To improve the health of Marylanders by reducing the transmission of infectious diseases, helping impacted persons live longer, healthier lives, and protecting individuals and communities from environmental health hazards.

- We work in partnership with local health departments, providers, community based organizations, and public and private sector agencies to provide public health leadership in the prevention, control, monitoring, and treatment of infectious diseases and environmental health hazards.
CDC Framework for Program Evaluation

Step 1
Identify Stakeholders
**Stakeholders**

*Maryland Evaluation Team*

- State office
  - Chief, TB Control
  - Nurse Consultants (2)
  - Epidemiologist
- Baltimore City TB Control Program
- Local health departments (rates/100,000)
  - High incidence county \( \geq 4.5 \)
  - Moderate incidence county \( 3.6-4.5 \)
  - Low incidence county \( \leq 3.5 \)
- State mycobacteriology lab
- CDC assignee (through 2008)

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**Step 2**

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**Describe the Program**
**Culture Conversion**

**Definition**

Date of first consistently culture-negative sputum specimen at least 7 days after the last culture-positive sputum specimen.

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**Maryland State Goals For Culture Conversion**

- 2005 – 70%*
- 2009 – 75%*
- 2015 – 61.5% NTIP**

*Alive at diagnosis with positive sputum cultures and no RIF resistance.

**Alive at diagnosis with positive sputum cultures and have initiated treatment (excludes those who died within 60 days of Tx start).
How is Maryland Doing?
Goal 70%

2002  54%
2003  64%
2004  60%
2005  51%
2006  60%*

*2006 data was not available at time of evaluation.

Infectious Disease & Environmental Health Administration
12/15/2009

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Step 3
Focus the Evaluation
**Why Look at Culture Conversion?**

- Indicates response to therapy
- Monitors progress
- May indicate need to extend therapy to 9 months if cavitary disease present and patient still culture positive >60 days on treatment*


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**Maryland 2005**

Sputum culture positive cases 153
Culture conversion ≤60 days 78 (51%)
Culture conversion >60 days 57 (37%)
No conversion documented 18 (12%)
**Timeline**

- **October 2006**: Evaluation focus topic
- **March-April 2007**: Logic model and evaluation plan
- **May 2007**: Tool for data collection
- **June-October 2007**: Data collection and analysis
- **October-April 2008**: Development of recommendations
- **May 2008**: Preliminary recommendations presented to local TB control at regional meetings
- **September 2008**: Final recommendations presented and start of implementation

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**Step 4**

**Gather Credible Evidence**
Data Sources

- Patient level data (extracted from patient records)
- Specimen data from DHMH lab

Survey Tool for Patient Level Data
Step 5
Analyze Data and Justify Conclusions

What We Found in 57 Culture Conversion ≥ 60 Days

- 10 did convert by 60 days on treatment, but incorrect date of conversion (9) or treatment (1) was reported
- 29 had positive cultures ≤53 days from treatment start date but did not have specimens collected until after 60 days
- 18 were true culture conversion >60 days on treatment (positive culture >53 days from treatment start date)
Recording Errors in 57

- 18 date of conversion, 2 date tx start
  (with corrected dates, 10 did have conversion within 60 days from tx start)
- 3 substance abuse not indicated
- 2 cavitation not indicated
- 1 HIV+ status not indicated
- 1 error of gender

Recommendation for Recording Errors

- Ensure case managers understand definition of culture conversion
- Encourage local review of data prior to submission to state
Specimen Collection

Too Few Specimens (Not Collected in Time)
29 had positive cultures ≤53 days from treatment start date but did not have specimens collected until after 60 days

OR
Abundance of Specimens

Recommendations for Specimen Collection

- Develop guidelines for sputum specimen collection
- Develop flow sheet for lab results
- Use tickler system for specimen collection reminder
- Provide information and instructions to TB patients on sputum collection
Culture Conversion
> 60 Days from Tx Start

18 were truly culture conversion >60 days on treatment (positive cultures >53 days from treatment start date)

What We Found in 18 Late Culture Conversion

- 18 were AFB smear-positive
- 11 had cavitary disease
- 10 had delay in diagnosis
- 7 had substance abuse
- 6 had diabetes
- 2 had HIV
Recommendations for Late Culture Conversion

- Monitor closely all TB patients who have more severe illness at time of diagnosis
- Assure management of co-morbid disease
- Assure test for HIV

Step 6

Ensure Use and Share Lessons Learned
Product Development and Info Sharing

- Products developed by Evaluation Team
  - Table of findings and recommendations
  - Flow sheet for lab test results
  - Sputum collection guidelines
- Presentation at 2008 annual MD TB meeting
- Evaluation Plan and Final Report included in 2007-2008 reports to CDC
- Still in the works
  - Sputum collection fact sheet and patient instructions

Next Steps

- Recommendations fully implemented 2009
- Indicator results not available until 2011
- Interim – survey of local health department case managers
Lessons Learned

- Follow the plan
- Make sure local programs are represented on evaluation team
- Have no preconceived notions
- Embrace small changes
- Show your enthusiasm
- Give recognition to the team

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