

TB Turnaround Times: Snapshot of the Current Status in U.S. Public Health Laboratories

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Tuberculosis Laboratory Consultants

6th National Conference on Laboratory Aspects of TB

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OVERVIEW OF MLB LABORATORY CAPACITY ACTIVITY

Laboratory Capacity Activity (LCA)

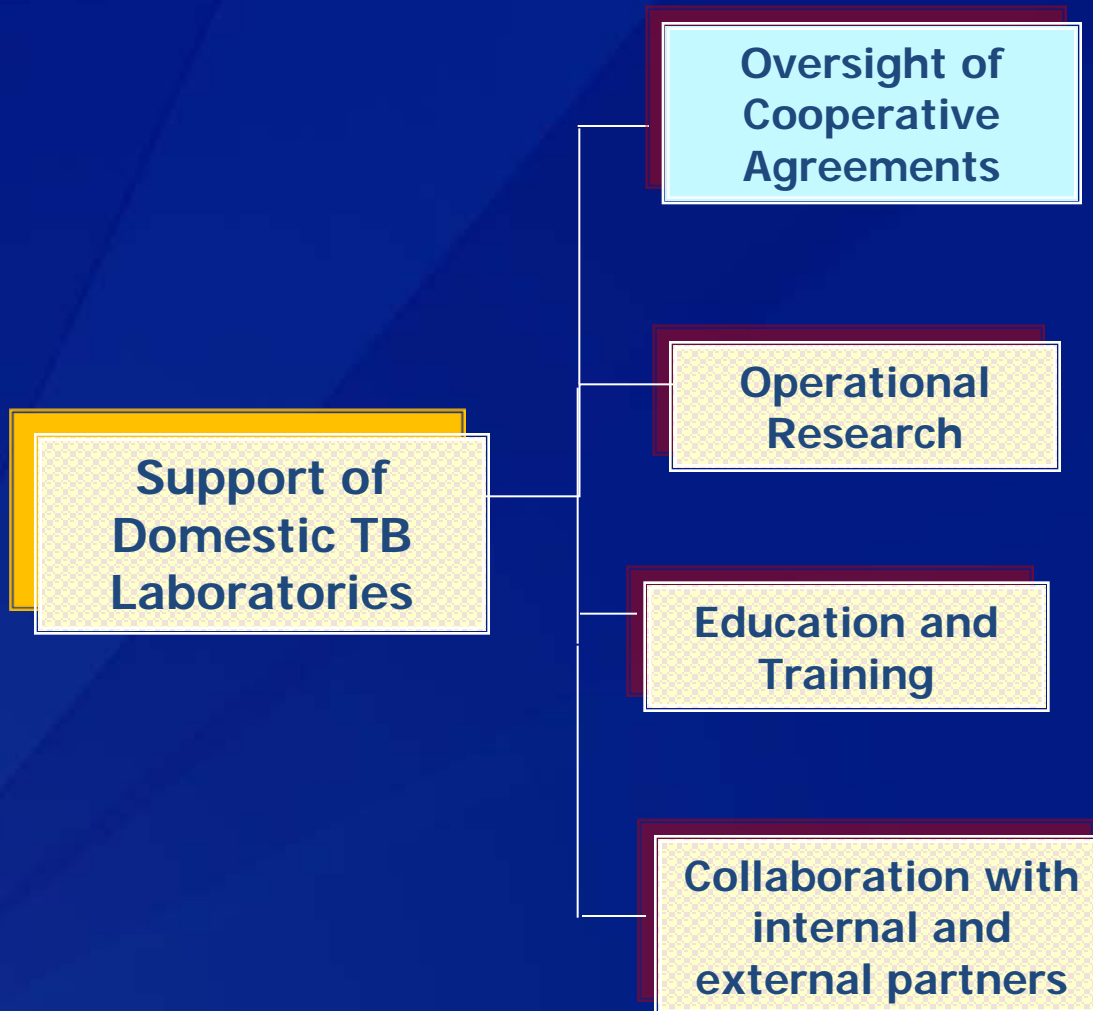
- ❑ Established Fall 2007 to increase support to U.S. and International Public Health Laboratories performing TB testing

- ❑ Fall 2008 Reorganization within DTBE: International Lab Capacity activities transferred to DTBE/Global Laboratory Activity

- ❑ Domestic activities reside under Reference Laboratory Team within MLB
 - Beverly Metchock, DrPH, D(ABMM), Lead

- ❑ 4 activity members dedicated to U.S. PHL
 - Angela Starks, Ph.D.
 - Tracy Dalton, Ph.D.
 - Frances Tyrrell, M.P.H., MT(ASCP)
 - Mitch Yakrus, M.S., M.P.H.

LCA: Focus Areas

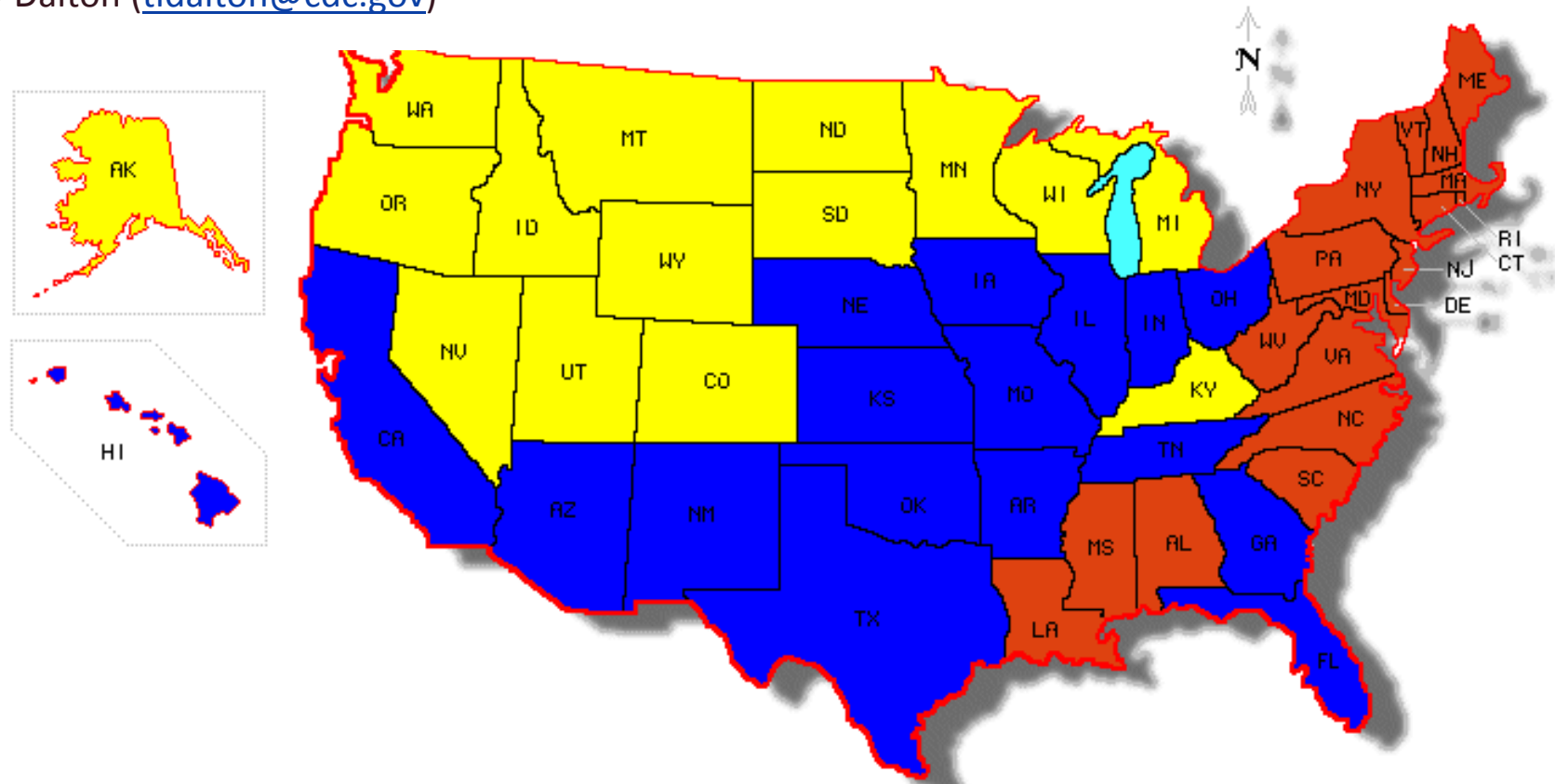


Oversight of Cooperative Agreements (1)

- ❑ 64 laboratory awardees including 50 states, 7 big cities, Puerto Rico, and 6 U.S. Affiliated Pacific Islands
- ❑ Laboratory Consultants serve as a single point of contact for assigned areas
 - Provide guidance for cooperative agreement process
 - Complete technical reviews of applications and budget requests
 - Provide technical consultations
 - Conduct site visits with Field Services and Evaluation Branch (FSEB) TB Program Consultants

MLB Laboratory Consultants

- Angela Starks (astarks@cdc.gov)
- Frances Tyrrell (ftyrell@cdc.gov)
- Tracy Dalton (tldalton@cdc.gov)



Other Sites:

Angela Starks- Houston, Los Angeles, San Diego, San Francisco, FSM, RMI, CNMI, Guam, American Samoa, Republic of Palau

Frances Tyrrell- New York City, Philadelphia, and the District of Columbia

Tracy Dalton- Puerto Rico

Oversight of Cooperative Agreements (2)

- ❑ 22 site visits conducted since Fall 2007
- ❑ Goal to visit TB labs at least once every 3-5 years

- ❑ As part of the cooperative agreement process the LCA utilized data generated and submitted by U.S. PHLs to develop the inaugural **annual** aggregate report...

**TUBERCULOSIS LABORATORY
COOPERATIVE AGREEMENT:
ANNUAL AGGREGATE REPORT, 2008**

Aggregate Report: Introduction

- ❑ Compilation of the workload and turnaround time data for calendar year 2008 as reported within TB Elimination Cooperative Agreement narratives by public health laboratories (PHLs)
 - 58 PHLs (report does not include U.S. APIs)
- ❑ Hot off the press—first distributed TODAY, JUNE 22, 2010!
- ❑ Individual data will be distributed to each jurisdiction following this session (along with lab consultant business cards)
- ❑ Report will be utilized as a tool for critical analysis of national recommendations for TATs.

Aggregate Report: Data Utilization

- ❑ Report is to be used only as a guide and not intended for other purposes which may be disciplinary in nature
- ❑ Opportunity for PHLs to benchmark themselves by comparing their own laboratory data with those from peers with similar testing volumes
- ❑ Benchmarking may serve as a guide useful for identifying testing practices and algorithms that are successful or need examination.
 - ❑ Acknowledge areas where individual PHLs excel
 - ❑ Other PHLs may be able learn from your successes
- ❑ Report can be used by PHLs to establish laboratory specific goals towards TAT improvements

Aggregate Report: Considerations

- ❑ Data are self-reported by PHLs.
- ❑ Calculation of reported values for turnaround time may differ among laboratories.
- ❑ Although the same data were requested from all 58 PHLs, not every PHL reported complete data.
- ❑ Unless noted otherwise, data are reported on a “per patient” and not “per specimen” basis.

WORKLOAD, 2008

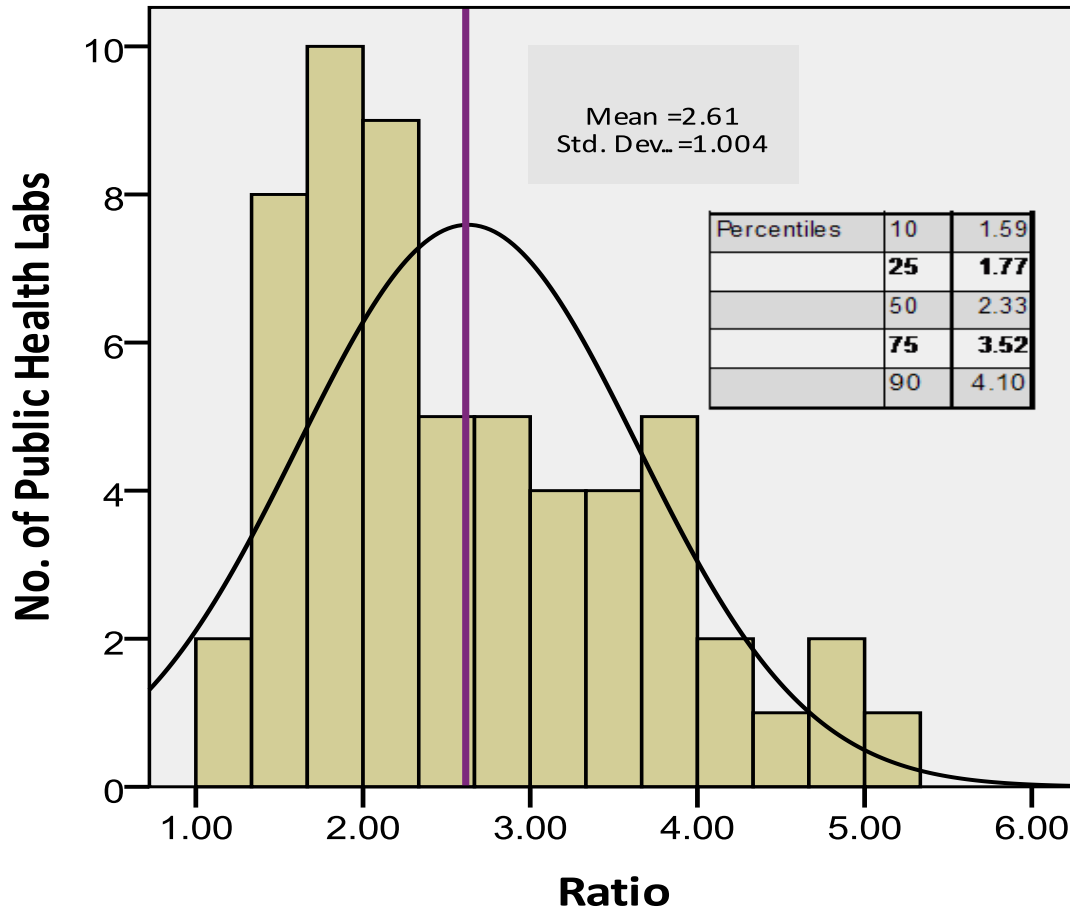
National Workload Data, 2008 (1)

VARIABLE	TOTAL NO.	MINIMUM NO. PER SITE	MAXIMUM NO. PER SITE	NO. LABS REPORTING
Clinical specimens received	295,416	306	23,500	58
Patients for whom a clinical specimen was submitted	118,914	124	10,934	58
Patients with \geq one specimen culture positive for MTBC	5,745	1	792	58
Patients for whom a reference isolate was submitted	21,250	0	2,575	58
Patients with \geq one reference isolate identified as MTBC	3,327	0	276	55

National Workload Data, 2008 (2)

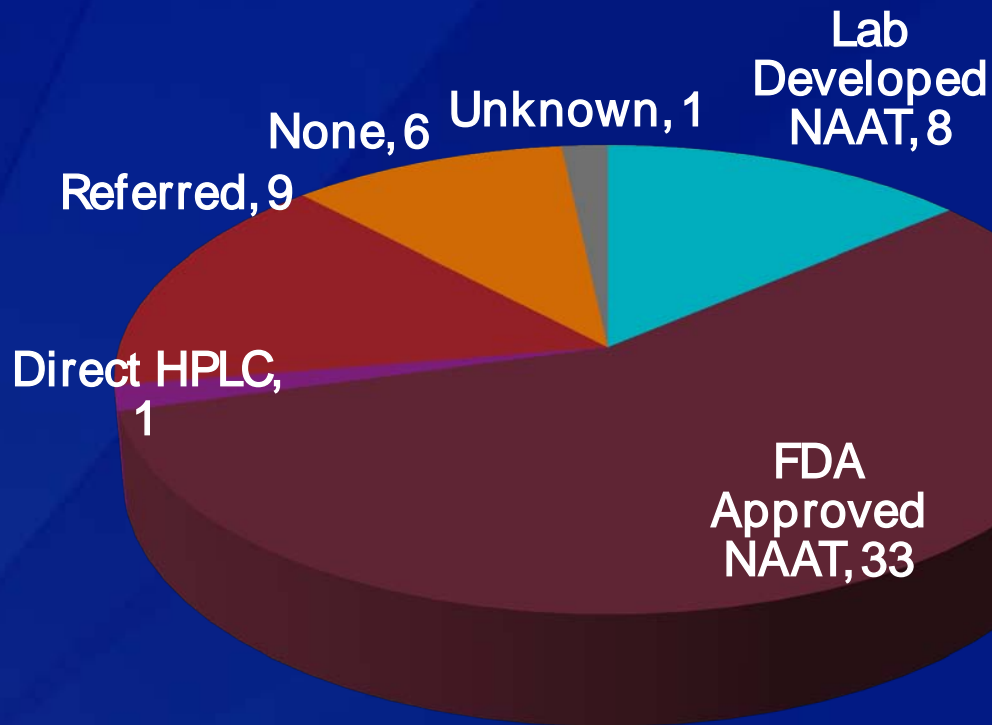
VARIABLE	TOTAL NO.	MINIMUM NO. PER SITE	MAXIMUM NO. PER SITE	NO. LABS REPORTING
Patients for whom DST for first-line drugs was performed	8,255	2	895	58
Patients for whom clinical specimen was tested directly with NAAT or other rapid detection test	13,232	0	5,855	57
Patients NAAT positive	2,479	0	567	52

Ratio of Total Number of Specimens to Number of Patients Tested (N=58)

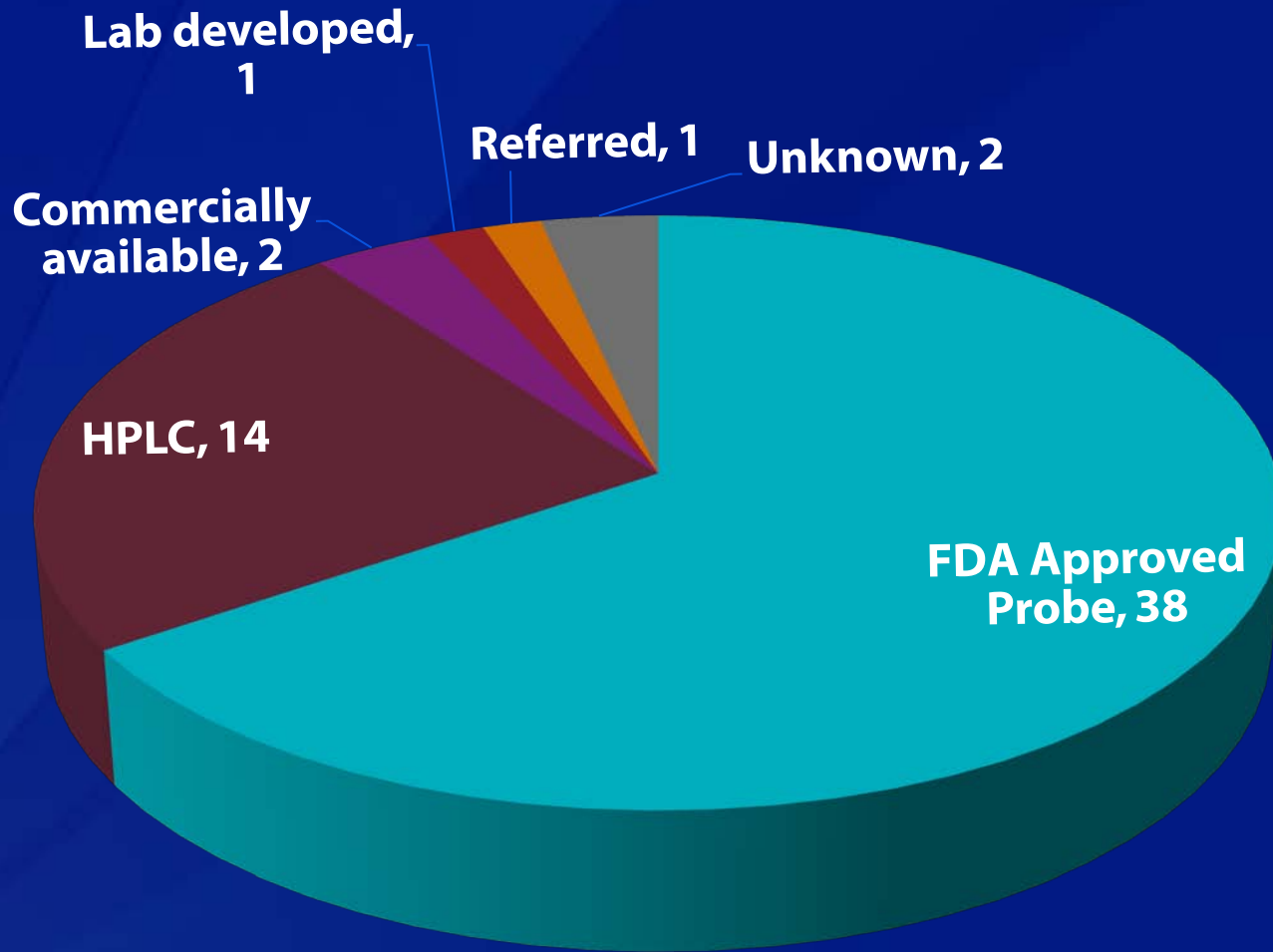


- Some variation may be attributed to low vs. high incidence areas
- PHLs with values in excess of the 10th and 90th percentiles may benefit from a review laboratory policies

Rapid Direct Detection Methods (N = 58)



ID from Culture, Primary Methods (N = 58)



TURNAROUND TIME (TAT), 2008

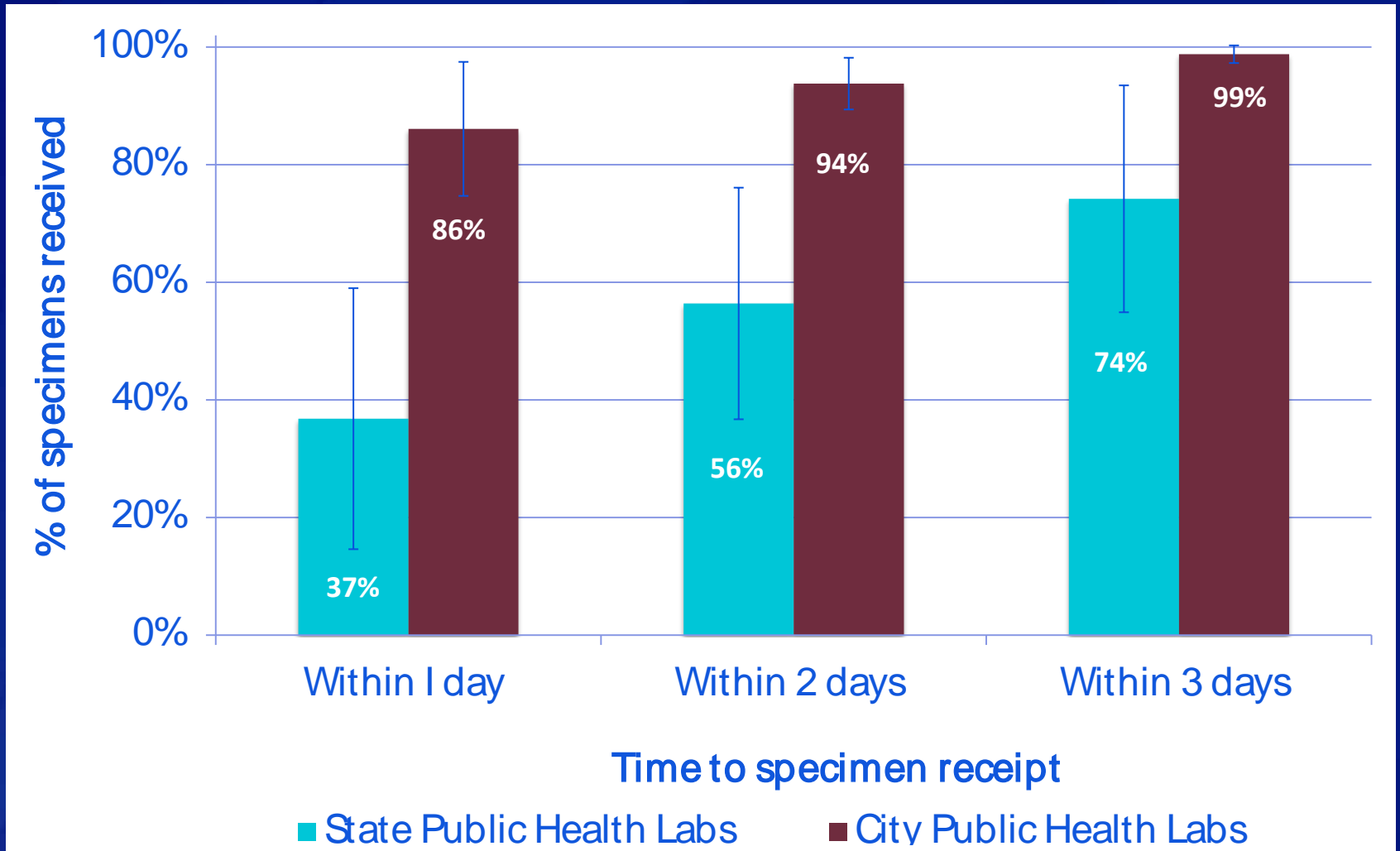
TAT: CDC Recommendations

- ❑ Specimen receipt within one day of collection
- ❑ AFB smear result reported within one day of specimen receipt
- ❑ Identification of MTBC reported within 21 days of specimen receipt
- ❑ First-line DST results reported within 28 days of specimen receipt

TAT: General Limitations to Data Presented

- ❑ Response rate not 100%
- ❑ Calendar days vs. Work days
- ❑ Received in PHL building vs. TB department
- ❑ Clinical specimen vs. Reference isolate
- ❑ Initial vs. Final; what constitutes “report”

Percent of Specimens Received Within 1, 2, and 3 Days After Collection



Receipt within 24 Hours of Specimen Collection

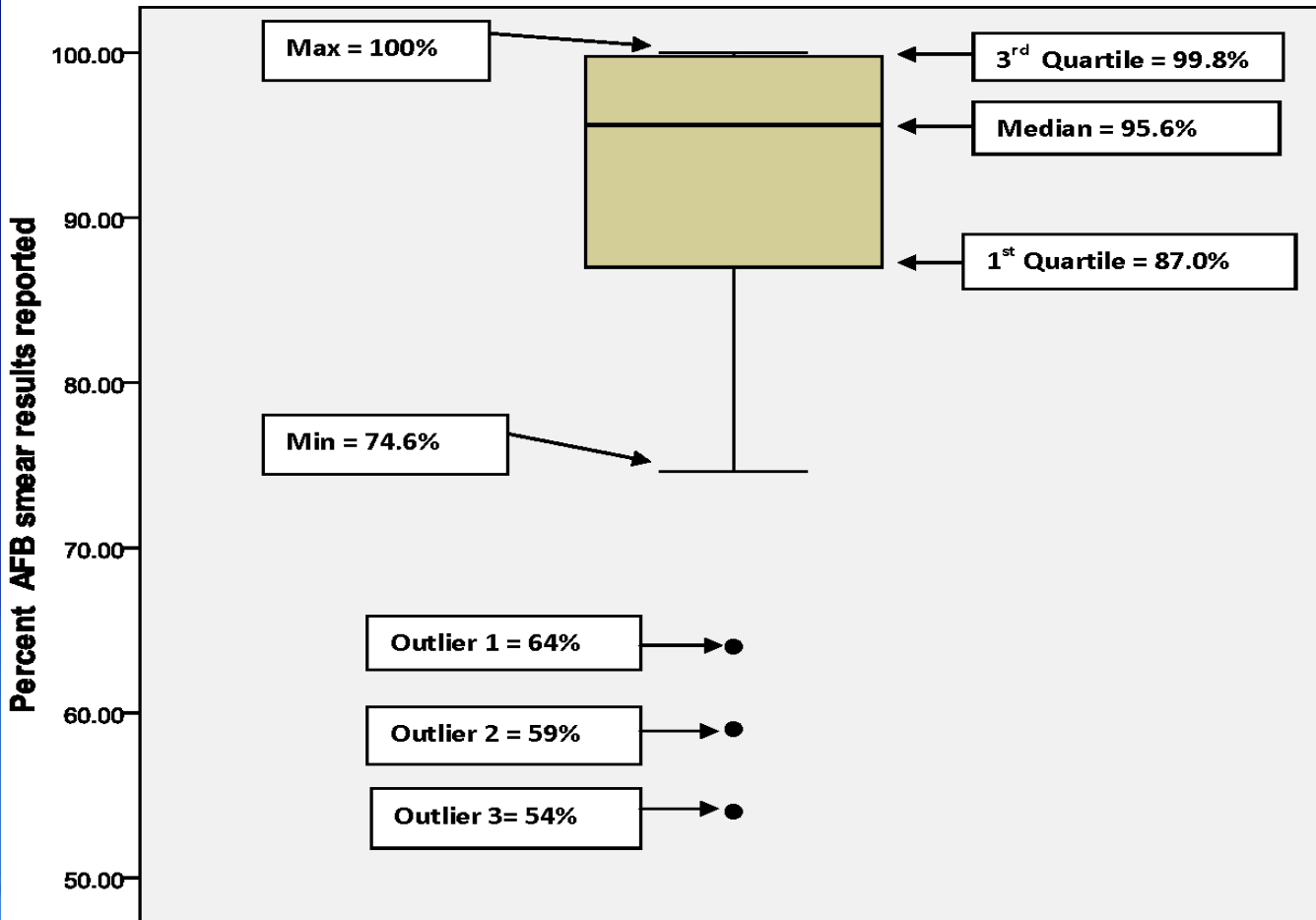
❑ Barriers reported

- Lack of courier system
- Difficult terrain
- Remote locales
- Limited education to providers
- Weekends and furlough days

❑ Solutions described

- Use of lab enhancement funds for courier implementation or expansion
- Identification of providers who routinely delay submission
- Education materials and “report cards” to providers
- Archived Webinar (3/18/2010) “Examples from the field: Challenges and Successes for Quality TB Specimens” sftp.cdc.gov
 - Gary Budnick, MS
 - Lisa Dettinger, MT (ASCP)
 - Julie Tans-Kersten, MS, MT(ASCP)
 - Yvette L. Vergnetti, MT (ASCP)

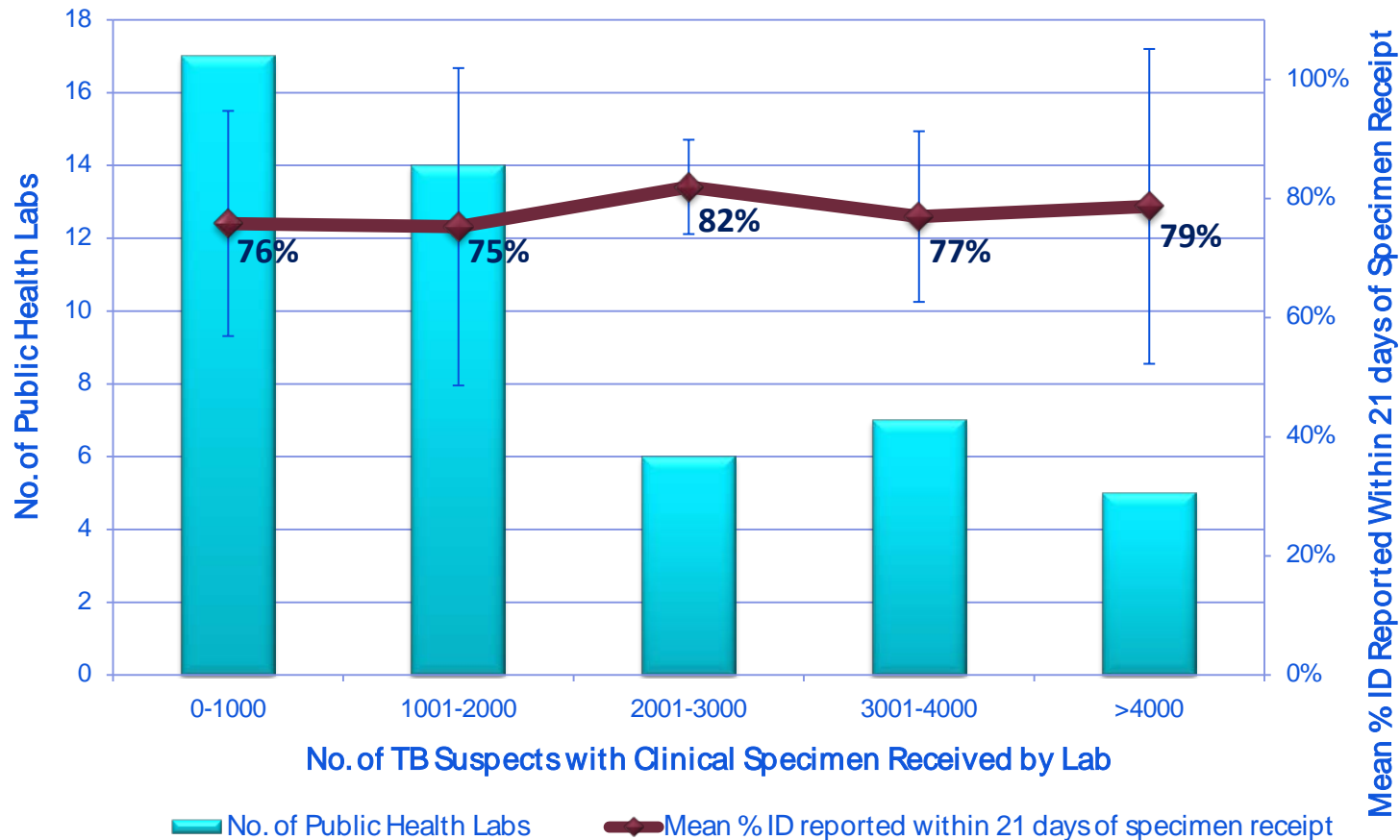
AFB Smear Results Reported Within One Day (N=50)



❑ Vast majority of labs reported 87% or more AFB smear results within 24 hours of specimen receipt.

❑ Lower values could be due to personnel shortages, furloughs, or differences in calculation method.

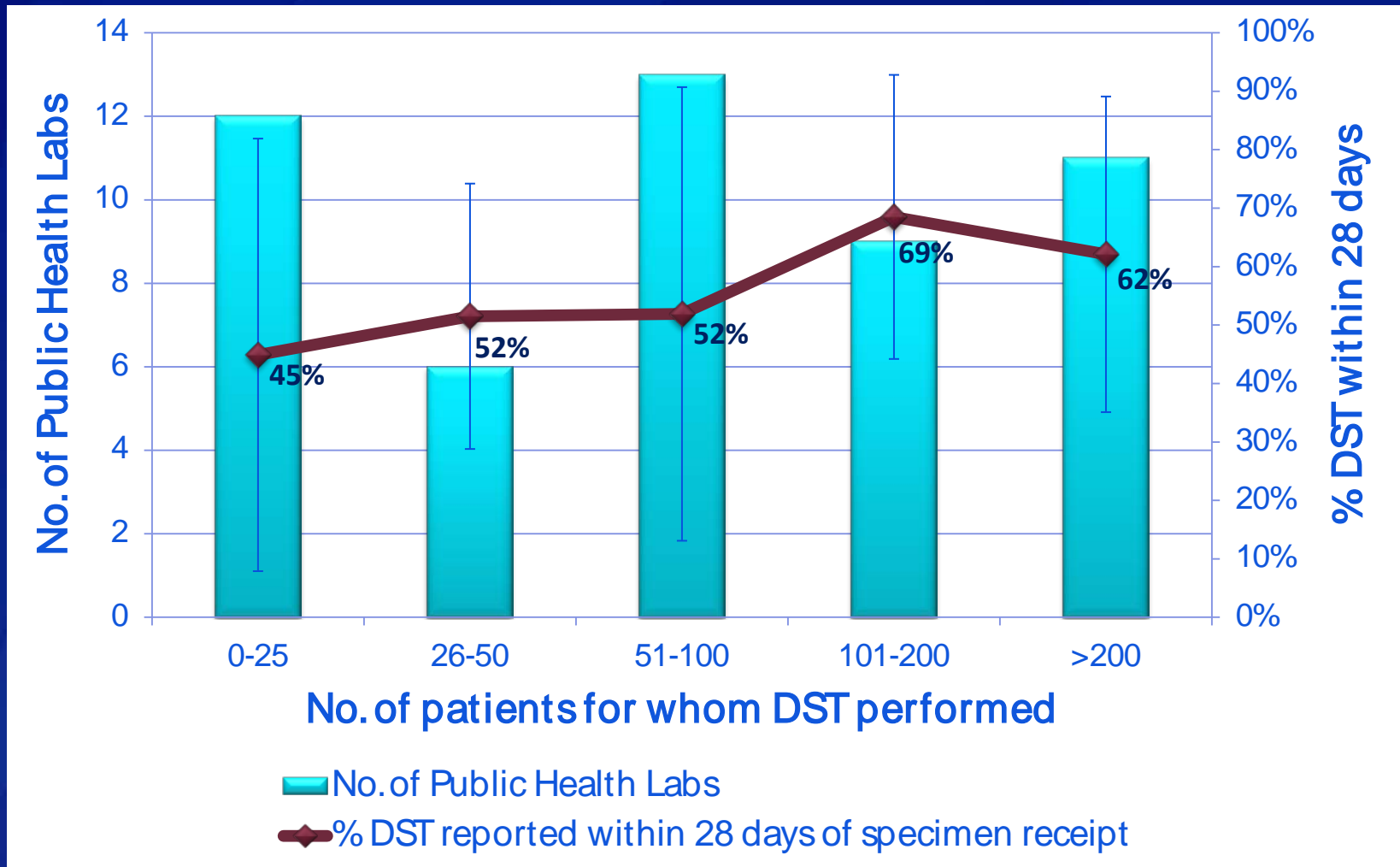
Percent ID Reported Within 21 Days of Specimen Receipt Stratified by Testing Volume (N=49)



Identification of MTBC Within 21 Days of Receipt

- ❑ Most PHLs achieve 80% of ID reported within 21 days
 - Volume not associated with TAT
- ❑ Barriers
 - Staffing—restrictions lead to scheduling, batching issues
 - Cost—Accuprobe kits, controls done each run

Percent First-line DST Reported Within 28 Days of Specimen Receipt Stratified by Testing Volume (N=51)



First-line DST Results Reported Within 28 Days of Receipt

- ❑ Overall, 55% of DST results are reported within the recommended 28 days of specimen receipt
 - In general, PHLs that performed more DST per year reported a higher percentage of results within 28 days

- ❑ Barriers reported
 - Staffing—restrictions lead to scheduling, batching issues
 - Mixed infections
 - Slow-growing cultures
 - Contaminated specimens
 - Malfunctions with automated instruments

TAT: Setting Laboratory Specific Goals (1)

□ Data utilization

- Each TAT indicator impacts subsequent indicators
- Is your lab close to meeting recommended TATs?
 - If so, look at the % of specimens that are outliers
 - Patterns may emerge:
 - Specific submitter, scheduling algorithms, lab practices, contamination issues
 - Patterns may not emerge:
 - Slow growing organism, mixed infections
- Is your lab significantly below the national average for TAT?
 - If so, review your lab's scheduling, protocols, testing algorithms, staffing competencies, proficiency for specific tests, etc.
 - Use the aggregate data to advocate for changes
 - Feel free to ask your CDC-TB laboratory consultant

TAT: Setting Laboratory Specific Goals (2)

- ❑ Laboratory goals should be specific, measurable, attainable, realistic, and include time-phased objectives that strive to achieve national TAT recommendations
- ❑ Steps for setting, monitoring and evaluating goals
 - **Review your numbers**
 - Frequent analysis
 - Compare to aggregate data and when available, to similar volume laboratories
 - Identify needs
 - **Prioritize**
 - Choose undertaking that are reasonable and achievable
 - Consider available resources
 - **Outreach**
 - Communication
 - Education and training for individuals involved
 - **Monitor progress**

In conclusion...

- ❑ **THANK YOU** for providing the data necessary to bring the aggregate report to fruition!
- ❑ This report will be developed annually to track trends in both workload and TAT, as well as to monitor the use of new methods in TB PHLs.
- ❑ Any suggestions for improvements for future aggregate reports are welcomed and encouraged.
- ❑ For any questions regarding the requirements for the upcoming TB cooperative agreement annual report, please contact your CDC laboratory consultant

Acknowledgements

State and Local Public Health Laboratory Recipients of TB Cooperative Agreement Funding

Beverly Metchock, DrPH, D(ABMM)

Angela Starks, Ph.D.

Mitch Yakrus, M.S., M.P.H.

The findings and conclusions of this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention