

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

Illinois – National Electronic Disease Surveillance System

Illinois Department of Public Health

I-NEDSS

Manage Tuberculosis Case

Version 1.8

Revision History

Date	Version	Description	Author
October 1, 2003	1.0	Initial Draft	Sree Nair
April 4, 2004	1.1	Added TB Screens	Sree Nair
April 8, 2004	1.2	Added TB CDC Case Validation Rules	Sree Nair
October 31, 2006	1.3	Updated based on meeting with Peter Ward and Mike Arbise	Mike Jadala
March 14, 2007	1.4	Update based on screens approved by TB Staff and LHD Users	Mike Jadala
March 16, 2007	1.5	Added Business Rules – Field Validations	Mike Jadala
March 21, 2007	1.6	Update – Removed AIDS case numbers fields, Moved Business Rules into a separate document	Mike Jadala
April 13, 2007	1.7	Added Contact De-duplication process	Mike Jadala
May 3, 2007	1.8	Added new business processes for TB	Mike Jadala

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1 INTRODUCTION

1.1 Scope

1.2 References

1.3 Assumptions

Please see the [Assumptions](#) section for a detailed list of assumptions.

1.4 Overview

2 USE CASE NAME: MANAGE TUBERCULOSIS CASE

2.1 Brief Description

This Use Case manages and directs operations for creating, retrieving and updating information on Tuberculosis Case. This Use Case defines Tuberculosis specific data management. This use case is done when a User is reporting or investigating a case of Tuberculosis

2.2 Business Context

Tuberculosis is a chronic bacterial infection caused by *Mycobacterium tuberculosis*, characterized pathologically by the formation of granulomas. The most common site of infection is the lung, but other organs may be involved.

2.3 Preconditions

The Case is created and common disease information is added and saved.

2.4 Main Success Scenario – Create Tuberculosis Case

- The Use Case begins, when a User completes entering the common disease information and starts adding Tuberculosis specific information.
- The system displays page prompting to enter Tuberculosis -related data.
- The User enters information and/or selects following options and/or answers questions:
 - Demographic Information
 - ID Type – Single select
 - Alien Number
 - General Illness
 - Address at Report

Note: TB section has a [manual process](#) to pick one of the patient's addresses as the Address at Report. This will replace Address at onset for TB.
 - Age at Report Calculated field)

This will replace Age at Onset. (Date of Birth – Date LHD Received)
 - Local Case Number - Text (Use this field's value to display on Case Header also)
 - TB Diagnostics
 - TB Clinic (For CDPH only) – Single select
 - Separator
 - Previous Diagnosis of Tuberculosis – Y/N/U
 - If yes, year of previous diagnosis – Date (CCYY)

- Was there more than one previous diagnosis? - Y/N/U
- Separator
- Where is the major site of disease? – Single select
 - If other major site, select other type – Single select
- Separator
- Where is the additional site of disease? – Multi select
 - If other additional site, select additional site type – Multi select
- Separator
- Sputum Smear Result – Single Select
 - Sputum Smear Test Date - Date
- Separator
- Sputum Culture Result – Single select
 - Sputum Culture Test Date - Date
- Separator
- Microscopic Exam of Tissue and Other Body Fluids Result – Single select
 - If Microscopic exam test is positive, select site(s) – Multi select
 - Microscopic Exam Test Date - Date
- Separator
- Culture of Tissue and Other Body Fluids Result – Single select
 - If Culture of Tissue test is positive, select site(s) – Multi select
 - Culture of Tissue Test Date - Date
- Separator
- Nucleic Acid Amplification Test Result – Single select
 - If Nucleic Acid Amplification test is positive, select site(s) – Multi select
 - Nucleic Acid Amplification Test Collection Date - Date
- Separator
- Chest X-Ray Result – Single select
 - Chest X-Ray Date - Date
 - If abnormal, select the abnormality – Single select
 - If abnormal, select the condition – Single select
 - Condition Date (Normally a follow up X-Ray) – Date
- Separator
- Tuberculin (Mantoux) Skin Test at Diagnosis result – Single select
 - Tuberculin Skin Test Date

- mm. of Induration
 - Separator
 - Blood Test Result – Single select
 - Blood Test Type - Single select
 - Blood Test Date - Date
- Epidemiologic Data
 - Case Status (*TB section needs these values only*)
 - Confirmed
 - Suspect
 - Not a Case
 - Risk Factors - Title
 - Country of Origin – Single select
 - Date of Arrival (if foreign born) - Date
 - HIV Status – Single select
 - If positive HIV status, what is it based on? – Single select
 - Was the patient homeless within the past year? – Y/N/U
 - Was the patient a resident of a correctional facility at the time of diagnosis? – Y/N/U
 - If yes, select correctional facility – Single select
 - Was the patient a resident of a long term care facility at time of diagnosis? – Y/N/U
 - If yes, select long-term care facility – Single select
 - Injecting drug use within the past year? – Y/N/U
 - Non-injecting drug use within the past year? – Y/N/U
 - Excess alcohol use within the past year? – Y/N/U
 - Patient Occupation (Select all that apply within the past 24 months) – Multi select
 - Additional TB Risk Factors – Multi-select value list
- Follow up Report 1
 - **Initial Drug Susceptibility Results** - Note
 - Was drug susceptibility testing done? – Y/N/U
 - If yes, enter date first isolate collected for which drug susceptibility was done - Date
 - Horizontal Separator line
 - **Susceptibility Results**

- Drugs – Susceptible
 - Drugs – Resistant
 - Horizontal Separator line
 - Comments
- Follow Up Report 2
 - Sputum Culture Conversion Documented – Y/N/U
 - If yes, date specimen collected on initial positive sputum culture - Date
 - If yes, date specimen collected on first consistently negative culture – Date
 - If no, specify reason for not documenting sputum culture conversion - Single select
 - Date Therapy Stopped - Date (Calculated field)
 - Reason Therapy Stopped – Single select
 - Reason Therapy Extending over 12 months – Multi select
 - Type of Health Care Provider – Single select (Calculated field)
 - Directly Observed Therapy – Single select (Calculated field)
 - If yes, give site of directly observed therapy – Single select (Calculated field)
 - Number of Weeks of Directly Observed Therapy - Numeric (Calculated field)
 - Horizontal Separator line
 - **Final Drug Susceptibility Results** - Note
 - Was final drug susceptibility testing done? – Y/N/U
 - If yes, enter date final isolate collected for which drug susceptibility was done - Date
 - Horizontal Separator line
 - **Final Susceptibility Results** - Note
 - Drugs – Susceptible
 - Drugs – Resistant
 - Horizontal Separator line
 - Comment
 - Treatments
 - Treatments List Page
 - Header contents

- Drug Regimen – Calculated field based on drugs selected on detail page – see business rules(See Business rules document for list of abbreviations)
- Start Date
- Stop Date
- Frequency
- No. of weeks
- Drug Regimen Detail – Multiple records
 - Start Date – Date
 - Stop Date – Date
 - Body Weight
 - Units – Single select
 - Horizontal Separator line
 - Drug – Single select
 - Dosage (in mg) - Numeric
 - Drug – Single select
 - Dosage (in mg) - Numeric
 - Drug – Single select
 - Dosage (in mg) - Numeric
 - Drug – Single select
 - Dosage (in mg) - Numeric
 - Drug – Single select
 - Dosage (in mg) - Numeric
 - Drug – Single select
 - Dosage (in mg) - Numeric
 - Horizontal Separator line
 - Frequency – Single select
 - Type of Health care provider – Single select
 - Directly Observed Therapy – Single select
 - If yes, give site of directly observed therapy – Single select
 - Number of Weeks/Doses – Calculated field
 - Number of Observed Doses – Numeric
 - Comments - Text
- Laboratory Tests

- Use Common lab pages
- Contacts
 - Contacts List Page
 - Were close contacts identified for this case? – Y/N/U
 - Header contents
 - Name
 - DOB
 - Distance
 - Signs & Symptoms
 - TB?
 - LTBI Rx
 - Start Date
 - End Date
 - Test Type
 - Test Date
 - Test Result
 - Contact Detail – Multiple records
 - Contact Demographic Information – Same as Person demographic page (Will not be part of Release 7.0 and will be delivered as an Enhancement; Release 7.0 will use the existing Generic Contact Demographic page)
 - Does the contact have the same home phone as the case?
 - Does the contact live at the same preferred address as the case?
 - Horizontal Separator line
 - Date Contact Identified - Date
 - Date Contact Investigation Initiated – Date
 - Age at Investigation – Calculated field
 - Distance – Single select
 - Relation to Case – Single select
 - Signs and Symptoms checklist complete? Y/N
 - Contact Evaluation – Single select
 - Preventive Therapy Start Date – Date
 - Preventive Therapy Regimen – Single select
 - Other Preventive Regimen - Text

- Preventive Therapy Stop Date – Date
- Preventive Therapy Stop Reason – Single select
- Was the contact on Directly Observed Preventive Therapy? – Single select
- Last Date of Exposure – Date
- Exposure Location
 - Select one of Case's addresses (Not for Rel. 7.0)
 - Select one of Contact's addresses (Not for Rel. 7.0)
 - Type – Single select
 - Address Line 1 - Text
 - Address Line 2 - Text
 - City - Text
 - State – Single select
 - Zip code - Text
 - County – County
 - Country - Country
- Comments
- Contact Lab records – Multiple records
 - Specimen Source – Single select
 - Other Specimen Source - Text
 - Specimen Collection Date/TST Placement Date – Date
 - Lab Report Date - Date
 - Test Type – Single select
 - Other Test Type - Text
 - Test Method – Single select
 - Other Test Method - Text
 - Organism Identified – Single select
 - Other Organism Identified - Text
 - Test Result – Single select (Add following values for TB)
 - Normal
 - Abnormal
 - Other Test Result - Text
 - Measured Result – Text
 - Units – Text

- Reference Range – Text
- Comments(Including X-ray findings) - Text
- Statistical Summary
 - How many people were skin tested? – Numeric
 - How many of those tested were not read? – Numeric
 - How many of those tested had insignificant results? – Numeric
 - How many of those tested had significant results? – Numeric
 - **If yes to significant results, answer following questions – Note**
 - Number infected without disease, started Preventative Therapy – Numeric
 - Number infected without disease, no Preventative Therapy – Numeric
 - Number infected without disease, previously treated – Numeric
 - Number infected with active disease – Numeric
- Close Investigation
 - Disposition *(TB section needs these values added to the existing list)*
 - Not a Case – Other Country
 - Not a Case - Recurrence
 - Not TB-LTBI, NTM
 - Remove 'Reported too late to be counted'
 - Case Status *(TB section needs these values only)*
 - Confirmed
 - Suspect
 - Not a Case
- Admin Review
 - Disposition *(TB section needs these values added to the existing list)*
 - Not a Case – Other Country
 - Not a Case - Recurrence
 - Not TB-LTBI, NTM
 - Case Status *(TB section needs these values only)*
 - Confirmed
 - Suspect
 - Not a Case
 - Local Case Number - Text
[\[Count Case\]](#)
 - Count Date - Date

- State Case Number - Text
- Case Verification – Single Select (Calculated field)

2.5 Alternative Flows

2.5.1 View Tuberculosis Case

- This Use Case flow starts when the User elects to view the Case information.
- The User reviews data.
- The Use Case flow stops.

2.5.2 Update Tuberculosis Case data

- The Use Case flow starts when the User opts to update the Tuberculosis Case.
- The system retrieves the Case data.
- The User updates information within sections:
 - Category 1.
 - Category 2
 - Category 3
 - Follow up 1
 - Follow up 2
 - Contacts & Contact Evaluation
 - Contact Completion of Preventive Treatment
- The User elects to submit.
- The system validates entered data and doesn't encounter errors.
- The system saves Tuberculosis specific data.
- The Use Case flow ends.

2.6 PreConditions

2.6.1 Case created

The Case is created and common disease information is added and saved.

2.7 Post Conditions

2.7.1 Tuberculosis Case created

The Tuberculosis specific information has been added to existing Case and saved.

2.7.2 No changes

No changes have been made.

2.7.3 Tuberculosis Case updated

The Tuberculosis Case information has been updated.

2.7.4 Tuberculosis Case counted

The Tuberculosis Case has been counted.

2.8 Extension Points

2.8.1 Create/Update Case

After current Use Case is completed, the flow returns to Create/Update Case Use Case.

2.8.2 Manage Case Information

This Use Case is a subclass of Manage Case Information Use Case.

2.9 Open Issues

- Not for Release 7.0
 - De-duplication process for Contacts
 - Process for selecting 'Exposure Location' for contacts.
 - Adding 'Local Case Number' to filter criteria
 - Ability to share case data with other counties
 - Ability to report both to the LHD of the patient's address and the Provider's LHD

2.10 Notes

- Is CDC transmission via NETSS and what are the fields that are sent to CDC? – CDC is still undecided (circa 04/2007) between NETSS flat file format and HL-7 transmission; Peter Ward will run a report to extract data to be sent to CDC.

2.11 New Business processes for TB Section.

2.11.1 Counting Cases (Case flow from LHD to IDPH and back)

- The LHD User creates a new case. All new cases of TB should be assigned a Case Status of 'Suspect' by default. After the case data is complete, the LHD User does a 'Close investigation'. The investigation status is changed to 'Completed – Needs closure'. This case is removed from the LHD User's queue and placed in the IDPH User's 'Review Completed Cases' queue.
- The User chooses to do an 'Admin Review'. The IDPH User verifies the case and chooses to 'Count Case' if this is a confirmed case of TB. If it is not a confirmed case of TB, the User does not choose to 'Count Case'. If the User wants to 'Count Case', he/she has to enter a 'Count Date' and then click 'Count Case'. If the User clicks 'Count Case' without entering a Count Date, the System should display an error message 'A Count Date is required to generate a State Case Number'. The System then generates a 'State Case Number' (See Business Rules for algorithm). The TB program uses this date instead of the onset date to place a case in time. The System simply generates this field but, the User can overwrite it as long as they satisfy the rules.
- When the User clicks 'Save' on the Admin Review page, the System saves the State Case Number and Case Count Date if there is one, and assigns them to the case. If Count Date is entered but the State Case Number is blank, the System should display an error message 'If a case has a Count Date, State Case Number is required'. If a case is saved with 'State Case Number' and 'Count Date', the System should set the 'Investigation Status' to 'In-progress' by default **unless** the User explicitly sets the investigation status to 'Closed' before clicking save on the 'Admin Review' page. This case is moved from the IDPH User's 'Review Completed Cases' queue and placed back in the LHD User's 'My Cases'. The LHD investigator follows up with a case typically for 6-18 months after IDPH counting a case until he/she is done with the Case investigation. The LHD investigator then does a 'Close Investigation' again to send the case onto IDPH. The IDPH User then reviews the case information and then does a final closure by setting the Investigation status to 'Closed' and clicking 'Save' on the 'Admin Review' page. After this process, the case is closed to updates. The Case may remain open to updates up to 2 years from the time it is counted.
 - In Summary, the Case routing logic is:
 - If Investigation Status set to 'Closed' by User, set it to 'Closed'.
 - If Investigation Status is NOT set to 'Closed' AND if State Case Number is present, set Inv Status to 'In Progress'
 - If Investigation Status is not set to 'Closed' AND if State Case Number is NOT present; save whatever Investigation Status is selected by User.

2.11.2 Add Contact Process (Will not be delivered with Release 7.0)

- The User chooses to add a new contact.
- The System displays Search screen.
- User enters the Person data.
 - First Name
 - Last Name

- Date of Birth
- Current Age
- Sex
- City
- State
- The User submits data.
- The system validates data entered against rules and doesn't find invalid search criteria.
- The system locates the Person Records and displays a screen with search results with an Add New Person option available.
- The User then either selects a person that is already in the system and chooses to add him/her as a contact or chooses to add a new Person.
- For rules, see DSSSearch.UCS
- The System displays the Contact screen.

2.11.3 Manually selecting 'Address at Report'

- **Business Case:**
 - Currently, the system updates the Address at onset whenever address on demographic page is updated until the Case's Investigation Status is set to 'Closed'. Since a case of TB could potentially be not 'Closed' for up to 2 years, this process does not preserve the address at onset (report) for TB section.
- **Process:**
 - On the General Illness page, the User clicks on a link to 'Select Address at Report'.
 - The System displays the various addresses of the Person.
 - The User selects one of the Addresses as the 'Address at Report'.
 - The User chooses to save.
 - The System returns to the General Illness page.

2.11.4 Sharing Cases with other jurisdictions (Nice to have for Ver. 7.0)

- In addition to 'Transfer' functionality, for ease of investigation and to share case investigation duties, a Jurisdiction that owns a case must be able to share its case with other jurisdictions that it designates for such activities.
- When it shares it with another jurisdiction, the Jurisdiction receiving the share rights will have 'Read only' rights for the entire case record and 'Edit' rights for:
 - Treatments
 - Laboratory Information
 - Contacts
 - Statistical Summary

- A Jurisdiction should be able to share with more than one other Jurisdiction.
- A Jurisdiction should be able to terminate sharing rights when sharing is no longer needed.

2.11.5 Jurisdiction Rules

A TB User should be able to see all TB cases that a person has regardless of the Jurisdiction owning the case. For cases that are not owned by the User's jurisdiction, the User should be able to see the following basic information without an active link to Case information details:

- Disease
- Onset Date
- Case Status
- Investigation Status
- Investigator
- Jurisdiction

Note: Although this is a new rule, this is similar in UI feature to the current process for a CD/VPD Case that is transferred out of the User's Jurisdiction.

2.12 Disease List settings

- CDC Event Code – 10220
- Program Area TB Section
- Set Available to Yes
- Set Report Morbidity to Yes
- Sequence – blank
- Set Page Group to Tuberculosis
- Set Notification Level to Notification Level 2
- Set NETSS Transmission to Yes
- Set Arbonet Transmission to No
- Set PHINMS Transmission to No
- Set Press Report Required to No
- Set Hard Copy to No

3 ASSUMPTIONS

4 ADDITIONAL INFORMATION

4.1.1 Screen Fast Track Sequence

Listed below is the fast track sequence that Tuberculosis should follow. The View/Edit full page should follow the same sequence with the exception that Person Detail will be the first link and View Logs will be seen. The Close Investigation will not be seen on the View/Edit Full Page

Fast Track Sequence Number	Screen Name	Comment
2	General Illness	Common Screen for all diseases
3	TB Diagnostics	
4	Epidemiologic Data	Common Screen for all diseases
5	Treatments	
6	Laboratory Tests	Common Screen for all diseases
7	Contacts	
8	Reporting Source	Common Screen for all disease
9	Statistical Summary	
10	Close Investigation	Common Screen for all diseases

4.2 Provider Reporting

Provide Links to the following pages:

- TB Diagnostics
- Epidemiologic Data
- Follow up Report 1
- Follow up Report 2
- Treatments
- Laboratory Tests