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COMMUNITY ISOLATION GUIDELINES for PATIENTS with INFECTIOUS *M. tuberculosis*

Maryland TB Isolation Workgroup

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TB Isolation Guidance Workgroup

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Background

- The National Tuberculosis Coalition of America (NTCA) published community isolation guidelines in April 2024.
  - Recommendations on public health practices related to respiratory isolation and restrictions (RIR) for persons with pulmonary TB (PWTB) in community settings
- These guidelines are intended only for community isolation i.e., at home, work, and leisure/social activities.
  - The isolation guidelines for patients with pulmonary TB in healthcare (hospitals, nursing homes, and other healthcare facilities) and congregate settings (schools, correctional facilities) have not changed.

CTBCP Recommended Framework for Individualized Decisions on Community-based Respiratory Isolation and Restrictions

TB Treatment Status	Pre-treatment bacterial burden in the respiratory tract	Level of infectiousness	Isolation indicated	Level of isolation/restriction
Pre-treatment	high	highest	yes	extensive
Pre-treatment	low	moderate	yes	moderate or extensive
Treatment ≤ 5 days	high	moderate	yes	moderate
Treatment ≤ 5 days	low	moderate	yes	moderate
Treatment > 5 days	high	low**	Individualized*	none or moderate
Treatment > 5 days	low	lowest	no	none
Extrapulmonary TB	N/A	None	No	None

Footnotes to the Table

- * **Isolation indicated:** Individual exceptions may be indicated to extend isolation beyond 5 days
- ** **Level of infectiousness:**
  - Most individuals should be considered to have a low likelihood of infectiousness after 5 days of effective anti-tuberculosis treatment
  - Factors 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
    - Adherence and tolerance of treatment

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TB Treatment Status

- Pre-Treatment: before starting effective anti-tuberculosis treatment
- Treatment:
  - Less than 5 days of effective anti-tuberculosis treatment
  - 5 or more days of effective anti-tuberculosis treatment

Effective Anti-tuberculosis Treatment

- Effective Anti-tuberculosis treatment is defined as a multidrug regimen to which the organism is susceptible or anticipated to be susceptible.
- Table 9 in the Maryland Guidelines for Prevention and Treatment of Tuberculosis lists approved multidrug regimens.

Pre-treatment Bacterial Burden in the Respiratory Tract

- **High:** AFB sputum smear-positive, cavity on initial chest imaging
- **Low:** AFB sputum smear-negative, NAAT negative, no cavity on initial chest imaging
- **Extrapulmonary TB:** The respiratory site of the disease has been ruled out
- **Children under 10 years:** those with limited bronchial, laryngeal, or pulmonary involvement and minimal cough, are not generally regarded as infectious.
- Assessment should include a chest radiograph and expectorated sputum evaluation using smear microscopy, NAAT, and culture.

Determining infectiousness and transmission risk based on bacterial burden AND Treatment AND community risk factors

Overall transmission risk should consider both a patient's infectiousness, as well as other factors including the environment of potential exposures, durations of exposure, and biological susceptibility of contacts.

- **Highest:** Less than 5 days of effective treatment and have a high pre-treatment bacterial burden.
- **Moderate:** Less than at least 5 days of effective treatment
- **Low:** High pre-treatment bacterial burden who have taken > 5 days of effective treatment
  - Level of infectiousness is expected to lower further with longer (ie, 5-14 days) durations of effective treatment.
- **Lowest:** Low pre-treatment bacterial burden who have taken >5 days of effective treatment;
  - Individuals with higher pre-treatment burden who have taken longer than 14 days of treatment.
- **Non-infectious:** Individuals with extrapulmonary TB without pulmonary involvement.

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Level of Restriction or Isolation

- **Extensive:** strict limits on movement to an agreed-upon location (home, other residence)
- **Moderate:** spends most time at an agreed-upon location (home) but may leave for some activities as determined by the health department
- **None:** no restrictions and can return to daily activities as usual

Additional considerations: Determining the level and length of isolation based on individual considerations

- Adherence to treatment:
  - Directly Observed Therapy
  - Video-Directly Observed Therapy
- Tolerability to the drug:
  - The impact of treatment on a patient's bacterial burden and infectiousness assumes that the medication is ingested, and tolerated, and is expected to be continued beyond the infectious period for standard treatment durations.
- Drug susceptibility:
  - The effectiveness of the treatment regimen assumes that the organism is known or anticipated to be susceptible to the chosen multi-drug regimen.
- Further consultation is warranted when one or more of the following risk factors for drug resistance are present:
  - Mutation associated with drug resistance noted on molecular testing results
  - Previous treatment for TB or LTBI
  - History of exposure to patients with drug-resistant TB
  - Originates from a country with high rates of MDR TB

Additional Considerations Cont.

- There is no single biomarker to determine non-infectiousness, and the exact rate at which people become less infectious is uncertain.
- Persons with extensive disease based on microbiological testing or chest imaging may warrant a longer duration of treatment to reach lower levels of infectiousness or non-infectiousness.
- Extended duration of restrictions may be considered while assessing treatment effectiveness.
  - If there is uncertainty about treatment effectiveness due to lack of clinical improvement, uncertainty about drug susceptibility, tolerability, or adherence, additional evaluation may be needed.
- High-risk settings: In situations where there is a higher risk of community transmission, even at low levels of infectiousness, a longer duration of treatment and restrictions may be considered to further reduce transmission potential. These situations may include but are not limited to:
  - Expected contact with vulnerable populations like children, persons with immunosuppression
  - Congregate settings for work or social/leisure activities

Follow-up Evaluation While in Isolation

- Weekly follow-up should be done to assess if the patient can be released from respiratory isolation and restriction.
- When possible, support should be provided to patients to mitigate anticipated and experienced harms related to community-based restrictions.
- The following items should be assessed:
  - Length of isolation
  - Assess the level of infectiousness
    - Verified treatment (DOT or vDOT)
    - Clinical improvement
  - Assess patient harms
    - General
    - Financial and job security
    - Stigma and mental health
    - Food and Housing

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Next Steps

- Additional training will be scheduled.
- Maryland TB Guidelines will be updated.
- Memo with the CTBCP guidelines will be sent to all Local Health Departments.
- A final reminder that these guidelines are for community isolation only.
- Acute Care and Long-Term Care Facilities will be made aware of the updated guidelines and that isolation in health care facilities has not changed.

References

- NTCA Guidelines for Respiratory Isolation and Restrictions

National Tuberculosis Coalition of America (NTCA) Guidelines for Respiratory Isolation and Restrictions to Reduce Transmission of Pulmonary Tuberculosis in Community Settings | Clinical Infectious Diseases | Oxford Academic

- Supplement: Evaluation of patient harms related to community-based respiratory isolation and restriction
  - Access in the NTCA Guidelines Document
- Effects of Respiratory Isolation for Tuberculosis to Reduce Community-based Transmission: A Systematic Review

https://pubmed.ncbi.nlm.nih.gov/39401315/

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