



## Best Practices in TB Control #1



# Introduction to the TB Cohort Review Process

November 4, 2010



Provided by  
Global Tuberculosis Institute



## Objectives



Upon completion of this seminar, participants will be able to:

- Describe the elements of the cohort review process in order to lead a case management team in preparation, presentation, and follow-up
- Apply CDC guidance regarding the TB cohort review process so that appropriate programmatic implementation will occur
- Compare the cohort review experiences of TB control programs in New York City, Missouri, and Oregon to identify aspects of those models which could be applied in your own program area
- Discuss how to apply principles of continual quality improvement (CQI), as facilitated by the cohort review process, to the management of clinical services and contact investigations so that the spread of TB to the greater community may be prevented



## Faculty (1)



### ***Bill L. Bower, MPH***

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## Faculty (2)



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TB Controller  
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# Principles and Processes of Cohort Reviews

**Bill L. Bower, MPH**

# Background Resources

Understanding the  
TB Cohort Review Process  
An Instruction Guide  
January 2005

Understanding the  
TB Cohort Review Process  
2005

[www.cdc.gov/tb/education/cohort.htm](http://www.cdc.gov/tb/education/cohort.htm)  
[www.cdc.gov/tb/publications/guidestoolkits/cohort/Cohort.pdf](http://www.cdc.gov/tb/publications/guidestoolkits/cohort/Cohort.pdf)



## Understanding the TB Cohort Review Process



*“Cohort reviews aren’t fancy. They are not expensive. In fact, at heart, they are incredibly simple...You’ve got a list of patients, you’ve got the people with first-hand knowledge of each patient, and you’ve got someone supervising and reviewing their work. That is what cohort review is... it doesn’t take a lot of money, doesn’t take high tech; just takes knowledge of the patients and systematic tracking of how each one is doing...”*

Thomas Frieden, MD, MPH, New York City Commissioner of Health

Understanding the TB Cohort Review Process: Instruction Guide. CDC; 2006



## What is Cohort Review (1)



- **Cohort review is a systematic review of patients with tuberculosis (TB) disease and their contacts**
- **A “cohort” is a group of TB cases identified over a specific period of time, usually 3 months**
- **The cases are reviewed approximately 6 - 9 months after they are reported, so that many of the patients have completed or are nearing the end of treatment**



## What is Cohort Review (2)



TB cases are reviewed in a group setting with the following information presented on each case by the relevant case manager:

- Patient's demographic information
- Patient's status: clinical, lab, radiology
- Drug regimen, adherence, completion
- Results of contact investigation

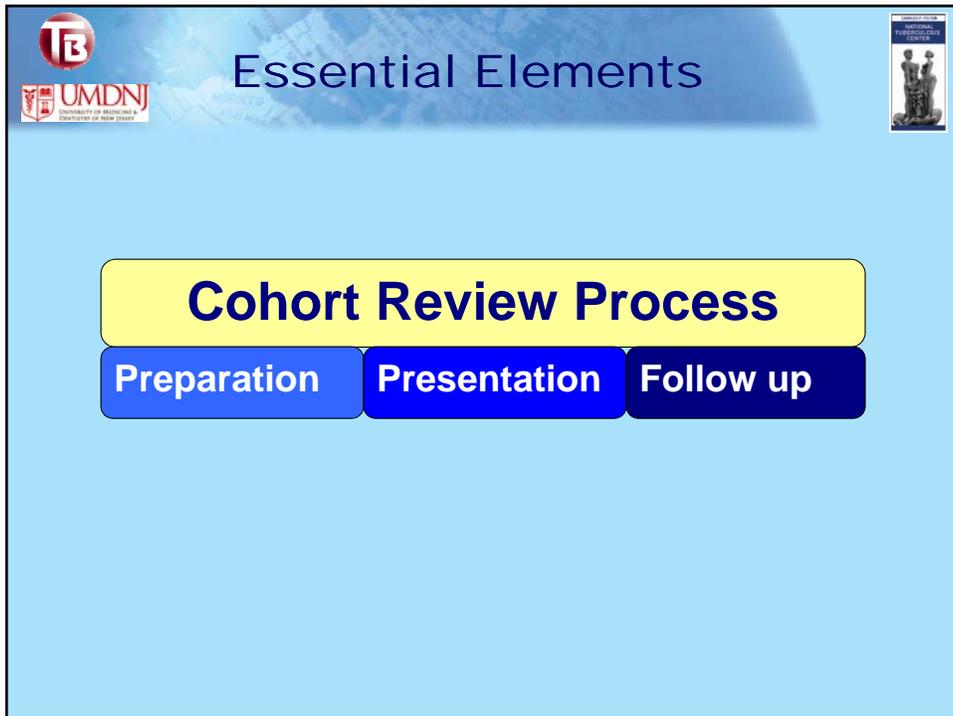
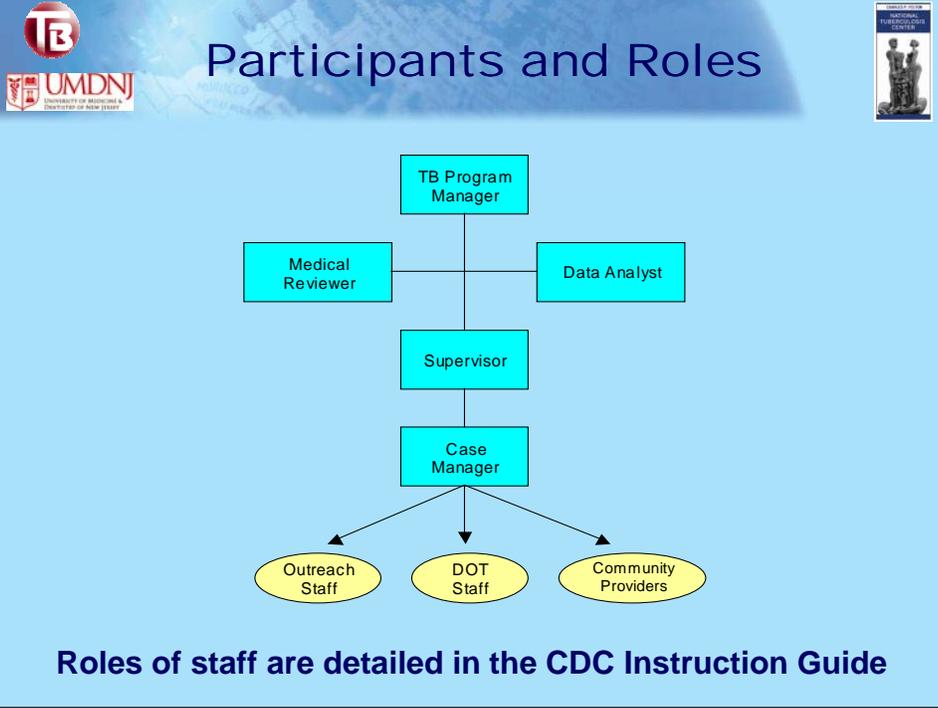
Individual outcomes are assessed



## What is Cohort Review (3)



- Group outcomes are also assessed
- Indicators track progress toward national, state, and local program objectives
- Everyone leaves the meeting knowing the results
- Meeting can be in-person or by teleconference

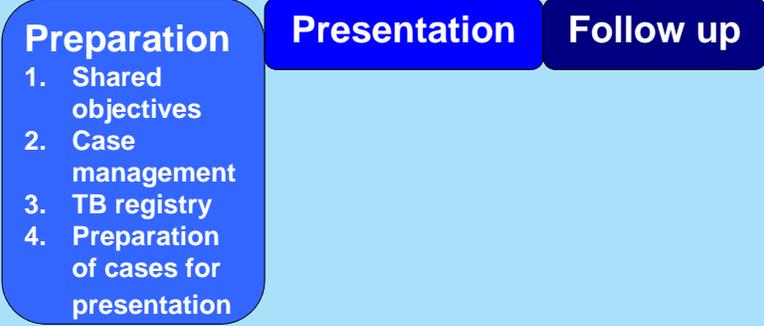




# Essential Elements



## Cohort Review Process



### Preparation

1. Shared objectives
2. Case management
3. TB registry
4. Preparation of cases for presentation

### Presentation

### Follow up



# Standard presentation



## Standardized Cohort Presentation Forms are used to:

- Enable concise presentations
- Require only the most important information
- Collect the same information
- See TB PEN Tools Committee wiki site for examples

<http://tbpen.pbworks.com/>

Sample Cohort Presentation Form I  
Pulmonary or Laryngeal TB

**1. Patient Information:**

- Registry number \_\_\_\_\_
- Date case reported \_\_\_\_\_
- \_\_\_\_\_ Year-old \_\_\_\_\_ (male/female) born in \_\_\_\_\_ (country)
- HIV status (+/-) (refused) unknown? Pre-exposed to TB? (yes/no)

**2. TB Information:**

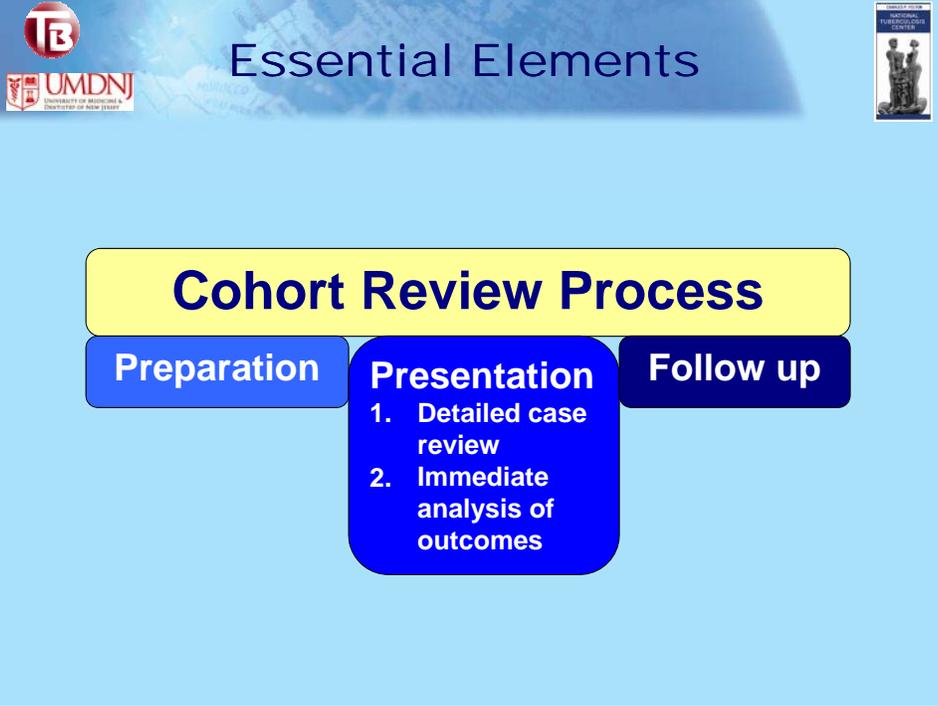
- TST \_\_\_\_\_ (mm, read on \_\_\_\_\_ date)
- Sputum smear results (+/-) if + \_\_\_\_\_ plus?
- Culture \_\_\_\_\_ (C = no drug)
- Paucibacillary or MDK or rifampin-resistant or other resistance (\_\_\_\_\_)
- Cavitory, or abnormal (necrotic), or normal CXR?
- Culture conversion? Y/N Date \_\_\_\_\_

**3. Treatment Information:**

- Completed therapy \_\_\_\_\_ Has completed \_\_\_\_\_ months of treatment
- Taking TB medication \_\_\_\_\_ Has completed \_\_\_\_\_ months of treatment
- Likely to complete by \_\_\_\_\_ (date) Drug regimen \_\_\_\_\_
- Check other disposition below: \_\_\_\_\_
- Refused \_\_\_\_\_ Lost \_\_\_\_\_ Died \_\_\_\_\_ Moved? \_\_\_\_\_ Reported at death
- On DOT? Yes \_\_\_\_\_ No \_\_\_\_\_ If Yes, why not? \_\_\_\_\_
- On DOT \_\_\_\_\_ months of which \_\_\_\_\_ months were > 80% adherence
- If patient is a child 14 years old or younger: Source identified? Y/N Name/Registry number \_\_\_\_\_

**4. Contacts**

#	Identified	#	Started treatment for LTBI?
			Completed treatment for LTBI
	Appropriate for evaluation?		Current to case?
	Evaluated?		Discontinued treatment for LTBI (where reason listed: moved/refused/lost to follow-up)
	Infected (TST+) without disease (confirmed by CXR)		
	Infected with disease		






# Presentation



**Typical location is an office, conference room, or auditorium for face-to-face meeting**

**Telephone or web-based conference calls also effective**

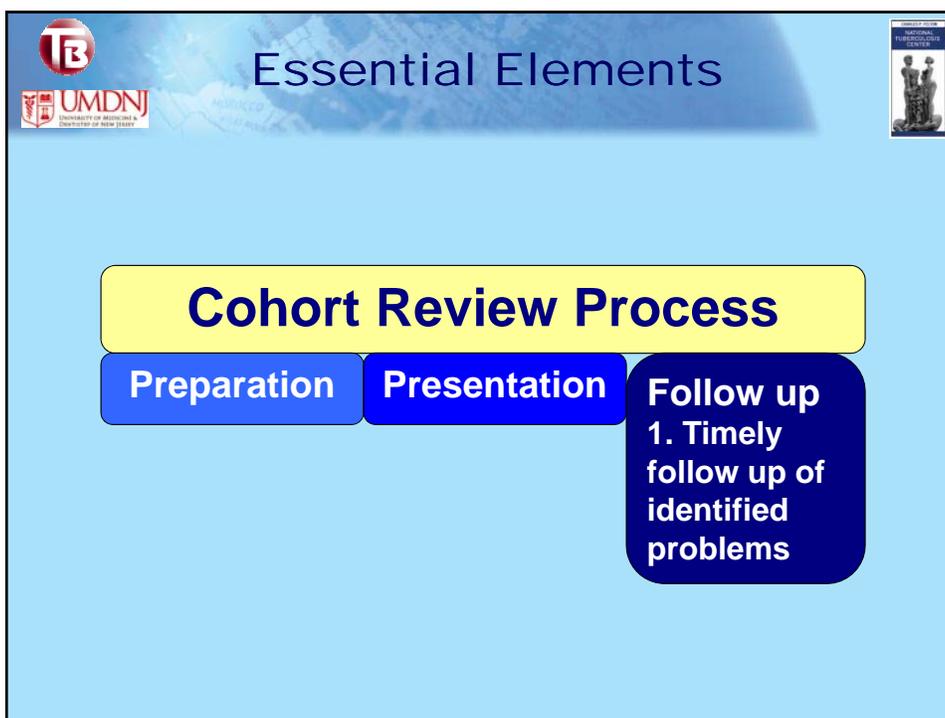
**Review 20-50 cases at one sitting**

**Review and feedback**

**Analysis of outcomes (immediate is better)**





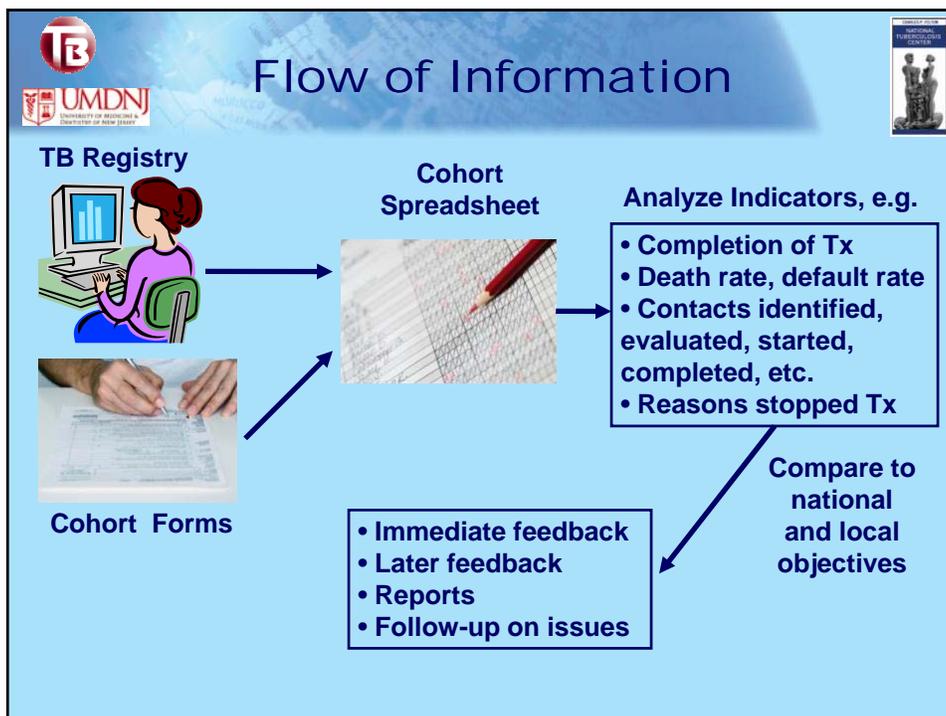


**Follow-up Tasks**

- **Supervisors, nurses, and case managers** will follow up on case management suggestions made during the cohort review and ensure that patients and contacts still on treatment finish treatment. Because cohort reviews are held several months before the end of the treatment year (from the time a case is reported to 365 days later), suggestions provided at a cohort review can allow case managers to improve completion rates.
- The **TB program manager** will address programmatic concerns and consider modifying staff training to address staff learning needs.
- The **data analyst or epidemiologist** will update the registry and prepare a summary report.
- The **medical reviewer** will address clinical and programmatic problems that were noted and provide medical consultation.

*“Over time, the TB control program improves its outcomes through a continual cycle of implementing, evaluating, and refining procedures and processes.”*

Understanding the TB Cohort Review Process: Instruction Guide. CDC; 2006



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- Cohort Review Benefits**
- 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

# 2010 Cohort Review Guidance

Dawn Tuckey, MPH  
Program Consultant  
RTMCC Project Officer  
CDC, DTBE, FSEB



## CDC Cooperative Agreement (1)

“To improve TB case management and program accountability and feedback, the grantees should hold quarterly cohort reviews at the state or local levels or both. Cohort reviews are integral to TB control and provide a systematic review of the management of cases and contact investigations.

Instructions on cohort reviews, definitions, roles of staff, timelines, core elements, and guidance on tailoring the process to your program are published in the CDC document, *Understanding the TB Cohort Review Process: Instruction Guide*”



## CDC Cooperative Agreement (2)

- Grantees should report the progress on conducting cohort reviews, including the number of cases discussed, key issues identified during these cohort reviews, and recommendations provided.
- Additionally, progress on implementing these recommendations should be included in progress reports and used to develop evaluation activities.



## CDC's Expectations for 2010 (1)

- All programs should conduct at least one cohort review in 2010 using the one of the following approaches:
  - Face-to-face
  - Teleconference
  - Hybrid approach



## CDC's Expectations for 2010 (2)

- Cohort Review Reporting requirements
  - Date cohort reviews occurred
  - Number of cases in each cohort review
  - Type of cohort review model used
  - Frequency of cohort reviews (semi-annual or quarterly)
  - Indication whether cohort reviews include patients with TB disease and/or LTBI
  - Key issues discussed
  - Recommendations provided
  - Progress on implementing these recommendations



## Frequency of Cohort Review

- Programs with 0-50 reported cases per year reported annually should conduct two cohort reviews during the reporting period
- Programs with over 50 cases should conduct four cohort per reporting period
- Programs with  $\leq 15$  cases, are encouraged to focus on cohort review of patients with LTBI and completion of LTBI treatment



## Regional Cohort Reviews

Programs may conduct regional cohort reviews

An agreement should be developed among partners for the process, location, cohort review models, and each programs roles and responsibilities



## Additional Resources and Training Opportunities

- DTBE is updating cohort review materials to include the guidance, “Understanding the TB Cohort Review Process: Instructional Guide”
- RTMCCs will develop standardized cohort review trainings
- In collaboration with your TB program consultant, establish a system that works for your program



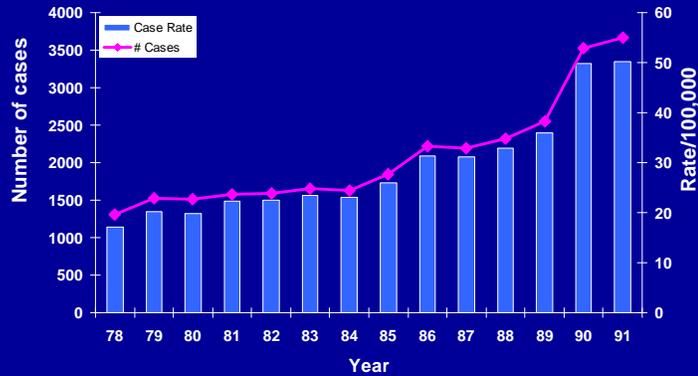
THANK YOU

Historical Perspective of Cohort Reviews  
in New York City:  
Key components, benefits, and challenges

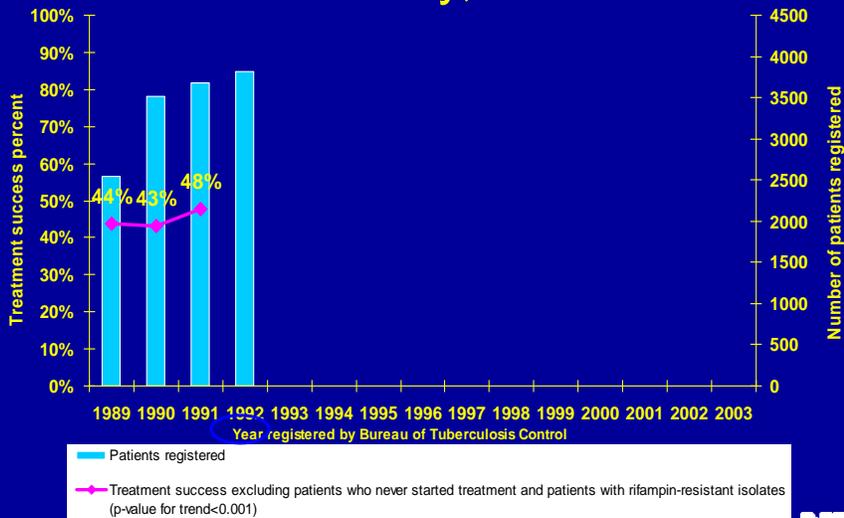
Chrispin Kambili, MD  
Director, Bureau of Tuberculosis Control  
New York City Department of Health and Mental  
Hygiene



## Tuberculosis Cases and Rates New York City, 1978 - 1991



## Treatment Completion Rates New York City, 1989 - 1991



Legend:  
■ Patients registered  
◆ Treatment success excluding patients who never started treatment and patients with rifampin-resistant isolates (p-value for trend<0.001)



\*data based on the NYC Bureau of TB Control Annual Reports

What happens to the TB patients you identify?



## Accountability



*Karel Styblo during a visit to  
New York City, 1993*

“Every patient you start on treatment, you are responsible for their outcome.”

“I see how many patients you diagnosed last year. How many of them did you cure?”



## Cohort Review Process

- TB Program Director reviews every counted case
- Case managers present cases – supervisors, managers, clinicians also contribute
- Last month we had 4 cohort review sessions (one for each region) each lasting 3 to 4 hours depending on number of cases
- Quarterly cases ranged from 26 (Bronx) to 62 (Queens)

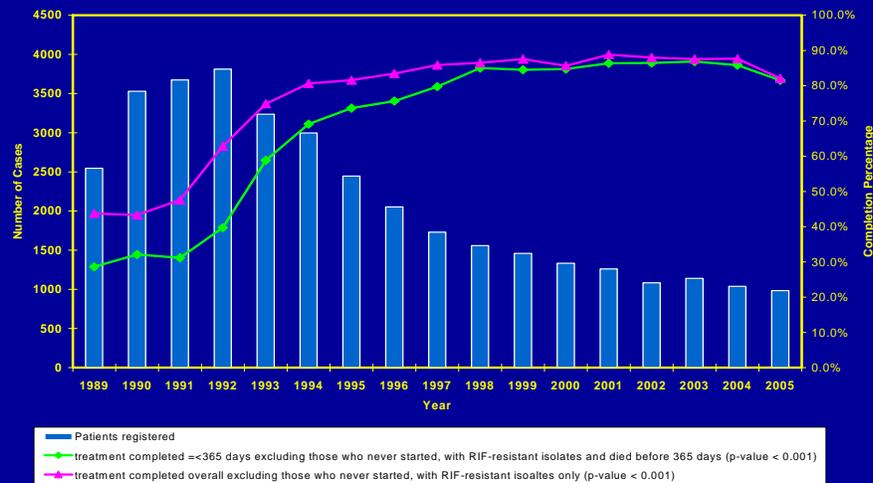


## Cohort Review Process (cont'd)

- Assures consistency with global principles of TB control
- Sets the standard for accountability for case management and follow-up of patients and their contacts
- Immediate linkage of benchmarks to local and national objectives



## Historical Treatment Completion Rates New York City, 1989 - 2005



Munsiff *et. Al.* Int J Tuberc Lung Dis 2006: 10:1133–1139



## Evolution of Cohort Reviews in New York City

- Early reviews focused on TB treatment completion
- Later focus expanded to evaluation and treatment of contacts for LTBI
- More recently, we have expanded focus to HIV testing, including HIV testing of contacts
- This year we aligned our cohort indicators with CDC's NTIP indicators to emphasize best practices



## Conclusion: Benefits of the Cohort Review

- The cohort review is the NYC TB Bureau's principal method of program monitoring and evaluation
  - Ensures accountability
  - Improves the quality of data
  - Provides a forum to discuss difficult questions
  - Staff are publicly praised for achievements
  - Also a forum for highlighting the TB program's strategic goals and objectives



## Cohort Review Process Limitations

- May be too late to make interventions
- Can be time consuming, thus limiting depth of certain discussions



## Conclusion: Applications of the Cohort Review

- Customizable to context
- Can be applied in both high TB incidence and low TB incidence areas
- Can be applied to other diseases beyond TB
  - Used for HIV/AIDS patients in Malawi\* and in NYC

\*Harries *et al.* BMJ 2004; 329:1163-1166.



## Missouri's approach to the Cohort Review



**Harvey L. Marx, Jr.**  
Bureau Chief / CDCP, TB Controller

**Traci Hadley, RN BSN**  
Public Health Consultant Nurse

## **Reasons for Implementation**

- **CDC Cooperative Agreement**
- **Increase learning**
- **Improve case management at the state and local levels**
- **Tool to conduct program evaluation**
- **Improve documentation in clinic records and improve patient outcomes**

## **Missouri's Approach**

- **The “cohort” is a group of TB cases identified over a 3 month period**
- **The cases are reviewed approximately 6 months after they are reported, many of the patients are nearing the completion of treatment**
- **TB cases are reviewed in a group setting with the cohort information presented on each case by the LPHA case manager or DHSS Nurse Consultant via video conference**

## Missouri's Approach

- Every LPHA is invited to attend
- Majority of cohort information available through Missouri's TB Registry - WebSurv
- Individual outcomes are assessed
- Group outcomes are assessed

## Missouri's Approach

- Track progress toward national, state, and local program objectives
- Case presentations are consistent

## TB Registry

- The WebSurv application is a .NET database containing:
  - General patient information
  - Medical and treatment history
  - Contact info
- Cohort form can be printed from WebSurv
- Used to generate line listing (2 mos. before review)

## Timeline

### Example of a Cohort Review Schedule

Quarter Case Identified	Quarter Case Reviewed
1 <sup>st</sup> (Jan-Mar)	3 <sup>rd</sup> (Jul-Sep)
2 <sup>nd</sup> (Apr-Jun)	4 <sup>th</sup> (Oct-Dec)
3 <sup>rd</sup> (Jul-Sep)	1 <sup>st</sup> (Jan-Mar)
4 <sup>th</sup> (Oct-Dec)	2 <sup>nd</sup> (Apr-Jun)

## **Example of State Objectives**

- **Persons with TB disease will be interviewed within 3 business days of case notification**
- **Contact investigations will be completed within 21 days**
- **All TB disease cases will be offered the opportunity to be screened for HIV**

## **Case Management**

- **Every TB disease case in Missouri has an assigned case manager**
- **Staff follow written protocols for case management and contact investigation**
- **DHSS provides routine consultation on case management / assist with extended contact investigations**

## Cohort Review

- Program Staff (TB Controller, TB Program Manager, or TB Nurse Consultant) ask questions of case managers:
- Patient treatment
  - Begin four drug regimen
  - Regimen is appropriate
    - DOT; HIV Status; negative labs
    - Successful completion of treatment (Tx)

## Cohort Review

- Contact investigation
  - Measurable results are # of contacts identified, appropriate for testing, evaluated, started and completed treatment for TB disease or LTBI

## **Cohort Review**

- Obtain missing data or update incorrect data
- Provide analysis of data for:
  - DOT coverage
  - Timeliness of investigation
  - State and national TB objectives are met

## **Contacts**

**Of those who had treatment discontinued, how many:**

- Refused to continue treatment
- Adverse reaction to treatment
- Lost to follow-up
- Moved
- Died

## **Samples of issues during the cohort**

- Documentation of culture conversion
- HIV status
- Contact investigation follow-up

## **Missouri Cohort Review**

- Most important meeting of TB program
- Low tech, can be done by hand
- Closely linked to CDC & Missouri objectives
- Group process
- Every one leaves meeting knowing results (or soon afterwards)
- Teaching opportunity
- Learning opportunity

# Oregon TB Control Cohort Review

Heidi Behm, RN, MPH  
TB Controller  
HIV/STD/TB Program  
Oregon, Department of Human Services

## TB in Oregon

- Low incidence, large geographical area
- Metro area (2.5 million), frontier areas (1,300 in county)
- 2010 89 cases, 72% foreign born
- Oregon TB Control staff - 3 total
- **Challenges-staffing, expertise in TB, cultural competency, DOT esp. rural areas**

## Cohort Review Start Up

- **1/2007** - Multnomah County “End of Treatment” (EOT) review. **Innovators!**
- **7/2007** - Metro area EOT review (face to face, 3 counties)
- **1/2008** - Oregon TB Control cohort review with non metro counties (phone)
- **4/2009** - combined cohort review (yahoo!)
- **6/2010** - program element “requiring” cohort review participation

## Conclusion...

- Establishing cohort review takes time!



## Cohort Review Process Preparing for the Review

- Quarterly
- Review cases counted 6-9 months prior
- TB Epi pre-fills form with case and contact information *before* review and emails to TB Nurse Case Manager (TBNCM). **Lots of work but worth it!**
- TB Epi works with TBNCM to ensure data is *complete before* review. No surprises during review
- TB Epi emails all counties completed form so they can follow along

## Cohort Review Participation

- TBNCM “required” to present. Someone else can fill in. Sometimes joint presentation if patient transferred
- State TB controller, TB Epi, metro area TB RN supervisors and a TB physician always attend.
- All Health Officers and TBNCMs invited to attend and may call in any time
- Other attendees: medical residents, MPH interns, TBNCM from Washington State
- Questions from any participant are encouraged

## Day of the Review

- Review is 3 hours
- TB Epi presents aggregate data on cases and their contacts for quarter under review. Comments on how data looks in comparison to program objectives
- Metro TBNCMs attend in person. Other areas via teleconference
- Everyone has sheets with case details and follows along

## Initial Barriers

- Fear of presenting
- Not enough time
- Combining reviews
- Sound quality

## The Oregon Way

- Casual atmosphere (food!)
- Individuality allowed! Some add pictures (pills wrapped in cotton candy) or chest x-rays



## The Oregon Way continued

- Pre-filled form saves time and ensures preparation
- Minimized routine clinical data on form
- Added subjective questions to create discussion:
  - What incentives and enablers were used?
  - What unique case management strategies or community resources utilized?
  - Anything you'd do differently?

## Proof of Success

- People call in when they don't have to!
- HIV testing has improved
- DOT is better managed
- We learn from each other and gain additional resources



## Still trying to Improve

- Still too long? What is essential?
- Sound quality issues
- Confidentiality for rural patients
- Need to develop a process for follow-up after the review



Thanks!



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QUESTIONS AND DISCUSSION



*Thank you for your participation!!*