



CHAPTER 10: CASE MANAGEMENT FOR PATIENTS WITH TUBERCULOSIS

INTRODUCTION

Case management is the process by which public health staff monitor and support the care and treatment of patients with tuberculosis (TB). The overall goal of case management aligns with the goals of the Bureau; that all individuals with suspected or confirmed tuberculosis receive an appropriate evaluation and course of therapy when indicated and that all persons at high risk of developing tuberculosis also receive evaluation and therapy if needed. In New York City (NYC), case management consists of a series of coordinated activities across a multi-disciplinary team of NYC Health Department Bureau of TB Control (BTBC) personnel to optimize patient care and treatment outcomes.

CASE MANAGEMENT ACTIVITIES

Case management begins as soon as the patient is reported to BTBC and continues until the patient completes treatment or is no longer receiving care for TB. BTBC staff conduct regular reviews of patient progress, address barriers to treatment adherence, and make follow-up appointments or referrals.

The case management team includes: BTBC physicians and nurses involved in the direct care of the patient, case managers, supervisors and regional managers, directly observed therapy (DOT) observers, epidemiologists, medical consultants (for patients obtaining clinical TB care from a community provider), and other staff (e.g., social workers) as necessary.

Patients are assigned a case management team based on the facility or borough where they are receiving care. Case management is provided to all patients diagnosed with TB in NYC regardless of whether they receive clinical services at a NYC Health Department TB clinic. Because the diagnostic process to confirm TB can be lengthy, case management is also initiated for individuals reported to BTBC with a high clinical suspicion of TB disease.

The activities of case management include:

1. Educating patients about TB
2. Conducting initial interviews and re-interviews
3. Determining the need for a contact investigation, identifying and testing contacts
4. Conducting chart reviews
5. Communicating with patients' healthcare provider(s)
6. Conducting home visits
7. Monitoring TB care
8. Identifying barriers to treatment adherence
9. Ensuring continuity of care
10. Documenting patient information and case management activities in the electronic surveillance and case management system

EDUCATING PATIENTS ABOUT TUBERCULOSIS

Education about TB and TB services is provided to all patients with confirmed TB disease and those with signs and symptoms consistent with TB disease who are assigned for case management. Patients are assigned for case management if they are reported because of a specimen with an AFB positive smear or culture, or are started on two or more drugs for tuberculosis. Initial education of the patient includes information on TB transmission, pathogenesis, symptoms, and treatment. Education is provided in the patient's primary language in a culturally appropriate manner. The patient is provided with opportunities to ask questions and the case manager ensures that the patient feels knowledgeable about their illness and how TB may be spread. Patient education is an ongoing process that occurs throughout case management, and the level and type of information that the patient needs may change over time.

CONDUCTING INITIAL PATIENT INTERVIEWS

Generally, the initial interview is conducted at the first interaction with the patient. The initial interview involves verifying and collecting as much information as possible about the patient, including information that can help identify potential barriers to TB care and treatment that may need to be addressed.

To ensure timeliness of contact investigations for potentially infectious patients, interviews are prioritized for patients with a positive result for acid-fast bacilli (AFB) on a specimen from a respiratory source (e.g., sputum, bronchial fluid, or lung), a positive test for *Mycobacterium tuberculosis* (*M. tuberculosis*) complex (e.g., culture or nucleic acid amplification [NAA] test), or the presence of a cavity on a chest radiograph (CXR). These interviews are conducted within three business days. All other cases are interviewed within five days.

During the initial interview:

- Patients are informed that the Bureau's role is to make sure that the patient receives the best care until the end of their treatment
- Patients are informed that subsequent appointments should be kept, and that they will be informed of any changes in schedule or appointment time
- The patient interview takes place under conditions that are private and the patient is assured that any information provided will be kept confidential, to the extent possible
- Patients are informed about the nature of the questions that they'll be asked, how the information collected will be used, and under what conditions that information might be shared in the context of legal public health activities
- If staff must wear a respirator during the interview, the rationale for doing so is explained to the patient

Ideally, patient interviews are conducted in person. However, there are circumstances in which phone interviews may be the only option (e.g., patient no longer lives in NYC). If the patient is too young to be interviewed or is not able to be interviewed (e.g., the patient has died), a parent, guardian, or next of kin is interviewed. Non-Health Department medical databases and other sources may be searched for applicable information that can inform the initial interview. A chart review is conducted in person at the facility where the patient is receiving care; external health databases may also be used as a supplement to chart reviews. (See *Appendix L: Initial Patient Interview Topics*.)

DETERMINING THE NEED FOR A CONTACT INVESTIGATION, IDENTIFYING AND TESTING CONTACTS

Contact elicitation and subsequent investigations are required for patients diagnosed with signs and symptoms consistent with TB disease from a respiratory site (i.e., pulmonary, upper airways, or laryngeal) whose organism is smear-positive for AFB, NAA, and/or culture-positive for *M. tuberculosis*. During the initial interview with the patient, household contacts and potential sites of exposure (e.g., work or school) are elicited, as well as information regarding extent of exposure, number of contacts, and the environment.

The information from patient interviews, chart reviews, and home assessments is used to clarify the need for and scope of a contact investigation. This includes ascertaining the duration and frequency of symptoms (especially cough), eliciting the names of individuals with whom the patient had contact, and congregate site(s) where the patient spent time during the infectious period (i.e., work, school, house of worship, shelter, etc.).

Contact investigation is an ongoing process that continues throughout the patient's care. (See *Chapter 11: Contact Investigation*.)

CONDUCTING CHART REVIEWS

Chart reviews are conducted to supplement and verify information obtained during the interview. Chart reviews can provide information pertaining to the patient's name, address, telephone number(s), birth date, and health insurance, as well as the healthcare provider's name, address, and identifying information. Chart reviews often provide information that can be of importance when eliciting contacts. Ideally, the chart review should be conducted before the interview as it can help identify areas of concern.

A chart review includes:

- Obtaining information relevant to the treatment or evaluation of the patient's TB condition and other conditions that could impact TB treatment (e.g., human immunodeficiency virus [HIV] status, hepatitis) or are associated with risk factors that may have contributed to the development of TB disease (e.g., immunosuppressive medications or conditions)
- Collecting residential address and other locating information
- Collecting demographic information (e.g., country of birth)
- Collecting information on patient's history of treatment for latent TB infection (LTBI) and/or TB disease
- Collecting names, addresses, and telephone numbers of the patient's primary care provider and any specialists involved in their medical care, previous hospitalizations, and current medications
- Obtaining/gathering information on family and household contacts, social history (e.g., work and school history, history of homelessness, incarceration)
- Making copies of bacteriology, CXR, and computed tomography (CT) reports that can be scanned and attached in the TB surveillance and case management system (Maven)
- Documenting information regarding medications prescribed by the treating physician and isolation information, if applicable

Once collected, these data and all case management activities are input into Maven.



As a public health entity, the NYC Health Department is entitled to review patient medical charts without patient authorization. (See *Chapter 17: Laws Governing Tuberculosis Care in New York City*.)

COMMUNICATING WITH PATIENTS' HEALTHCARE PROVIDER(S)

Regular communication occurs between BTBC and a patient's healthcare provider(s) throughout the course of a patient's TB diagnosis and treatment. Members of the BTBC case management team communicate with non-BTBC providers to establish discharge plans for hospitalized patients, follow up on treatment plans, ensure that patients are attending all follow-up appointments, request a completed Report of Patient Services (RPS) form monthly, and help identify and address any barriers to care.

It is important for case managers to establish a relationship with community providers, to stress the importance of coordinating patient care, and to ensure providers know about available medical consultation services. Providers are informed about BTBC's case management role and services, including DOT, sputum induction services, drug-susceptibility tests (DSTs), genotyping, and clinical care services in NYC Health Department TB clinics. Providers are informed about local, State, and national guidelines for TB treatment and monitoring, including the need for specimen collection and documentation of sputum culture conversion. Significant treatment concerns are discussed in collaboration with a BTBC medical consultant and the treating provider.

CONDUCTING HOME VISITS

When a patient is hospitalized with infectious TB disease, a home assessment is attempted prior to the patient's discharge from the hospital. The purpose of the home assessment is to evaluate that the patient has a safe and stable home environment and to determine if all household contacts have been identified. TB testing is offered to any contacts present during the home visit, and if this is declined, BTBC staff facilitate TB evaluation at either a NYC Health Department TB clinic or a community provider.

If the patient is still potentially infectious when leaving the hospital, there are special considerations regarding their discharge home. Other individuals living in the home must agree that the infectious patient can return to the home and the patient must have capacity to separate from others in the home. The patient should sign a home isolation agreement and agree to participate in DOT. (See *Chapter 13: Infection Control* and *Appendix M: Directly Observed Therapy Agreement Form*.) Home assessments are also conducted for patients with infectious TB disease diagnosed in outpatient settings. If there are unstable living conditions and the patient cannot be separated from other household members, the patient should be admitted to the hospital for appropriate airborne infection isolation.

During the patient's TB treatment, at least one home visit is required. Home visits are also useful for confirming the patient's address, particularly for patients at high risk for non-adherence to treatment. Information gathered at the patient's home can sometimes lead to the identification of additional contacts and a better understanding of the relevant details of a patient's life that may inform case management or contact investigation (e.g., seeing a child's shoes or toys when a child was not named in the initial

interview). Further home visits can be done as needed.

MONITORING TUBERCULOSIS CARE

Various activities are conducted throughout case management to ensure continuity of care and to foster treatment adherence. These activities include monitoring medication side effects and physical changes in the patient's condition (e.g., weight gain), updating laboratory and bacteriology tests and results, updating the progress of contact investigations, and ensuring referrals for social services. If the patient is not on DOT, pharmacy checks are routinely conducted to ensure the patient is on appropriate medication, has an adequate supply, and is adherent to treatment. BTBC submits a written request to the pharmacy highlighting the requirement to provide the requested information. The patient's medical record is also routinely monitored to ensure that complete and up-to-date laboratory tests, sputum results, and/or medical information are entered into the electronic surveillance and case management system. For patients with pulmonary TB disease, routine sputum collection to monitor culture conversion within 60 days of treatment initiation is also conducted. Patients are also regularly reminded of upcoming scheduled clinic visits.

IDENTIFYING BARRIERS TO TREATMENT ADHERENCE

As there can be many barriers to care that prevent patients from taking their TB medication or keeping their physician and clinic appointments, patient needs and obstacles to care are identified and addressed whenever possible. These can include language needs, availability of transportation, the patient's preference for place and time of DOT, the ability to swallow pills, and medication side effects. It is also important to review psychosocial status to identify unmet social service needs, the use of alcohol and/or illegal drugs, concerns about the stability or safety of residence or the risk of homelessness, unstable employment or lack of time-off to attend medical appointments, financial concerns, or any pre-existing psychiatric diagnoses. When these conditions are identified, patients are referred to a social worker.

Incentives or enablers are offered to enhance adherence to therapy. In NYC Health Department TB clinics, patients are provided with a MetroCard to ensure transportation cost is not an issue for clinic appointments. When necessary, referrals are provided for a range of services, including housing, food stamps, etc.

Information that may indicate a potential for non-adherence is obtained and documented; barriers to care are addressed on an ongoing basis. Early indicators of poor adherence include:

- Marginal or no acceptance of TB diagnosis
- Complaints that TB medications taste bad or make the patient sick
- Failure to attend monthly follow-up appointments
- No verification of pharmacy pick-up
- Substance abuse
- Slow sputum conversion or delayed clinical improvement
- Clinical deterioration while on TB therapy

ENSURING CONTINUITY OF CARE

When a patient's care is transferred from one provider to another, referrals for care are conducted; this includes transfers between NYC Health Department TB clinics. If a patient plans to relocate, new contact information (address, phone, etc.) is obtained and documented immediately. If the patient is moving out of NYC, the case is referred for interjurisdictional or international notification to the patient's new jurisdiction. BTBC staff continue to follow up with care providers in the patient's new jurisdiction to ensure treatment completion. In these instances, the patient is provided with information on how to reach BTBC in case the transfer does not occur or the patient has any questions.

DOCUMENTING PATIENT INFORMATION AND CASE MANAGEMENT ACTIVITIES IN THE ELECTRONIC SURVEILLANCE AND CASE MANAGEMENT SYSTEM

Patient information and case management activities are documented in BTBC's TB surveillance and case management system. Since different staff in BTBC are involved in a patient's care and require the most up-to-date information, information obtained or case management efforts conducted for a patient are regularly updated in the surveillance and case management system. Such information includes demographics, clinical and social information, current and history of diagnostic workup and treatment, persons exposed in the household and congregate settings, and treatment management plan. In addition, patient information may be used to support legal actions towards non-adherent patients, for data reporting and program evaluation, and research purposes.

DIRECTLY OBSERVED THERAPY

DOT is one of the tools used for effective case management. DOT involves a trained staff member observing the ingestion of each dose of anti-TB medication for part or all of a patient's treatment. DOT is the standard of care in TB treatment and is the best way to ensure that patients complete an adequate course of treatment and that adverse medication effects are promptly identified and assessed.

Patients eligible for DOT include those started on treatment for confirmed TB disease or those with signs and symptoms consistent with TB disease who are not hospitalized, incarcerated, or residing in a nursing home or other residential facility. Although most DOT services in NYC are provided by BTBC, several public hospitals administer DOT for patients under their care. On occasion, DOT is provided for contacts who are at high risk.

BTBC offers four DOT options:

- 1. In-person clinic DOT:** Patient comes to the clinic for observation
- 2. Community DOT:** BTBC staff meets the patient in their home or other agreed upon location in the community for observation
- 3. Live video DOT (LVDOT):** Patient is observed real-time through video conferencing software
- 4. Recorded video DOT (RVDOT):** Patient records themselves ingesting their medication and securely transmits the video for observation

Patients are placed on the method of DOT that is most convenient for them. The decision for the best DOT option is made between the physician and the patient. DOT is offered to all patients within NYC, regardless of where they obtain TB care.

If DOT is offered by the physician and accepted by the patient, every dose of medication given on a weekday (excluding NYC-approved holidays) is taken under observation. Most patients take medications daily during the first two months of therapy, while some patients will take medications on an intermittent schedule after the first two months of therapy. Intermittent therapy can be administered only if DOT is accepted by the patient. DOT is provided only on non-holiday weekdays so patients on a daily regimen self-administer on holidays and weekends. For patients on intermittent DOT, DOT schedules are adjusted on holidays to ensure medication doses are observed.

If a patient is not on DOT, monthly pharmacy checks with the pharmacy where the patient receives their medication are conducted to ensure the medication is refilled and picked up by the patient as expected.

ADDRESSING NON-ADHERENCE

Despite proper case management efforts and open communication with patients, some patients miss their clinic or DOT appointments and other follow-up visits. In these instances, return to service (RTS) activities are initiated (i.e., phone calls and home visits) to locate and encourage patients to return to care. If the patient continues to miss appointments and/or DOT visits after these interventions, the patient must be referred for legal interventions. As a last resort, non-adherent patients who are deemed to be potentially infectious must be referred for evaluation for legal interventions if all other efforts were unsuccessful.

FOLLOW-UP OF PATIENTS WITH MISSED CLINIC APPOINTMENTS

Patients who miss NYC Health Department TB clinic appointments are initially contacted by telephone within one working day. If they cannot be reached by phone, the patient is referred for a home visit. Patients seen at a TB clinic may also be mailed a letter with a new clinic appointment if the only means of contacting the patient is a mailing address (i.e., post office box) and the patient specifically requests not to be visited at home and has a valid reason for this request (i.e., issues with domestic violence and a visit to the home could put the patient in potential danger).

For patients younger than 18 years of age whose parent or guardian refuses to permit the child's evaluation or treatment, BTBC works with the Administration for Child Services (ACS) to determine further actions; however, this is an option of last resort after all other attempts to get the child evaluated have failed.

FOLLOW-UP OF PATIENTS WITH MISSED DIRECTLY OBSERVED THERAPY VISITS

Patients on DOT are called the same day of a missed appointment. If the phone call is unsuccessful or if the patient has no phone number, a home visit is conducted at different times from the scheduled observation. Daily DOT patients are considered non-adherent after missing two of five scheduled observations per

week. Patients on intermittent DOT (three times per week) are considered non-adherent after one missed dose of medication. All instances of DOT non-adherence and intervention must be documented in the patient's electronic medical record (EMR) and the electronic surveillance and case management system, Maven. Clinic DOT patients who cannot be located must be referred for further RTS follow-up.

RETURN TO SERVICE EFFORTS

Immediate follow-up is essential for patients who are non-adherent. For patients treated at NYC Health Department TB clinics, clinic staff initiate the first RTS action and, if unsuccessful, refer to regional staff for further actions. For non-adherent patients receiving treatment from non-BTBC providers, RTS actions are initiated once community staff learn that the patient is non-adherent. RTS efforts include reviewing case management notes; attempting additional phone calls and community visits to homes or other locations; conducting hospital, shelter, or prison checks as appropriate; and obtaining additional contact information through the use of other agency databases, social media, and other web-based resources.

Several factors must be considered when deciding how to prioritize finding patients lost to follow-up. The first consideration is whether the patient has enough medication. Patients who have sufficient medication and who report by telephone that they are taking the medication are a lower priority than those who have run out of medication.

Otherwise, prioritization of patients for RTS is as follows:

1. Any patient with multidrug-resistant TB (MDR-TB)
2. Newly-diagnosed patients who have had AFB-positive sputum smears
3. Any child younger than 18 years of age
4. Any patient who has HIV infection
5. Individuals with HIV infection who are contacts of MDR-TB patients
6. Patients with other drug-resistant TB (DR-TB) who have not culture converted
7. Patients with drug-susceptible TB disease who have not culture converted
8. Patients with negative cultures who have received less than six months of treatment
9. Patients with extrapulmonary TB disease

REGULATORY INTERVENTION OPTIONS

For patients who have confirmed infectious TB disease, or have signs and symptoms consistent with infectious TB disease and have a demonstrated inability or unwillingness to adhere to TB evaluation and treatment, regulatory interventions may be necessary. Possible regulatory options include outpatient interventions (e.g., mandated DOT) or mandated detention. Referrals are made only after customary interventions fail to result in patient evaluation or adherence to treatment. All efforts and interventions made to facilitate adherence to prescribed TB treatment regimens must be documented in detail in the electronic surveillance and case management system. Efforts to return patients to medical care must

continue until a regulatory decision is made. Legal intervention is considered when all reasonable efforts to assist the patient in completing the entire course of TB treatment regimen have failed.

The purpose of regulatory intervention is to:

- Prevent potential exposure among members of the public to patients with infectious TB disease who have refused to agree to treatment adherence and isolation
- Ensure that patients with TB disease complete an adequate course of TB treatment
- Ensure that patients with signs and symptoms consistent with TB disease undergo appropriate evaluation
- Prevent the development of acquired drug resistance among TB patients who are unwilling or unable to adhere to an uninterrupted course of treatment

Patients who are eligible to be referred for regulatory intervention include:

- Patients who miss clinic appointments for two or more months and have refused DOT
- Patients who are non-adherent to self-administered treatment, and are unwilling or unable to start or continue DOT
- Patients who have not picked up the appropriate medications, as determined by pharmacy checks
- Patients who continue to be non-adherent even when barriers to treatment adherence have been addressed to the extent possible
- Patients who maintain less than 80% adherence to DOT

NOTICE OF OBLIGATION TO ISOLATE

When a provider has grounds to believe that an infectious or potentially infectious patient will attempt to leave the hospital without authorization, the facility contacts BTBC. BTBC prepares and sends a Notice of Obligation to Isolate (NOI) to the facility. For patients who are deemed infectious and do not meet discharge criteria, the facility is obligated to take steps to prevent the patient from leaving, such as by posting a guard if necessary.

Upon receiving the NOI, the hospital must monitor the patient's activity and take all necessary measures to prevent them from leaving the hospital. BTBC will assess the patient's risk to the public health. Based on hospital and other clinical records, the patient's TB treatment-related behaviors will be evaluated. Additionally, documentation pertaining to case management efforts to identify and address barriers to patient adherence are assessed. To facilitate the Commissioner's Order, clear, convincing evidence of non-adherence must be provided. The evidence must sustain the need of a regulatory action for detention of an individual with active TB disease who is unable or unwilling to adhere to treatment.

BTBC assessment determines whether a Commissioner's Order can be issued. If issued, the Commissioner's Order for Detention will be provided to the hospital within three business days of the issuance of a NOI.

The patient who is to be detained is personally served with the Detention Order by BTBC or hospital staff. When the patient is served, they are informed of the legal authority for the order and their rights, which include the right to request release at any time and the right to an attorney. The order includes BTBC and other Health Department telephone numbers that the patient may call to request legal representation and/or release. The City of New York will assign a lawyer to the patient upon the patient's request.

COMMISSIONER'S ORDERS

The NYC Health Code authorizes the Commissioner of Health to exercise a range of compulsory options to control TB (i.e., to issue "any orders they deems necessary to protect the public health" from someone who is a danger to the public health). (See *Chapter 17: Laws Governing Tuberculosis Care in New York City*.) The Commissioner is empowered to detain patients with TB disease whose presence in the community constitutes a danger to the public health. However, involuntary detention is generally considered a measure of last resort. Considerable due process safeguards mandated by the NYC Health Code assure that the Commissioner's Orders are issued only when less restrictive alternatives have failed or are not feasible.

Less restrictive orders may be requested by providers treating patients for whom adherence to anti-TB medication is an issue. The provider may request, and the Commissioner may order, that a person with TB disease complete an appropriately prescribed course of medication and/or that a patient's ingestion of medication be monitored through DOT.

TYPES OF COMMISSIONER'S ORDERS:

- **D:** Outpatient examination of patient with confirmed TB disease or person with signs and symptoms consistent with TB disease
- **D1:** Detention in a hospital of individuals who have or are suspected of having active TB and who are unable or unwilling to submit to voluntary examination. A D4 or D5 must be issued if circumstances warrant continued detention after examination confirms active TB disease
- **D2:** Require that persons having or suspected of having active TB complete an appropriate prescribed course of medication for TB and infection control precautions
- **D3:** Require that persons with active TB complete an appropriate prescribed course of medication for TB under direct observation by BTBC staff
- **D4:** Removal and/or detention in a hospital or other healthcare facility of persons having or suspected of having active infectious TB who are considered likely to transmit the disease to others because they are unable or unwilling to observe appropriate infection control precautions. The detention order may be lifted if circumstances change, indicating that the patient is either no longer infectious and/or is able or willing to comply with respiratory isolation or other necessary contagion precautions.
- **D5:** Removal and/or detention in a hospital or other healthcare facility of individuals with active TB (infectious or non-infectious) that, based on past or present non-adherent behavior, cannot

be relied upon to complete the appropriate TB treatment regimen and/or to maintain infection control precautions. This order allows long-term detention, until treatment completion, for patients who require it.

Issuing a Commissioner's Order involves a complex process that takes into consideration patient behavior and clinical characteristics. The decision to issue a Commissioner's Order involves multiple levels of review of the patient's medical and TB treatment histories, including:

- Analysis of all relevant BTBC and hospital records to verify past TB-related behavior
- Documentation of providers' efforts to promote adherence to treatment
- Description of the patient's present circumstances

Once a Commissioner's Order has been issued, patients have clear rights afforded to them during the legal process. Patients detained pursuant to Commissioner's Orders may request release at any time after an order is served. They are entitled to representation by a private or city-appointed attorney. When the detainee requests release, the city has three business days to file an application in Supreme Court seeking a court order authorizing continued detention. This is also known as an order to show cause.

The order to show cause requests the court to schedule an expedited hearing at the facility where the patient is being detained. Patients who do not request release may be held for up to 60 days by Commissioner's Order. If longer detention is anticipated, BTBC must apply for a court order authorizing continued detention. All court orders must be reviewed by the court issuing the order every 90 days thereafter.

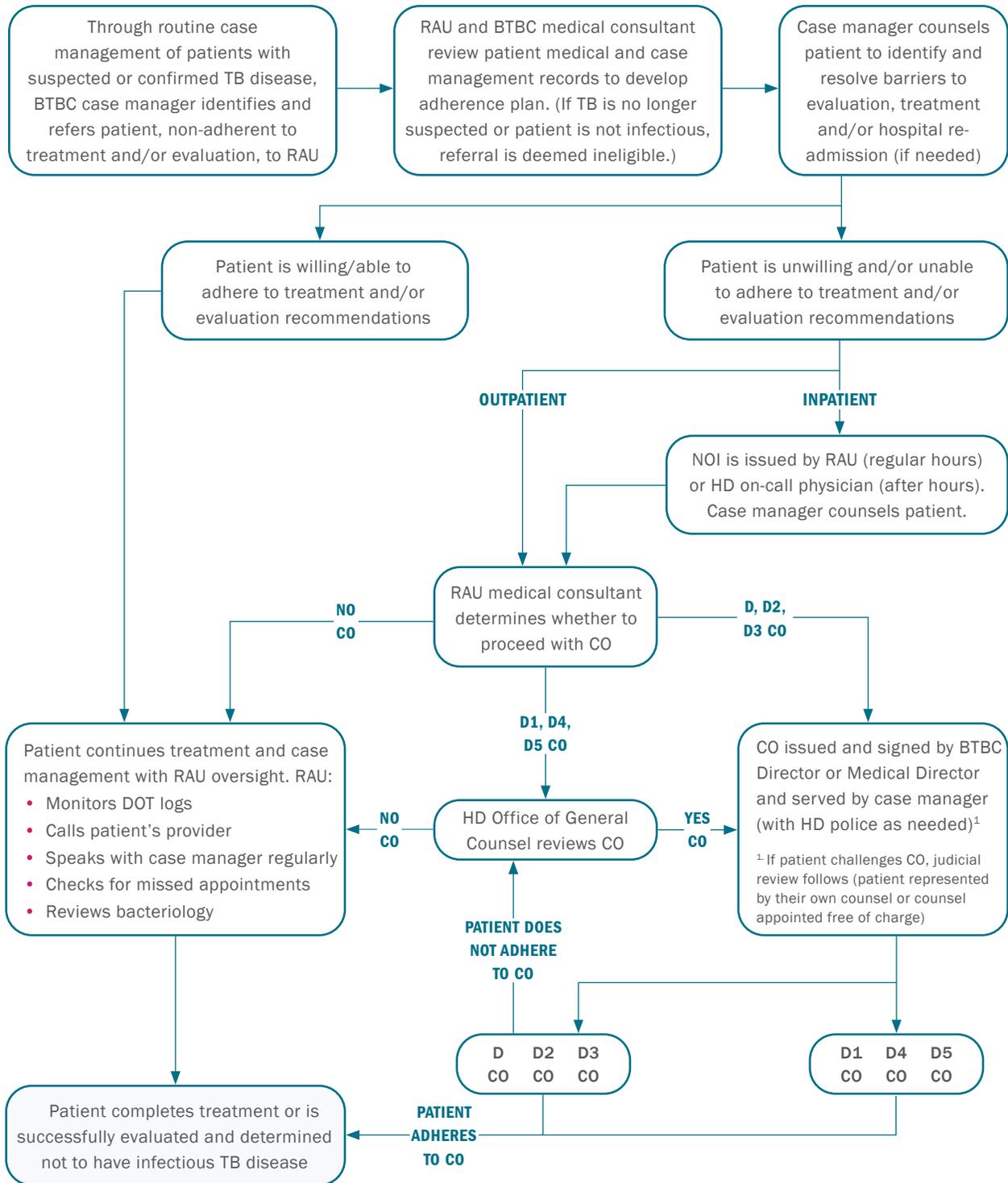
The burden of proof supporting the detention of an individual with TB rests with BTBC, which must provide clear and convincing evidence that the continued presence in the community of the individual with active TB disease presents a danger to public health and that there is no measure short of detention that can be reasonably applied.

Documentation in the form of hospital, clinic, and other medical records constitutes BTBC's evidence that detention is necessary. Certified copies of hospital and other records are required. The records include, but are not limited to:

- All TB-related admissions and clinic visits
- Incident reports for elopement (leaving the hospital without notice)
- Leaving the hospital against medical advice
- Records of visiting nurse and other provider home visits for DOT
- Notes or memoranda from psychiatric, medical, nursing, social worker, or other provider staff

The records require documented observations of a patient's past TB adherence history and other factors that appear to rule out reliance on voluntary completion of prescribed TB therapy. BTBC's access to such records is authorized by applicable City, State, and federal law, and a BTBC representative requests them in writing.

FIGURE 10.1: New York City Bureau of Tuberculosis Control case management and regulatory processes for identifying and addressing non-adherence to TB evaluation and treatment



Abbreviations Used: BTBC=Bureau of Tuberculosis Control; CO=Commissioner's order; DOT=directly observed therapy; HD=Health Department; NOI=notice of obligation to isolate; RAU=regulatory affairs unit; TB=tuberculosis

ENSURING EFFECTIVE CASE MANAGEMENT

Effective supervision of the work of the case management team is essential. Systematic review of these activities are conducted regularly by supervisors. At each review session, any outstanding issues are addressed, including barriers to patient adherence and care, and plans to resolve these issues are developed and implemented.

CASE MANAGEMENT MEETINGS

Case management meetings are held regularly and are attended by the case management team, which includes the medical consultant, physicians and nurses involved in the care of the patient, case managers, case management supervisors, DOT supervisors, epidemiologists, and others as necessary. Matters addressed by the case management team include:

- Treatment regimen and adherence issues: bacteriology results, susceptibility results, timeliness of culture conversion, as appropriate
- Status of contact investigation, with special attention to pediatric contacts, immunocompromised contacts, and contacts to MDR-TB patients
- Completeness of information that has been entered into the TB surveillance and case management system
- Mental, emotional, and cognitive status of the patient and their ability to understand and address their TB diagnosis
- Substance use issues, if relevant to patient care
- Access to transportation for medical appointments
- Usual places of residence, where and how to locate the patient, impending plans to relocate or travel, housing needs, and living situation
- Cultural and religious beliefs that may impact adherence
- Language and literacy barriers
- Work history, school/daycare, and/or any program or congregate setting attendance
- Ability to pay for non-TB-related medical care and need for referral to social services
- Support system such as family, friends, coworkers, religious/spiritual leaders
- Family dynamics that may influence patient care (i.e., parent who does not want children tested for TB infection after an exposure)

MEDICAL CONSULTATION

To ensure that all patients receive the highest quality TB care and achieve treatment success, BTBC offers medical consultation to both BTBC staff and community providers as part of case management activities. BTBC medical consultants are physicians who have years of experience in treating TB disease and LTBI.

This unique BTBC service allows community providers the opportunity to receive expert consultation regarding diagnostic processes, treatment plans, infection control, contact evaluation, treatment of MDR-TB, adverse reactions to medication, and any other TB-related concerns. Recommendations related to TB diagnosis, treatment, and case management are made based on BTBC policies, national guidelines from the Centers for Disease Control and Prevention (CDC)/American Thoracic Society (ATS)/European Respiratory Society (ERS)/Infectious Diseases Society of America (IDSA), and professional experience.

BTBC medical consultation activities include the following:

REVIEW OF CASES: Confirmed TB cases, contacts, and patients being evaluated for TB disease are reviewed on an ongoing basis to ensure that all patients are receiving appropriate treatment and care. Medical consultants provide guidance on TB diagnosis, medical treatment, and case management. Cases are also reviewed for public health considerations including infection control, contact investigation, and the need for regulatory intervention.

DIAGNOSTIC EVALUATION: Diagnosis of TB disease requires a high index of suspicion; use of appropriate diagnostic processes and tests is critical for prompt identification and treatment. Recommendations for diagnostic tests are discussed and the process by which community providers may obtain services available through the NYC Health Department Public Health Laboratories (NYC PHL), the New York State Department of Health Wadsworth Center, CDC, or other laboratories is reviewed.

MULTIDRUG-RESISTANT TUBERCULOSIS CONSULTATION: Treatment for MDR-TB and extensively drug-resistant TB (XDR-TB) patients is complicated, lengthy, and can be difficult to manage. Treatment is individualized for each patient. Recommendations for individualized MDR/XDR-TB treatment are offered, as well as guidance on use of rapid molecular diagnostic tests for clinical decisions, and recommendations for the testing and treatment of individuals exposed to a patient with MDR/XDR-TB. (See *Chapter 6: Treatment of Drug-Resistant Tuberculosis Disease in Adults.*)

HOSPITAL DISCHARGE PLANNING: Hospital discharge plans are reviewed to determine if patients can be safely discharged to an outpatient setting. If the patient remains infectious, guidance to minimize the risk of transmission in the community is also provided. Review steps may include: ensuring that a home assessment has been conducted, assessing the adequacy and tolerance of therapy, ensuring that DOT has been offered, ensuring that appropriate home isolation steps are in place (when relevant), and verifying that an adequate plan for provider follow-up is in place. (See *Chapter 13: Infection Control.*)

TREATMENT RECOMMENDATIONS: BTBC medical consultants provide treatment recommendations for LTBI and active TB disease, including dosing information, optimal medication combinations, and duration of therapy. Special circumstances (e.g., pregnancy, concurrent treatment for renal failure or liver dysfunction) are considered and discussed.

DRUG-TO-DRUG INTERACTIONS: Many patients take medication for other medical conditions that may interact with TB medications. As part of TB disease and LTBI treatment planning, BTBC medical consultants review all medications that patients are currently taking and may recommend adjusting the TB regimen to minimize any drug-to-drug interactions, particularly for patients being simultaneously treated for HIV.

In certain situations, the medical consultant may recommend dose adjustments or drug substitutions of non-TB medications or other interventions.

INFECTION CONTROL: BTBC medical consultants assess infectiousness and determine whether a patient can be released from airborne infection isolation and whether home isolation is needed for patients not hospitalized. Medical consultants can also make recommendations about return to work, school, or other congregate living situations for patients with infectious TB. Recommendations are made based on BTBC's guidelines for infection control practices. (See *Chapter 13: Infection Control*.)

DETERMINE COMPLETION OF TREATMENT: BTBC medical consultants determine when a patient has adequately completed a full course of treatment. This is particularly important for patients who may have had low adherence at any point during their treatment course or were not on DOT.

TRANSMISSION ASSESSMENT AND RELATED RECOMMENDATIONS: BTBC medical consultants review recommendations to initiate and/or complete contact investigations for potentially infectious patients and help staff assess household TB transmission. This process ensures that contact investigations progress appropriately and may entail recommendations for re-interviewing the patient and/or expanding the contact investigation when transmission occurs. (See *Chapter 11: Contact Investigation*.)

FOLLOW UP WITH PROVIDERS: As part of case management reviews, issues may be identified with a patient's care that require the medical consultants to follow up with the patient's community provider. Issues are generally related to potential concerns with treatment, diagnostic testing, adherence, and evaluation, and/or treatment of individuals exposed to a patient with infectious TB disease.

CONDUCT TB ROUNDS AND MEDICAL TALKS: BTBC medical consultants give medical talks and participate in TB Rounds at hospitals throughout NYC. TB Rounds often include a review of a facility's past experience in managing patients with TB, an overview of the epidemiology of TB in NYC, and a review of current recommendations for TB diagnosis and treatment. They may also serve as a forum to review complicated TB cases, explain BTBC's case management process, and inform providers of the latest diagnostic and treatment options. (See *Chapter 14: Outreach and Education*.)

TUBERCULOSIS HOTLINE: The on-call BTBC medical consultant can be reached directly during regular business hours through BTBC's TB Hotline at **844-713-0559**. Through the Hotline, BTBC physicians provide consultation on all aspects of TB diagnosis, treatment, prevention and care, infection control, discharge planning, reporting processes, contact evaluation and treatment, referrals to NYC Health Department TB clinics, and other issues.

POUCH REVIEW

A pouch review is a process by which case management activities are reviewed by case management staff and their supervisors on a regular basis. The objective of the pouch review is to ensure thorough collection of information and accountability in following up on plans and issues to achieve positive patient care outcomes.

COHORT REVIEW

The quarterly cohort review is a tool to improve case management and ensure complete and appropriate treatment and care for tuberculosis patients. During cohort reviews, TB cases are reviewed by the Bureau Director three to six months after assignment to a public health advisor for case management. All aspects of the public health record are reviewed, including medical evaluation and treatment, adherence to therapy, completion of therapy, and contact evaluation if appropriate. (See *Chapter 16: Program Evaluation and Research.*)

SUMMARY

Case management is one of the fundamental TB control activities used to ensure successful treatment outcomes. BTBC provides case management for all patients with confirmed TB disease or signs and symptoms consistent with TB disease, as well as contacts being treated for LTBI. In BTBC, a multidisciplinary case management team is responsible and accountable for coordinating patient care and ensuring completeness of recommended treatment regimens for each patient. Using a patient-centered approach, the case management team works in partnership with patients and their providers to achieve treatment success.

KEY SOURCES

Centers for Disease Control and Prevention. (2016). Self-Study Modules on Tuberculosis-Module 6: Managing Tuberculosis Patients and Improving Adherence. Atlanta, Georgia; United States Department of Health and Human Services; Centers for Disease Control and Prevention; National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention; Division of Tuberculosis Elimination. Retrieved from <https://www.cdc.gov/tb/education/ssmodules/pdfs/Module6.pdf>.

Chuck C, Robinson E, Macaraig M, Alexander M, Burzynski J. Enhancing management of tuberculosis treatment with video directly observed therapy in New York City. *Int J Tuberc Lung Dis*. 2016 May;20(5):588-93.

Dorsinville MS. Case management of tuberculosis in New York City. *Int J Tuberc Lung Dis*. 1998 Sep;2(9 Suppl 1):S46-52.

Gasner MR, Maw KL, Feldman GE, Fujiwara PI, Frieden TR. The use of legal action in New York City to ensure treatment of tuberculosis. *N Engl J Med*. 1999 Feb 4;340(5):359-66.

Jin BW, Kim SC, Mori T, Shimao T. The impact of intensified supervisory activities on tuberculosis treatment. *Tuber Lung Dis*. 1993 Aug;74(4):267-72.

Munsiff SS, Ahuja SD, King L, et al. Ensuring accountability: the contribution of the cohort review method to tuberculosis control in New York City. *Int J Tuberc Lung Dis*. 2006 Oct;10(10):1133-9.