**Nurse Guidelines for Tuberculosis Case Management**

**SUMMARY:** Oversight for the management of care, in the community setting, for tuberculosis (TB) patients is the responsibility of the local health department TB coordinator and or the TB nurse case manager in collaboration with health directors, nurse leaders, nurse managers, clinicians, outreach workers and others. Care may be provided for active TB cases, suspected TB cases, contacts to an active case, and for those with latent TB infection (LTBI) after contact to an active case. Patients may be managed in the private sector, by public health departments, or jointly. For all cases, the health department is ultimately responsible for ensuring that adequate, appropriate diagnostic services are available, ensuring medication therapy includes 4-drug treatment recommended by CDC and SNTC, and for monitoring the results of therapy. The local health department is responsible for directly observed therapy and directly observed preventive therapy. The local health department is responsible for conducting all contact investigations related to the TB case.

**BRIEF BACKGROUND:** Case management is the preferred strategy for coordinating TB patient care to ensure that the patient’s medical and psychosocial needs are met through appropriate utilization of resources. The TB coordinator or nurse case manager is responsible and accountable to ensure that the patient completes a course of therapy; is educated about TB and its treatment; has documented culture conversion; and completes a contact investigation when appropriate. The primary goals of TB case management are to render the patient non-infectious by ensuring appropriate treatment; prevent additional transmission and development of additional disease; identify and remove barriers to adherence; and identify and address and refer care for other urgent health needs. The health department role includes case management, contact investigation, determination of infectiousness (including release from isolation and return to normal activity/locations), and oversight of the treatment plan and outcome as well as directly observed therapy and directly observed preventive therapy.

It is beyond the scope of this document to cover all situations that may arise during the course of treatment or investigation of any one individual or community. All nurses involved in the case management of TB patients should have immediate access to guidelines, policies and procedures published by the Centers for Disease Control and Prevention (CDC), Division of Tuberculosis Elimination, Kentucky Tuberculosis Prevention and Control Program, and the Southeastern National Tuberculosis Center (SNTC).

PROCEDURE

**Initial Steps to the reported TB case/suspect:**

* Each health department should assign responsibility for caring for and receiving case reports to the TB Coordinator. Contact investigation information and the local process for reporting new TB cases/suspects should be communicated to appropriate facilities and providers within the county and to the Kentucky Tuberculosis Prevention and Control Program.
* All cases should be assigned to a TB coordinator and or a nurse case manager within one business day of receiving the case report. Determine if an interrupter is needed, and arrange services for home and clinic visits.
* Determine who will be the clinician of record for the patient. Ensure that the clinician has access to appropriate treatment guidelines, legal and regulatory information pertinent to the control of tuberculosis and clinical information. Explain the role of the health department and TB Coordinator and or nurse case manager, if necessary ensure each patient’s treatment regimen includes standard 4-drug therapy as recommended by CDC and SNTC.
* The TB coordinator or nurse case manager should communicate with medical care facilities about discharge planning prior to the release of patients from all medical care facilities (hospitals, long term care facilities, correctional facilities, etc.) for continuation of care and directly observed therapy.
* Ideally, the first contact with the patient and treating clinician (not office staff) should be within one business day, but no later than 3 days, after the initial report. If the patient is hospitalized, a hospital visit should be made prior to discharge, if possible. Once patient is discharged from the hospital, prepare for a home visit so DOT is continued, and no doses are missed.
* Assess for patient infectiousness potential. Determine the infectious period and the need for isolation, use of mask by patient when leaving isolation, and use of N95 respirator by health department personnel when interacting with patient. If the patient is infectious, document findings in chart. Refer to Box 3 on page 9 of MMWR “Controlling Tuberculosis in the United States” for current criteria for determining when patient on therapy for pulmonary TB has become non-infectious.

**During the initial patient and provider interview, obtain information including the following:**

* Current patient demographics including: name, address, all phone numbers, date of birth, country of origin, immigration status at time of entry, length of time in US, if appropriate
* Medical history and risk factors for either acquiring TB infection or for progression to active disease such as, persons with HIV infection, persons who are receiving immunosuppressive therapy such as tumor necrosis factor--alpha (TNF-α) antagonists, systemic corticosteroids equivalent to ≥15 mg of prednisone per day, or immune suppressive drug therapy following organ transplantation, Silicosis, Diabetes mellitus, chronic renal disease, certain hematologic disorders (leukemias and lymphomas), Cancer of the head, neck, or lung, Gastrectomy or jejunoileal bypass, people receiving immunosuppressive therapy for rheumatoid arthritis or Crohn’s disease, and low body weight (BMI < 19)
* If TB patient is a smoker, offer smoking cession education to encourage the patient to stop smoking.
* If patient is drinking alcohol or using drugs counsel to abstain while on treatment
* Signs and symptoms of disease including initial onset. (Information may be needed to determine period of infectiousness and for planning contact investigation.)
* Tuberculin skin test (TST) results or Blood Assay for *Mycobacterium tuberculosis* (BAMT) results, if not performed do one at that time.
* Chest x-ray results, CT scan results.
* HIV test results, if one has not been completed; offer until patient consents or therapy is complete.
* Bacteriology results to include any or all that are currently available (e.g., smear results, culture results, susceptibility results and NAA results or PCR results)
* Current patient height and weight
* Other hospital and medical records
* Social risk factors (living arrangements, work/school, ETOH abuse, substance abuse, homelessness, any correctional facility, and any potential language/cultural barriers).
* Where appropriate, obtain and place copies of all pertinent records (e.g., chest x-rays, bacteriology results, discharge summaries, etc.) in the patient record.
* Assess the status of the diagnostic evaluation and arrange for additional examinations, if needed.
* For all cases of suspected extra-pulmonary TB, chest x-ray and submission of three specimens for sputum testing for AFB smear and culture should be completed to assure that pulmonary disease is ruled out.
* Assess the current TB treatment plan for conformity to recommendations found in TB chapter of the Core Clinical Services Guide.
* Kentucky endorses (Preferred Regimen from the 2016 treatment guidelines located in the CCSG under Drug Regimens for TB & Drug Resistant TB) 4-drug TB antibiotic therapy initially for all TB patients with drug sensitive organism. Medication dosages are based on weight, with adjustments, if needed for altered renal and hepatic function or potential drug-drug interactions <http://cid.oxfordjournals.org/content/63/7/e147> .
* Re-calculate all medication dosages to assure appropriate dose for weight.
* Review baseline CBC, liver and (renal function tests for patients with renal insufficiency or renal failure). Review HIV test results. Review entire medication profile for potential drug-drug, drug-herbal and drug-food interactions. If baseline labs are abnormal repeat blood tests as needed.
* Assess for known drug allergies.
* Assess for any other patient care needs and refer patient when and where applicable.

**Ongoing Monitoring and Case Management**

* See TB Case Management Clinical Pathway Checklist for weekly task that require completion.
* Further information on correct dosages for TB medications and potential drug interactions can be found in the TB Chapter of the CCSG, MMWR “Treatment of Tuberculosis.” or consult SNTC.
* If treatment plan does not follow recommendations found in TB chapter of the CCSG, the MMWR “Treatment of Tuberculosis,” or TB Clinical Practice Reference, contact the clinician of record within one business day to determine reasons for deviation from standard TB treatment guidelines and any treatment issues. Involve nurse manager and health director and The Kentucky Tuberculosis Prevention and Control Program as appropriate.
* Report all cases of rifampin resistant or multiple-drug resistant tuberculosis within one business day
* TB cases should be reported to The Kentucky Tuberculosis Prevention and Control Program within one business day.
* Directly Observed Therapy (DOT) is the standard of care for the treatment of tuberculosis in Kentucky.
* Complete the DOT agreement (TB-15 and TB-15 (a)) with the patient and have them sign it.
  + DOT can be performed by RN or an unlicensed outreach worker.
  + DOT may not be performed by a family member or someone living in the household.
  + DOT by an unlicensed person requires formal training by TB Case Manager or TB coordinator.
  + All training must be documented and competency must be assessed at least monthly by TB Case Manager or TB Coordinator.
  + All DOT must be documented. You may use the TB-17, TB-17(a) or TB-17(b) form. There are multiple versions; one has initial and continue phase and the others has each phase separated. The TB-17(c) is the dosage tracking record for missed doses. Documentation can be completed by licensed or unlicensed person.
* Notify the Kentucky Prevention and Control Program if treatment is not provided by DOT within one business day.
* Determine period of infectiousness, when appropriate initiate contact investigation according to guidelines found in MMWR “Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis.” Initiate the contact investigation within three business days to include the evaluation of high priority contacts within 4-7 days of identification.
* Initiate patient education. May use the TB-25 form “TB Clinic Education and Counseling Record.” Topics should include but are not limited to: the differences between TB disease and TB infection; transmission of tuberculosis; signs and symptoms of tuberculosis, infection control for the patient/home and prevention of spread; treatment plan, medications and potential side effects to medications; diagnostic procedures; HIV testing and counseling; monitoring and follow-up during treatment; meaning of test results; role of patient, role of case management, role of health department; how to contact case manager, dealing with side effects/problems during treatment.
* Arrange for language/interpretation support as needed.

**Ongoing Monitoring and Case Management**

* Enter all information in NEDSS RVCT within two weeks of patient beginning treatment.
* Update NEDSS RVCT as information becomes available.
* Complete NEDSS RVCT once patient has completed TB treatment no later than two weeks.
* Refer to social service agencies for support, substance abuse treatment, etc. as appropriate.
* All patients receiving one or more anti-TB medications should receive a monthly clinical assessment by a physician, TB coordinator or TB nurse case manager until completion of treatment.
* RN to monitor DOT for adverse effects daily.
* RN to assess and evaluate patient weekly for side effects, adverse reactions, treatment failure and or adherence concerns until completion of therapy. Perform monitoring tests as appropriate for treatment plan.
* Follow guidelines in CCSG TB Chapter or MMWR “Treatment of Tuberculosis” for blood work frequency. If abnormal at baseline repeat monthly while on treatment. Patients on second-line drugs may require additional tests and consultation with SNTC.
* All patients receiving Ethambutol or other drugs that might impair the vision should receive baseline and monthly visual acuity and color vision screening monthly while on the drug. All changes in results from previous screening should be reported to the clinician within one business day.
* Baseline and monthly hearing screening should be performed for all patients receiving ototoxic drugs (injectable agents such as Capreomycin, Streptomycin, etc.) while the patient is receiving the medication. Abnormalities should be reported to the clinician within one business day
* If patients are started on medications described prior to the local health becoming aware of the patient, baseline screening should occur before any continued treatment with DOT is initiated by the local health.
* If initial bacteriological sample or isolate is collected and resulted by a private lab or hospital, the TB case managers must arrange for sample or isolate to be sent to the state lab for drug susceptibility and genotyping.
* Review drug susceptibility results and report resistance to any drug to the clinician and the TB Program within one business day.
* Review genotyping results and compare with ongoing contact investigation. Report any clusters or outbreaks immediately to the Kentucky Tuberculosis Prevention and Control Program
* TB coordinators and or TB case managers are to monitor for adverse reactions and document any reactions in the patient record. Report any adverse reactions to clinician immediately. Hold medications until the clinician has been contacted and new orders are received.
* Monitor for clinical improvement. If no improvement or worsening in clinical condition, notify the clinician.
* Take appropriate actions in consultation with clinician, health director, SNTC and/or the Kentucky Tuberculosis Prevention and Control Program to determine cause, (i.e., drug resistance, malabsorption) and consider obtaining drug levels and repeat drug susceptibilities, and repeating any radiological studies.

**Ongoing Monitoring and Case Management**

* Monitor for infectiousness – sputum specimens should be collected according to the CCSG.
* Monitor for AFB sputum smear conversion and MTB culture conversion.
* If patient is unable to produce an expectorated sputum specimen, contact the physician or clinician to obtain an induced collection using hypertonic saline solution.
* Maintain isolation until the patient is no longer infectious. Refer to Box 3 on page 9 of MMWR “Controlling Tuberculosis in the United States” for criteria for release from isolation for patients on treatment.
* TB coordinator and or TB case manager will continue to provide daily monitoring of DOT in initial phase and twice weekly in the continuation phase include other strategies to monitor patient treatment compliance to include:
* Immediately assess for reasons to any adherence problem.

Take appropriate corrective actions based on causation.

* If health order is to be served, please notify the TB program. If you have never prepared a health order, call the TB program for assistance.
* Involve physician or clinician, nurse manager, or consult SNTC as appropriate for assistance in the management of ongoing adherence issues.
* Monitor for changes to treatment plan.
* Assure appropriate dose count before any standard regimen changes.
* Assure correct number of PZA doses (40) before drug is discontinued.
* Assure appropriate dose count before treatment is discontinued entirely.
* Review all changes within 24 hours for appropriateness of drug selection and dosage. Initiate action to correct inappropriate changes within 24 hours. Involve nurse manager and health director as appropriate.
* Continue assessment of barriers to treatment and adherence and take corrective actions as appropriate offer incentives and or enablers if available.
* Assure continuity of case during relocation to other jurisdictions notify the Kentucky Tuberculosis Prevention and Control Program and complete Interjurisdictional forms fax to

(502) 564-3772.

* Contact investigation rosters and documentation should be filed per health department’s records policy. Remember to include first and second round contact investigation on same TB-2 contact roster form.
* All patient information should be included in patient medical record this includes but not limited to: H&P, follow visits, progress notes, physician or clinician orders, medication list, bacteriological results, lab reports, x-ray reports, DOT record, all consent forms, any referrals made for patient, social services and any other information related to patient care. There are forms available for all information listed above to assist in timely documentation.

**TB Pearls:**

* TB patient is taking recommended CDC/SNTC drug regimen. Do eye exam visual acuity and color vision or hearing test when appropriate.
* All medication is to be given by DOT or DOPT only.
* Complete DOT forms when DOT is provided.
* DOT consent form is signed and up-dated when medication and or days change.
* Follow recommended isolation CDC guidelines.
* Wear N-95 mask when appropriate, educate patient when to wear surgical mask when appropriate.
* Document all education provided to patient and family on TB-25 education form.
* Collect sputum specimens per CCSG guidelines to monitor smear and culture conversion.
* Nurse to see patient weekly to monitor for side effects related to medication and any other adverse events related to TB treatment.
* Notify Physicians or Clinician as to any side effects or adverse events related to TB treatment.
* Begin NEDSS RVCT within two weeks of patient initiating TB therapy and continually up-date RVCT until completion. Must be completed within two week of TB patient completing treatment.

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