https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm.

Per CDC, they do not have community guidelines for release from isolation. Previously it was extrapolated from hospital recommendations. See commentary: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciae198/7649401

Canada's Guidelines: Cooper R. Canadian Tuberculosis Standards, Appendix B: De-isolation review and recommendations. Canadian Journal of Respiratory, Critical Care, and Sleep Medicine, 2022;6(S-1):248-255. https://doi.org/10.1080/24745332.2022.2046926.

FAQs:

Q: Do children need RIR?

A: Respiratory Restrictions are not necessary for the vast majority of children under 10 years of age. "Children under 10 years are considered noninfectious in most instances and would not warrant community-based RIR; younger children often lack the ability to generate sufficient infectious aerosols or have lower concentration of organism in respiratory secretions."

Q: What are RIR for someone with Extrapulmonary only TB?

A: As per 4.1 "RIR is not recommended for persons with non-infectious forms of TB (i.e., localized extrapulmonary TB without pulmonary involvement, as confirmed by sputum bacteriologic studies and/or chest imaging)". Note that laryngeal TB can be highly contagious.

Q: What if someone is going into a congregate setting such as a jail, nursing home, or back into a hospital?

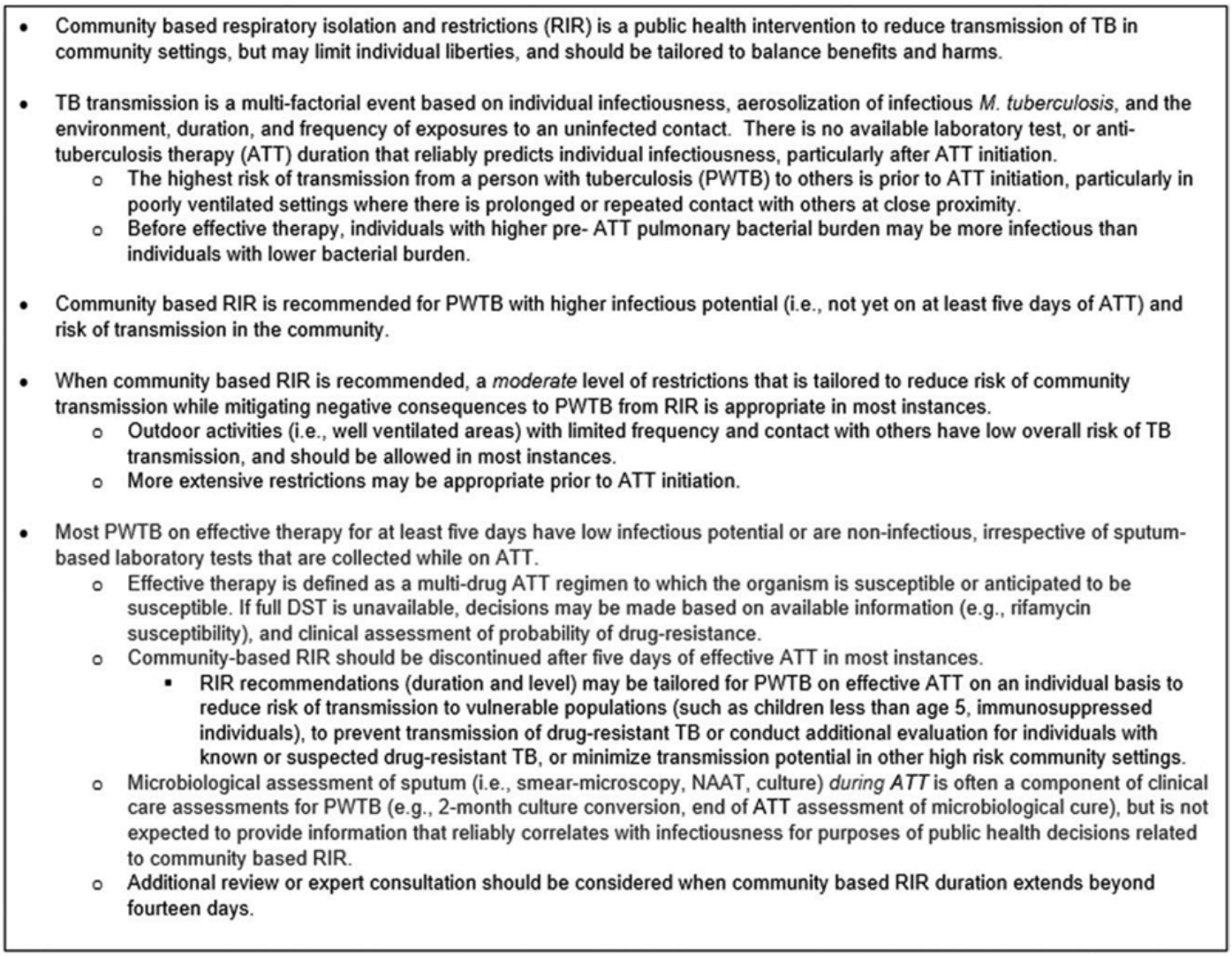
A: Review Table 5. Is there a need to adjust Respiratory Restrictions? While these guidelines are not for congregate settings, they can help guide the rare exceptions to the congregate setting rules. Facilities may have their own rules and may require patients to be on AII or to mask. This illustrates the importance of continuing to collect sputum to monitor response to treatment. The TB Control Officer can provide guidance to the facility for those rare exceptions. Contact tb@azdhs.gov for technical support if needed.

Q: What if sputum collection is not possible? Such as the patient is intubated, or cannot follow sputum induction instructions due to neurological status.

A: These guidelines are helpful in this circumstance as there are other ways to monitor response to treatment. The key is duration of effective treatment. Contact tb@azdhs.gov for technical support if needed.

Key Tables & Figures from 2024 NTCA Guidelines:

Note: below are snips taken from the guidelines document; to view links highlighted in each figure/table, please view directly: "National Tuberculosis Coalition of America (NTCA) Guidelines for Respiratory Isolation and Restrictions to Reduce Transmission of Pulmonary Tuberculosis in Community Settings"



- Community based respiratory isolation and restrictions (RIR) is a public health intervention to reduce transmission of TB in community settings, but may limit individual liberties, and should be tailored to balance benefits and harms.
- TB transmission is a multi-factorial event based on individual infectiousness, aerosolization of infectious *M. tuberculosis*, and the environment, duration, and frequency of exposures to an uninfected contact. There is no available laboratory test, or anti-tuberculosis therapy (ATT) duration that reliably predicts individual infectiousness, particularly after ATT initiation.
  - The highest risk of transmission from a person with tuberculosis (PWTB) to others is prior to ATT initiation, particularly in poorly ventilated settings where there is prolonged or repeated contact with others at close proximity.
  - Before effective therapy, individuals with higher pre- ATT pulmonary bacterial burden may be more infectious than individuals with lower bacterial burden.
- Community based RIR is recommended for PWTB with higher infectious potential (i.e., not yet on at least five days of ATT) and risk of transmission in the community.
- When community based RIR is recommended, a *moderate* level of restrictions that is tailored to reduce risk of community transmission while mitigating negative consequences to PWTB from RIR is appropriate in most instances.
  - Outdoor activities (i.e., well ventilated areas) with limited frequency and contact with others have low overall risk of TB transmission, and should be allowed in most instances.
  - More extensive restrictions may be appropriate prior to ATT initiation.
- Most PWTB on effective therapy for at least five days have low infectious potential or are non-infectious, irrespective of sputum-based laboratory tests that are collected while on ATT.
  - Effective therapy is defined as a multi-drug ATT regimen to which the organism is susceptible or anticipated to be susceptible. If full DST is unavailable, decisions may be made based on available information (e.g., rifamycin susceptibility), and clinical assessment of probability of drug-resistance.
  - Community-based RIR should be discontinued after five days of effective ATT in most instances.
    - RIR recommendations (duration and level) may be tailored for PWTB on effective ATT on an individual basis to reduce risk of transmission to vulnerable populations (such as children less than age 5, immunosuppressed individuals), to prevent transmission of drug-resistant TB or conduct additional evaluation for individuals with known or suspected drug-resistant TB, or minimize transmission potential in other high risk community settings.
  - Microbiological assessment of sputum (i.e., smear-microscopy, NAAT, culture) *during ATT* is often a component of clinical care assessments for PWTB (e.g., 2-month culture conversion, end of ATT assessment of microbiological cure), but is not expected to provide information that reliably correlates with infectiousness for purposes of public health decisions related to community based RIR.
  - Additional review or expert consultation should be considered when community based RIR duration extends beyond fourteen days.

Figure 2. Summary of key principles when considering community-based respiratory isolation and restriction for persons with pulmonary tuberculosis. Abbreviations: ATT, anti-tuberculosis therapy; DST, drug-susceptibility testing; NAAT, nucleic acid amplification test; PWTB, person or persons with tuberculosis; RIR, respiratory isolation and restriction; TB, tuberculosis.

Table 4. Implementation Aid for Initial Determination of Community-Based Respiratory Isolation and Restriction for Newly Diagnosed Persons With Tuberculosis

Step	Assessment	Notes and Recommendations
1. Assess infectiousness and transmission risk (see Rec 3)	1. Review initial chest imaging: presence or absence of cavitation	1. Individuals without prior imaging or bacteriologic evaluation of TB involvement in the respiratory tract should have assessment that includes a chest radiograph and expectorated sputum evaluation using smear microscopy, NAAT, and culture, when possible.
	2. Review initial sputum or respiratory bacteriologic studies	2. Individuals with pretreatment cavitation or sputum smear or NAAT positivity may have a higher initial bacterial burden and may be relatively more infectious than individuals with sputum smear and/or NAAT-negative samples (see Rec 3.1). Children under 10 y, particularly those with limited bronchial, laryngeal, or pulmonary involvement and minimal cough, are not generally regarded as infectious.
	3. Review initial DST and treatment regimen	Molecular DST should be used, when possible, to rapidly assess at least rifamycin susceptibility (eg, GeneXpert MTB/RIF [Cepheid Inc, Sunnyvale, California]). If rapid molecular or phenotypic DST is unavailable, initial drug selection and determination of ATT effectiveness is based on the epidemiologic likelihood of drug resistance and may consider clinical response to treatment. Individuals with suspected or identified drug resistance should have additional evaluation (eg, CDC Molecular Detection of Drug Resistance testing; phenotypic DST to first- and second-line drugs) to confirm the effectiveness of a chosen ATT regimen.
	4. Consider risk of transmission to the community (answering yes to 1 or more suggests relatively higher risks of community transmission; see Figure 1, chart B)	(See Rec 3.4; see Figure 1, chart B) 1. Assess housing—Is there shared ventilation with individuals who have not been previously exposed? If so, assess if transmission risks can be mitigated (ie, wear a surgical mask or minimize time spent in shared environment with others), or consider alternative housing options. 2. Assess employment, school setting, social activities, and other settings where PWTB will spend time—Is there likely to be prolonged (eg, multiple hours) or repeated contact in close proximity (eg, same room) with others, particularly previously unexposed?[a] 3. Is there likely to be contact with vulnerable populations (children, immunosuppressed individuals, such as in healthcare settings)? 4. Are there higher-risk environments (consider ventilation, space, density of occupants) where the PWTB is anticipated to spend time?
2. Determine whether community-based RIR is indicated (see Rec 4)	1. Does the PWTB have evidence of pulmonary TB? 2. Is the individual infectious and at high risk of transmission in the community? 3. Assess potential harms of RIR for PWTB	1. RIR is not indicated for individuals with localized extrapulmonary TB in whom TB of the respiratory tract has been excluded (see Rec 4.1). 2. Community-based RIR is indicated for most PWTB with pulmonary or respiratory involvement who have not completed at least 5 days of effective treatment (see Rec 4.3). Table 5 outlines decisions for the duration of community-based RIR. 3. The decision to recommend RIR should consider the potential benefits and harm for both the community and the PWTB (Rec 1.1).
3. Determine level of RIR (see Rec 5)	Individualize RIR based on specific circumstances, balancing community and individual benefits and harms (see Table 2 and Table 3 for a framework of restrictions)	1. Prior to implementation, community-based RIR should be discussed with the patient to identify potential harms that can be modified.[b] 2. The least-restrictive measures to achieve goals of reducing community TB transmission should be used based on the characteristics of the setting and infectiousness of the PWTB (see Rec 5.1). Home or community-based RIR is preferred, when possible, over hospital-based RIR. 3. In most instances, outdoor activities that are low risk for TB transmission should be allowed. More extensive restrictions may be warranted prior to treatment initiation, with moderate restrictions once on effective ATT. 4. The intensity and duration of RIR should be determined based on specific individual considerations and clinical and community context.

Table 4. Continued

Step	Assessment	Notes and Recommendations
4. Assess support services (see Rec 5)	Evaluate for negative impacts of community-based RIR (see Supplementary Appendix 1)	Appropriate supportive services should be used to minimize the harm of RIR, such as provision of nutritious, culturally appropriate food, phone or video contact with friends, and remote access to school and employment where possible (see Rec 5.3).

Abbreviations: ATT, anti-tuberculosis therapy; CDC, Centers for Disease Control and Prevention; DST, drug-susceptibility testing; MTB, *Mycobacterium tuberculosis*; NAAT, nucleic acid amplification testing; PWTB, person or persons with tuberculosis; Rec, Recommendation (from Table 1); RIR, respiratory isolation and restrictions; TB, tuberculosis.

[a]Studies suggest transmission risk is lower in outdoor settings and locations with natural ventilation and/or UV light, compared with shared indoor airspace and closed-ventilation systems. Other factors that influence the likelihood of transmission from a PWTB to an exposed contact include duration, frequency, and proximity of exposures. There is no minimum duration, frequency, or proximity of exposure that defines likelihood of transmission. While short durations or infrequent exposure could lead to *Mycobacterium tuberculosis* infection, many contacts are not infected after longer durations (weeks to months) of intensive exposure. Overall, the probability of transmission is expected to increase with more frequent (ie, daily) contact for longer durations (eg, >8 h), in indoor settings at close proximity.

[b]See Supplementary Appendix 1 for potential considerations to ensure multiple dimensions of patient experiences are considered.

Table 5. Implementation Aid to Assess Duration of Restrictions for Persons With Tuberculosis for Whom Community-Based Respiratory Isolation and Restriction Has Been Implemented

Step	Assessment	Notes and Recommendations
1. Assess how long PWTB has been under community-based RIR	1. Has PWTB been under community-based RIR for more than 5 days?	1. Decisions should be reassessed at least weekly, as well as with change in assessment of infectiousness, and changing circumstances related to patient and community benefits and harms (see Rec. 5.2). 2. Consider additional expert consultation or review when RIR duration has extended longer than 14 days, while ensuring adequate support for PWTB (see Rec 5.3).
2. Assess PWTB infectiousness	1. Assess duration of verified (ie, DOT or vDOT) treatment. 2. Was ATT considered effective? 3. Infectiousness is expected to progressively decline with ongoing ATT; alternatively prolonged duration of RIR is expected to result in harm for PWTB	1. Effective ATT is defined as a multidrug regimen to which the organism is susceptible or anticipated to be susceptible. If full DST is unavailable, decisions may be made based on available information (eg, rifamycin susceptibility) and clinical assessment of probability of drug resistance. 2. Most individuals completing at least 5 days of effective ATT have low infectious potential (see Recs 3.2–3.3), and RIR may be discontinued (see Rec 4.2). a. While ATT rapidly reduces a PWTB's infectiousness there may be individual variability. Available bacteriologic tests do not reliably predict infectious potential during ATT. b. In some instances of high initial bacterial burden (eg, pretreatment, sputum AFB smear-positive, cavitation), longer treatment durations (eg, 5–14 d) are expected to further reduce a PWTB's infectious potential (see Figure 1, chart A). c. Clinicians may use individualized judgment in assessing infectiousness based on pre-ATT bacterial burden (ie, initial sputum AFB smear status and cavitation), clinical response to ATT, drug susceptibility, adherence, and duration of ATT. d. Available data do not support repeated sputum smear microscopy and NAAT testing solely to assess ongoing infectiousness during ATT. Some clinicians may consider repeat sputum bacteriologic labs to monitor ATT response. However, changes to sputum smear, culture, and NAAT test results on ATT may not correlate with a PWTB's infectious potential.
3. Assess community risk of TB transmission	1. Is there high risk of community TB transmission?	See Step 1, Assessment 4, Table 4
4. Assess potential patient harms	1. Is patient experiencing harms related to RIR?	There is a lack of validated tools to reliably measure or capture patient harm resulting from RIR. Consider assessment of stigma, financial security, housing, food security, and mental health. Appropriate supportive services should be used to minimize the harm of RIR, such as provision of nutritious, culturally appropriate food, phone or video contact with friends, and remote access to school and employment where possible (see Supplementary Appendix 1).

Table 5. Continued

Step	Assessment	Notes and Recommendations
5. Determine if RIR should be continued	1. Is there an ongoing high likelihood of infectiousness and risk of community transmission? 2. Are there vulnerable populations to consider, drug resistance, or other special community circumstances?	1. RIR should be discontinued for most PWTB who are assessed to have low infectious potential (see Recs 4.1–4.2) (eg, after at least 5 days of effective treatment). 2. RIR may be extended based on comprehensive assessment of the PWTB's infectiousness (see above), community risks and consequences of TB transmission, and individual harms. Some considerations that may warrant extended RIR despite a PWTB's low infectious potential include: a. Anticipated exposures to vulnerable populations including children <5 years (eg, daycares, schools), and immunosuppressed individuals (eg, healthcare settings); b. Anticipated return to congregate living facilities (eg, homeless shelters) or densely populated environments with poor ventilation[a]; c. Known or suspected TB drug resistance where the consequences of transmission should be weighed with the harms of prolonged RIR. 3. Decisions to extend RIR should balance individual harms of prolonged restrictions, with anticipated community benefits. Instances where duration has extended beyond 14 days warrant additional review and expert consultation (see Rec 1).

Abbreviations: AFB, acid-fast bacilli; ATT, anti-tuberculosis therapy; DOT, directly observed therapy; DST, drug-susceptibility testing; NAAT, nucleic acid amplification test; PWTB, person or persons with tuberculosis; Rec, Recommendation (from Table 1); RIR, respiratory isolation and restriction; TB, tuberculosis; VDOT, video directly observed therapy.

[a]Studies suggest that transmission risk is lower in outdoor settings and locations with natural ventilation and/or UV light, compared with shared indoor airspace and closed-ventilation systems. Other factors that influence the likelihood of transmission from a PWTB to an exposed contact include duration, frequency, and proximity of exposures. There is no minimum duration, frequency, or proximity of exposure that defines likelihood of transmission. While short durations or infrequent exposure could lead to *Mycobacterium tuberculosis* infection, many contacts are not infected after longer durations (weeks to months) of intensive exposure. Overall, the probability of transmission is expected to increase with more frequent (ie, daily) contact for longer durations (eg, >8h), in indoor settings at close proximity.

Table 2. Spectrum of Respiratory Isolation and Restriction for Persons With Tuberculosis in a Community-Based Setting

Extensive restriction	1. Individuals should strictly limit their movement to an agreed-upon location, such as a home or other residence. 2. Any exceptions to extensive RIR should be discussed and agreed upon with the local health department officials. 3. When an individual 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 (eg, N95 masks) for close contacts, face masks (ie, surgical masks, KN95, N95) for the PWTB, and efforts for improved ventilation (eg, open windows during transportation in cars, negative-pressure rooms or HEPA filters). 4. Visitors not living in the residence should be avoided unless approved by the local health department and should wear personal protective equipment (eg, N95).
Midlevel/moderate restrictions	1. Individual spends majority of time at an agreed-upon location, such as a home or residence. 2. Individual may leave the location for most outdoor activities and some indoor activities deemed essential, as determined through discussion with public health department officials: a. Individual may engage in most activities in outdoor or well-ventilated environments[a]; b. Strategies to minimize aerosols including wearing a mask (ie, surgical mask, KN95, N95) should be utilized for indoor activities, particularly if there is contact with previously unexposed individuals; c. Indoor activities should avoid prolonged (eg, multiple hours), or repeated close contact with others, particularly individuals not previously exposed or vulnerable populations (eg, children, immunosuppressed individuals)[a]; d. Indoor activities in settings of poor ventilation or dense populations should be avoided[a]; e. In settings at higher risk of transmission (eg, healthcare visit), or potential risk of transmission to vulnerable populations (eg, immunosuppressed, children), additional measures to reduce transmission risk may be warranted, including but not limited to, personal protective equipment (eg, N95 masks) for close contacts, face masks (ie, surgical masks) for the PWTB, and efforts for improved ventilation (eg, negative-pressure rooms or HEPA filtration systems). 3. Visitors should be avoided unless approved by the local health department and should wear personal protective equipment (eg, N95).
No restriction	1. Individuals have no restrictions and may engage in daily activities as usual, irrespective of setting or potential contacts.

Levels should not be considered absolute but represent a framework for individual judgments. The duration of restrictions should consider both the individual's infectiousness (Figure 1, chart A), as well as the potential risks and consequences of transmission to others (Figure 1, chart B) and are summarized in Table 3.

Abbreviations: HEPA, high-efficiency particulate air; PWTB, person or persons with tuberculosis; RIR, respiratory isolation and restriction; TB, tuberculosis.

[a]Studies suggest that transmission risk is lower in outdoor settings and locations with natural ventilation and/or UV light, compared with shared indoor airspace and closed-ventilation systems. Other factors that influence the likelihood of transmission from a PWTB to an exposed contact include duration, frequency, and proximity of exposures. There is no minimum duration, frequency, or proximity of exposure that defines likelihood of transmission. While short durations or infrequent exposure could lead to *Mycobacterium tuberculosis* infection, many contacts are not infected after longer durations (weeks to months) of intensive exposure. Overall, the probability of transmission is expected to increase with more frequent (ie, daily) contact for longer durations (eg, >8 h), in indoor settings at close proximity.

Table 3. Integrated Schematic and Decision Aid to Support Community-Based Respiratory Isolation and Restriction Recommendations for Individuals With Pulmonary Tuberculosis

Recommendation 3: Determining Infectiousness			Recommendation 4: Determining RIR	Recommendation 5: Level of RIR	Notes
ATT status	Pretreatment respiratory bacterial burden[a]	Assessment of individual infectiousness[a,b]	Is RIR indicated?[c]	What level of RIR to choose? (Rec 2; Table 2)	Specific recommendations should balance community and patient risks and benefits (Rec 1)
Pretreatment	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 d	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 d	High	Low (Rec 3.3)[b]	Not indicated in most situations (Rec 4.2)[d]	None	Individual exceptions to continue RIR may be considered (Rec 5.2)[d]
	Low	Lowest (Rec 3.3)		None	

Abbreviations: ATT, anti-tuberculosis therapy; NAAT, nucleic acid amplification test; PWTB, person or persons with tuberculosis; Rec, Recommendation (from Table 1); RIR, respiratory isolation and restriction; TB, tuberculosis.

[a]Prior to treatment, assessment of respiratory bacterial burden may include sputum smear microscopy testing (smear positivity and grade), NAAT (lower cycle thresholds may indicate higher bacterial burden), and/or cavitation. Before ATT initiation, higher bacterial burden (and strength of aerosolization) may be associated with greater infectious potential (see Figure 1, chart A, *y*-axis).

[b]There is individual variability in the rate of decline of infectiousness following ATT initiation, but available evidence suggests rapid decline in infectiousness after treatment initiation. Most individuals should be considered to have a low likelihood of infectiousness after 5 days of effective ATT, defined as a multidrug treatment regimen to which the organism is susceptible or anticipated to be susceptible (see Figure 1, chart A, *x*-axis). Factors that may be associated with a longer duration of infectiousness may include high pretreatment respiratory bacterial burden (eg, cavitation, based on initial sputum smear and/or NAAT status), bactericidal and sterilizing activity of the treatment regimen, and adherence and tolerance of treatment. Final decisions on RIR should also include an assessment of net transmission risk to others in the community (see Figure 1, chart B).

[c]The decision to recommend TB RIR should consider the potential benefits and harm for both the community and the PWTB (Rec 1.1).

[d]Additional restrictions or longer duration may be considered in some scenarios of known or suspected drug-resistant TB, higher-risk community settings (eg, longer duration, frequency, and increased proximity of previously unexposed contacts in indoor settings with poor ventilation), potential exposure to vulnerable contacts (eg, children <5, immunosuppressed individuals), slow or inadequate clinical response to ATT, or inadequate adherence to daily ATT. Specific recommendations should balance community well-being and patient impact. Additional review or expert consultation is warranted when RIR is extended beyond 14 days.

Table 1. Recommendations for Community-Based Respiratory Isolation and Restriction for Persons With Tuberculosis

Recommendation 1: Goals of RIR	1.1. The decision to recommend TB RIR should consider the potential benefits and harm for both the community and the PWTB.
Recommendation 2: Defining RIR (Table 2)	2.1. RIR in community settings should be conceptualized as a spectrum of tailored restrictions that are individualized for specific circumstances (Table 2).
Recommendation 3: Determining infectiousness and transmission risk (Figure 1)	3.1. Prior to effective[a] ATT initiation, PWTB with higher respiratory bacterial burden (ie, 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. 3.2. PWTB on less than 5 days of effective ATT should be considered relatively more infectious than those on longer durations of effective[a] therapy. 3.3. PWTB on effective[a] ATT for at least 5 days should be considered noninfectious or as having a low likelihood of infectiousness, regardless of sputum bacteriologic status during ongoing ATT (ie, smear microscopy or culture status), with certain exceptions.[b] 3.4. Overall risk of transmission to others should consider both a PWTB's infectiousness, as well as other factors including the environment of potential exposures, durations of exposure, and biological susceptibility of contacts.
Recommendation 4: Determining RIR (Table 3)	4.1. RIR is not recommended for persons with noninfectious forms of TB (ie, localized extrapulmonary TB without pulmonary involvement, as confirmed by sputum bacteriologic studies and/or chest imaging). 4.2. People with pulmonary TB on effective[a] ATT and a low likelihood of infectiousness should not have restrictions in most circumstances (ie, RIR should be removed, if present),[b] with individual exceptions for situations involving higher-risk community settings and populations (eg, children <5, immunosuppressed individuals). 4.3. Community-based RIR may be considered for PWTB who have higher infectious potential in which there is judged to be higher risk of transmission to the community.
Recommendation 5: Determining level of RIR (Table 3)	5.1. When community-based RIR is indicated for a PWTB, a moderate or midlevel range of RIR (Table 2) should be considered appropriate in most circumstances, with individual exceptions. 5.2. Specific RIR levels (eg, low, moderate, or extensive; Table 2) and duration for PWTB should be reassessed routinely (at least weekly) and may be modified based on individual considerations or changing circumstances. 5.3. When RIR is implemented, support should be provided to patients to mitigate anticipated and experienced harms.

Abbreviations: ATT, anti-tuberculosis therapy; NAAT, nucleic acid amplification test; PWTB, person or persons with tuberculosis; RIR, respiratory isolation and restriction; TB, tuberculosis.

[a]Effective ATT is defined as a recommended multidrug regimen to which the organism is susceptible or anticipated to be susceptible.

[b]No single test or ATT duration universally predicts noninfectiousness. While there is individual variability in infectiousness, available evidence indicates most PWTB are unlikely to transmit to others after the first few days (24–72 h) of ATT initiation. Recognizing pragmatic considerations for time needed to assess ATT adherence and tolerance, and conduct clinical and public health evaluation, community-based RIR can be discontinued in most circumstances after 5 days of ATT, with certain exceptions. Additional factors that may be considered when assessing ongoing infectiousness include the initial bacterial load (eg, high pre-ATT bacterial burden), adequacy of ATT regimens (bactericidal and sterilizing potential; drug susceptibility), and/or adherence and clinical response to ATT; sputum bacteriologic status during ATT is not expected to provide information that reliably correlates with infectiousness. Individualized extensions may be warranted in settings and situations with higher risk or consequence of transmission, including exposures to children <5 years and immunosuppressed or other vulnerable populations. The optimal duration of RIR in such situations is uncertain and should balance community risks and benefits. While PWTB on longer durations of ATT are expected to be less infectious than those on shorter durations, longer durations of RIR are anticipated to result in increased patient harms. Expert consultation or additional review should be sought when RIR has extended beyond 14 days.