Assessing Laboratory Specific Data

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TB Elimination & Laboratory Cooperative Agreement

- Funding for 58 public health laboratories
  - Laboratories for 50 states, Washington D.C., Puerto Rico, and 6 large cities

- Annual Performance Report
  - Budget
  - Descriptive Information: Methods/Workflow
  - Organizational Chart
  - Workload and Turnaround time data
  - Element 1: Turnaround times (TAT)
  - Element 2: Laboratory efficiency and quality assurance
  - Element 3: Partnerships
Element 2: Promote continual advancement of laboratory efficiency and quality assurance through use of local data

- Measurable outcomes specific for laboratory volume and services
- Specific strategies/activities and evaluation plans should be described and progress updated

Examples laboratories might consider:
- Assessing testing algorithms and workload trends for potential redundancies
- Sources of delay
- Efficient use of CDC or reference laboratory services

- Not necessarily:
  - Method comparison/validation
  - Prospective scientific studies

- Use data the lab already has!
Common Element 2 Assessments

- Specimen collection guidelines
- Specimen transport/delivery/receipt
- Acid fast bacilli smear heat fixing
- Nucleic acid amplification testing (NAAT) algorithm

Workflow
- Timing of processing/testing within the day
- Frequency of testing
- Testing methods
- Cross-training of staff
Specimen Receipt

- Drilling down
  - Submitter specific data
  - Comparison to TAT or contamination rate
  - Mode of transport
    - Courier
    - USPS
    - Commercial shipping companies
NAAT Algorithm

- **NAAT within 2 days**
  - Patients with MTBC+ culture (2a) $\rightarrow$ NAAT+ (2b) $\rightarrow$ NAAT+ reported within 2 days
    - Example: 2a: 43 $\rightarrow$ 2b: 17 $\rightarrow$ NAAT within 2 days: 15 $\Rightarrow$ 43-15=28
      - Assess the 28 culture positive MTBC patients that were not captured by NAAT within 2 days
      - Can the NAAT algorithm be adjusted to capture more?

- **Utilization review**
  - Periodically performed in collaboration with TB Program to review how a particular service is being used
    - Over-utilization vs. under-utilization
      - Targeted educational efforts
NAAT Algorithm (2)

- Han, et al. “Nonclinical selection criteria for maximizing yield of nucleic acid amplification tests in tuberculosis diagnosis”
  - Retrospective analysis of culture positive TB cases (July 1, 2010 – June 30, 2011) to identify highest-yield, nonclinical selection criteria for NAAT based on information acquired from requisition form
  - Current algorithm (smear-positive and smear-negative upon request) identified 44% of the culture positive TB cases
  - If algorithm expanded to also test smear negative specimens submitted by a correctional facility, public health hospital, local board of health, or TB clinic and test specimens from patients ages 25-44, would identify 74% of culture positive TB cases by NAAT
  - Expansion would only require NAAT for 17% of all individual specimens received
Workflow

- **Alaska’s ‘Cart off the Savings with Lean’ presentation**
  - Spatial efficiency of supplies on cart
  - TB label and requisition form revamp

- **Timing of testing**
  - Assessment of specimen receipt versus processing run
  - Implementation of multiple processing runs

- **Redundant specimens**
  - Number of specimens received for known positive patients within defined time frame
Workflow (2)

  - Final reports at 6 weeks versus 8 weeks
  - Preliminary reports
Why Assess Laboratory Specific Data?

- Supports or rejects anecdotal trends
- Guides change within a laboratory
- Stimulates discussion with TB Program/submitters
- Improves laboratory efficiency
The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.