

TB COHORT REVIEW PROCESS IN WEST VIRGINIA

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I. What is Cohort Review?

Cohort review has been an integral part of the TB control approach advocated by the *International Union Against Tuberculosis and Lung Disease (IUATLD)*. Dr. Karel Styblo, who pioneered the approach in Tanzania, proposed the idea of a local management unit that would have the staff and resources necessary to diagnose disease, initiate treatment, monitor adherence, and report patient treatment progress. After Dr. Styblo visited and reviewed the New York City TB Program, the Medical Director of the program implemented a cohort review process in which the Medical Director himself personally reviewed every one of the thousands of cases for treatment details and completion. The implementation of cohort review in conjunction with other TB control measures resulted in a steep increase in completion rates and, beginning in 1993, a steep decline in the number of reported TB cases. More impressive was the even sharper decline in the number of reported cases of multidrug-resistant TB (MDR TB), from 441 cases in 1992, to just 38 cases in 1998.

The cohort review process can take many forms. In its most simplified form, TB control staff at the local level meets to review the treatment outcomes of every patient listed in a chronological patient register. Today, with computerized TB registries, multimedia projection, and cheaper long-distance communications, it can be adapted to a variety of settings.

Cohort review is a systematic review of the management of patients with TB disease and their contacts. A “cohort” is a group of TB cases counted over a specific period of time, usually 3 months. CDC allows low incidence states varied options for a review period, and with the low incidence in WV, the annual Cohort Review process has been chosen and is now being used. The cases are reviewed after they are counted and have completed treatment or are nearing the end of treatment. Details regarding the management and outcomes of TB cases are reviewed in a group setting with the following information presented on each case by the case manager:

- Patient’s clinical status
- Patient’s treatment outcome
- Adequacy of the medication regimen
- Treatment adherence or completion
- Results of contact investigation
- Percentage of patients who did, or are likely to, complete treatment.

All TB patients should be assigned a case manager, whether they are being followed in one of the health department clinics or with a private provider. During the cohort review, case managers present the TB cases for which they are responsible, often assisted by staff involved in contact investigation, directly observed therapy, and initial patient evaluation. TB case managers know that their day-to-day case management efforts will be reflected in the cohort review several months later and that they are accountable for the services they provide. Information that is required to be reported at the cohort review session is found on the attached “*Cohort Presentation for Active TB Patients in West Virginia*” form.

The presentation of cases allows staff to detect potential problems in the way the case was managed, such as the use of an inappropriate regimen or an inadequate number of contacts tested. It also allows clinicians, managers, and public health advisors to consult on difficult cases, especially those in which the patient is nonadherent, has MDR TB, or has numerous contacts in a congregate setting. Finally, it allows senior staff and managers to recognize the intensive efforts of staff in managing TB cases and contacts.

Overall, the cohort review process can benefit the TB program by:

- Increasing staff accountability for patient outcomes
- Improving TB case management and the identification of contacts
- Motivating staff
- Revealing program strengths and weaknesses
- Indicating staff training and education needs

II. DTBE Program Objectives

Increased accountability helps TB control programs meet their local and national program objectives. In order to assess progress in attaining objectives, TB control teams must clearly delineate the desired outcomes. At the national level, the Centers for Disease Control and Prevention provide objectives for all programs they support. The following are National TB Program Objectives, followed by WV-Division of TB Elimination (WV-DTBE) Objectives, which will be monitored with the use of cohort review. Meeting objectives, or working toward meeting objectives, is needed to maintain federal funding for the TB program.

A. National TB Program Objectives

- a. **Completion of Therapy:** For patients with newly diagnosed TB, for whom 12 months or less of treatment is indicated, increase the proportion of patients who complete treatment within 12 months to 93.0% by 2015.
- b. **TB Case Rates**
 - **In U.S.-born persons:** Decrease the TB case rate in U.S.-born persons to less than 0.7 cases per 100,000 by 2015.
 - **In foreign-born persons:** Decrease the TB case rate in foreign-born persons to less than 1.4 cases per 100,000 by 2015.
 - **In U.S.-born non-Hispanic blacks:** Decrease the TB rate in U.S.-born non-Hispanic blacks to less than 1.3 cases per 100,000 by 2015.
 - **In children younger than 5 years of age:** Decrease the TB rate for children younger than 5 years of age to less than 0.4 cases per 100,000 by 2015

c. Contact Investigations

- Increase the proportion of TB patients with positive acid-fast bacillus sputum-smear results who have **contacts elicited** to 100.0% by 2015.
- Increase the proportion of contacts to sputum acid-fast bacillus smear-positive TB cases who are **evaluated** for infection and disease to 93.0% by 2015.
- Increase the proportion of contacts to sputum acid-fast bacillus smear-positive TB cases, with newly diagnosed latent TB infection, who **start treatment** to 88.0% by 2015.
- For contacts to sputum acid-fast bacillus smear-positive TB cases who have started treatment for the newly diagnosed latent TB infection, increase the proportion who **complete treatment** to 79.0% by 2015.

d. Laboratory Reporting

- Increase the proportion of culture-positive or nucleic acid amplification test-positive TB cases with a pleural or respiratory site of disease that have the identification of *tuberculosis complex* reported by laboratory within *n* days from the date the initial diagnostic pleural or respiratory specimen was collected to 75%.
- Increase the proportion of culture-positive TB cases with initial drug-susceptibility results reported to 100%.

e. Treatment Initiation: Increase the proportion of TB patients with positive acid-fast bacillus sputum-smear results who initiated treatment within 7 days of specimen collection to n%.

f. Sputum Culture Conversion: Increase the proportion of TB patients with positive sputum culture results who have documented conversion to sputum culture-negative within 60 days of treatment initiation to 61.5% by 2015.

g. Data Reporting

- **Report of Verified Case of Tuberculosis (RVCT):** Increase the completeness of each core Report of Verified Case of Tuberculosis (RVCT) data item reported to CDC, as described in the TB Cooperative Agreement announcement, to 99.2% by 2015.
- **Aggregate Reports for Tuberculosis Program Evaluation (ARPEs):** Increase the completeness of each core Aggregated Reports of Program Evaluation

(ARPEs) data item reported to CDC, as described in the TB Cooperative Agreement announcement, to 100.0% by 2015.

- **Electronic Disease Notification (EDN) System:** Increase the completeness of each core Electronic Disease Notification (EDN) system data item reported to CDC, as described in the TB Cooperative Agreement announcement, to 87% by 2015.

h. Recommended Initial Therapy: Increase the proportion of patients who are started on the recommended initial 4-drug regimen when suspected of having TB disease to 93.4% by 2015.

i. Universal Genotyping: Increase the proportion of culture-confirmed TB cases with a genotyping result reported to 94.0% by 2015.

j. Known HIV Status: Increase the proportion of TB cases with positive or negative HIV test result reported to 88.7% by 2015.

k. Evaluation of Immigrants and Refugees

- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, increase the proportion who initiates medical evaluation within 30 days of arrival to 87%.
- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, increase the proportion that complete medical evaluation within 90 days of arrival to 87%.
- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S., increase the proportion who start treatment to 87%.
- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S. and started on treatment, increase the proportion who complete LTBI treatment to 87%.

l. Sputum Culture Reporting: Increase the proportion of TB cases with a pleural or respiratory site of disease in patients ages 12 years or older that have a sputum-culture result reported to 95.7% by 2015.

B. WV State TB Program Objectives

a. **Completion of Treatment:** For patients with newly diagnosed TB, for whom 12 months or less of treatment is indicated, increase the proportion of patients who complete treatment within 12 months to: 2010 - 93%, 2011- 94%, 2012 - 95%, 2013 - 96%, 2014 - 97%.

b. TB Case Rates

- Decrease the TB case rate (per 100,000 persons) in **U.S.-born persons** to: 2010 - 1.10; 2011 - 0.99; 2012 - 0.88; 2013 - 0.77; 2014 - 0.71.
- Decrease the TB case rate (per 100,000 persons) for **foreign-born persons** to: 2010 - 32.5; 2011 -27.8; 2012 - 23.2; 2013 - 18.6; 2014 - 14.0.
- Decrease the TB case rate (per 100,000 persons) in **U.S.-born non-Hispanic blacks** to: 2010 - 4.8; 2011 - 3.2; 2012 - 1.6; 2013 - 1.6; 2014 - 0.
- Decrease the TB case rate (per 100,000 persons) for **children younger than 5 years of age** to: 2010 – 0; 2011 – 0; 2012 – 0; 2013 – 0; 2014 - 0.

c. Contact Investigations

- Increase the proportion of TB patients with positive acid-fast bacillus (AFB) sputum-smear results who have contacts elicited to: 2010 - 93%; 2011- 95%; 2012 - 97%; 2013 - 99%; 2014 -100%.
- Increase the proportion of contacts to sputum AFB-smear positive TB patients who are evaluated for infection and disease to: 2010 - 93%; 2011- 94%; 2012 - 95%; 2013 - 95%; 2014 - 95%.
- Increase the proportion of contacts to sputum AFB smear-positive TB patients with newly diagnosed latent TB infection (LTBI) who start treatment to: 2010 - 83%; 2011- 85%; 2012 - 87%; 2013 - 88%; 2014 - 88%.
- For contacts to sputum AFB smear-positive TB patients, who have started treatment for the newly diagnosed LTBI, increase the proportion that complete treatment to: 2010 - 70%, 2011 - 73%; 2012 - 75%; 2013 - 77%; 2014 - 79%.

d. Laboratory Reporting

- Increase the proportion of culture-positive or nucleic acid amplification (NAA) test-positive TB cases with a pleural or respiratory site of disease that have the identification of *M. tuberculosis complex* reported by laboratory within *n* days

from the date the initial diagnostic pleural or respiratory specimen was collected to: 2010 - 35%; 2011 - 45%; 2012 - 55%; 2013 - 65%; 2014 - 75%.

- Increase the proportion of culture-positive TB cases with initial drug-susceptibility results reported to: 2010 - 95%; 2011 - 95%; 2012 - 100%; 2013 - 100%; 2014 - 100%.
- e. Treatment Initiation:** Increase the proportion of TB patients with positive AFB sputum-smear results who initiate treatment within 7 days of specimen collection to: 2010 - 80%; 2011- 85%; 2012 - 85%; 2013 - 90%; 2014 - 90%.
- f. Sputum Culture Conversion:** Increase the proportion of TB patients with positive sputum culture results who have documented conversion to sputum culture-negative within 60 days of treatment initiation to: 2010 - 25%; 2011 - 35%; 2012 - 45%; 2013 - 55%; 2014 - 62%.
- g. Data Reporting**
- **Report of Verified Case of Tuberculosis:** Increase the completeness of each core Report of Verified Case of Tuberculosis (RVCT) data item reported to CDC, as described in the TB Cooperative Agreement announcement, to: 2010 - 100%; 2011 - 100%; 2012 - 100%; 2013 - 100%; 2014 - 100%.
 - **Aggregated Reports for Tuberculosis Program Evaluation:** Increase the completeness of each core Aggregated Report for TB Program Evaluation (ARPEs) data items reported to CDC, as described in the TB Cooperative Agreement announcement, to: 2010 - 100%; 2011 - 100%; 2012 - 100%; 2013 -100%; 2014 - 100%.
 - **Electronic Disease Notification (EDN) System:** Increase the completeness of each core Electronic Disease Notification (EDN) system data item reported to CDC, as described in the TB Cooperative Agreement announcement, to: 2010 - 74%; 2011 - 78%; 2012 - 82%; 2013 - 85%; 2014 - 87%.
- h. Recommended Initial Therapy:** Increase the proportion of patients who are started on the recommended initial 4-drug regimen when suspected of having TB disease to: 2010 - 80%; 2011 - 83%; 2012 - 86%; 2013 - 89%; 2014 - 93.4%.
- i. Universal Genotyping:** Increase the proportion of culture-confirmed TB cases with a genotyping result reported to: 2010 - 85%; 2011 - 90%; 2012 - 95%; 2013 - 100%; 2014 - 100%.

j. **Known HIV Status:** Increase the proportion of all TB cases with positive or negative HIV test result reported to: 2010 - 80%; 2011 - 83%; 2012 - 85%; 2013 - 87%; 2014 - 89%.

k. **Evaluation of Immigrants and Refugees**

- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, increase the proportion who initiate medical evaluation within 30 days of arrival to: 2010 - 74%; 2011 - 78%; 2012 - 82%; 2013 - 85%; 2014 - 87%.
- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, increase the proportion that complete medical evaluation within 90 days of arrival to: 2010 - 74%; 2011 - 78%; 2012 - 82%; 2013 - 85%; 2014 - 87%.
- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S., increase the proportion who start treatment to: 2010 - 74%; 2011 - 78%; 2012 - 82%; 2013 - 85%; 2014 - 87%.
- For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S. and started on treatment, increase the proportion who complete LTBI treatment to: 2010 - 74%; 2011 - 78%; 2012 - 82%; 2013 - 85%; 2014 - 87%.

l. **Sputum Culture Reporting:** Increase the proportion of TB cases with a pleural or respiratory site of disease in patients ages 12 years or older that have a sputum-culture result reported to: 2010 - 80%; 2011 - 85%; 2012 - 90%; 2013 - 95%; 2014 - 95.7%.

III. Presentation

The Cohort Review sessions in WV will usually be held at the corresponding local health department (LHD). These sessions should include participation from the WV-DTBE Medical Director, Division Director and surveillance nurse. The nurse case manager and the nurse who provided DOT are required to attend from the local health department, and also invited are the health officer, the nurse administrator and any other staff with the agency who would benefit from TB education.

During the presentation, the case manager will present the information that is required, using the “*Cohort Presentation for Active TB Patients in West Virginia*” form, for all active cases identified during the Cohort Review period. Included in the presentation will be data on all

contacts that were identified for each case. At the end of the presentation, discussion will be held as to the strengths and weaknesses of the cases reviewed.

Recommendations will be made by all attending regarding changes needed in the LHD process and WV-DTBE process. WV-DTBE will assist the case manager in preparing their presentation by conducting a mock cohort review via telephone prior to the official review if requested. Each Cohort Review period will be followed by a written report from WV-DTBE of overall findings and recommendations.

WV-DTBE will continually review the findings and recommendations made during the reviews, and annually determine the future course of cohort reviews in WV. These findings will be used to help determine educational needs.

IV. Ground Rules for Cohort Review Presentation

It is very important that everyone participate in the review process and give their undivided attention to the task at hand. CDC has recommended that ground rules be determined prior to the start of the process. Therefore, it is asked that all who participate follow the guidelines as listed.

1. The Director of WV-Division of TB Elimination (WV-DTBE) or her designee will facilitate the introduction of participants
2. The Director of WV-Division of TB Elimination (WV-DTBE) or her designee will re-state the "Ground Rules" before the presentation begins
3. The case manager will present the case(s) identified in the current cohort
4. LHD administration and staff will attend
5. Distractions will be kept at a minimum
6. Come prepared to share your viewpoints and opinions, as questions and comments will be encouraged from all who attend

