



# Newborn Screening Quality Assurance Program

## PROFICIENCY TESTING

## Toxoplasma Quarterly Report

Volume 7, No. 4

November 2011

### INTRODUCTION

This report is the quarterly summary of all data reported within the specified data-reporting period for Quarter 4, 2011. The attached tables provide the certification profiles for the distributed specimens, the verification of your reported data, the statistical analysis of the quantitative data, and the frequency distribution summaries for expected interpretations. We distribute this PT report to all participants, state laboratory directors, and program colleagues by request.

On October 3, 2011, a panel of five unknown dried-blood-spot (DBS) specimens prepared from human serum positive for exposure to *Toxoplasma gondii* was distributed to one laboratory in the United States and eleven laboratories in other countries. This panel was prepared from serum samples positive for Toxoplasma IgG and IgM purchased from SeraCare (Medford, Massachusetts) and from human serum positive for exposure to *Toxoplasma gondii* from a CDC specimen bank. All serum samples were mixed with washed red blood cells and the final hematocrit was adjusted to 50%.

### PARTICIPANTS' RESULTS

We processed data from six participants. Laboratories were asked to report IgM screening results in IU/mL blood or Absorbance (OD). In the statistical summary analysis, we did not include data that were outside the 99% confidence interval.

Six laboratories reported using "other". Three used an enzyme immunoassay method and three used a multiplexed platform. The expected anti-*Toxoplasma* IgM values were based on CDC assayed values. Overall statistics from the enzyme immunoassay methods are summarized in Tables 1a and 1b. The frequency distribution of participants' interpreta-

tions for screening results is shown in Table 2 and the frequency distribution of participants' interpretations for confirmatory results is shown in Table 3.

Expected interpretations (qualitative assessments) may differ by participant because of specific assessment practices. When the reported clinical assessment differs from our expected clinical assessment, the grading algorithm is used to evaluate test performance. An explanation of the grading algorithm can be found on the NSQAP data-reporting Web site or in the annual summary report. Overall, participants reported one false-negative interpretation and two false-positive interpretations. Laboratory results were evaluated on the basis of the final answers provided (screening only or confirmatory results). The mean cutoff for the enzyme immunoassay methods was 0.227, with a range from 0.100 to 0.320 OD and the mean cutoff for the multiplexed methods was 120 IU/mL blood.

Participants were asked to confirm specimens that screened above their cutoff for sorting test results that were *Toxoplasma*-antibody reactive from those that were *Toxoplasma*-antibody non-reactive. Two laboratories provided confirmatory results using EIAs for IgG or IgM.

Results from this survey indicate that Toxo-IgM methods vary in the ability to detect antibody from DBS. NSQAP strives to prepare DBS materials that challenge all methods and laboratories. ❖

The Newborn Screening Quality Assurance Program will ship next quarter's Anti-*Toxoplasma* antibodies PT specimens on January 9, 2012. ❖

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NEWBORN SCREENING QUALITY ASSURANCE PROGRAM

ANTI-TOXOPLASMA ANTIBODIES

QUARTER 4 – NOVEMBER 2011

LAB XXX

SPECIMEN CERTIFICATION - IgM

CDC ASSAYED LEVELS

Analyte	Specimen 41T1	Specimen 41T2	Specimen 41T3	Specimen 41T4	Specimen 41T5
Anti- <i>Toxoplasma</i> Immunoglobulin M CDC Mean Assayed Value (IU/mL blood)	11.7 ± 11.0	197.4 ± 6.3	45.8 ± 7.1	0.0 ± 0.0	0.0 ± 0.0

EXPECTED INTERPRETATIONS

Interpretation	Specimen 41T1	Specimen 41T2	Specimen 41T3	Specimen 41T4	Specimen 41T5
<i>Toxoplasma</i> Antibodies	1	2	2	1	1

1 = *Toxoplasma* antibody non-reactive    2 = *Toxoplasma* antibody reactive

NE = clinical assessment not evaluated

SCREENING RESULTS - IgM

DATA VERIFICATION

Analyte	Specimen 41T1		Specimen 41T2		Specimen 41T3		Specimen 41T4		Specimen 41T5	
	Result	Code								
Anti- <i>Toxoplasma</i> antibodies (OD)										

*Reviewer's Comments*

EVALUATION:

NEWBORN SCREENING QUALITY ASSURANCE PROGRAM

*ANTI-TOXOPLASMA Antibodies*

QUARTER 4 – NOVEMBER 2011

OVERALL STATISTICS – IgM

Table 1a. Screening Results – Enzyme Immunoassay Methods

Specimen	N	Outliers**	Mean (OD)	UL (95%)	LL (95%)
41T1	3	0	0.129	0.261	0.000
41T2	3	0	0.886	1.281	0.492
41T3	3	0	0.413	0.868	0.000
41T4	3	0	0.069	0.132	0.005
41T5	3	0	0.093	0.187	0.000

\*\* Outliers are not included in N. UL = upper limit LL = lower limit

Table 1b. Screening Results – Multiplexed Immunoassay Methods

Specimen	N	Outliers**	Mean (OD)	UL (95%)	LL (95%)
41T1	3	0	72.3	93.5	51.2
41T2	3	0	186.0	242.2	129.8
41T3	3	0	148.3	183.0	113.7
41T4	3	0	35.7	43.1	28.3
41T5	3	0	34.7	49.0	19.6

\*\* Outliers are not included in N. UL = upper limit LL = lower limit

Table 2. Frequency Distribution of Participants' Interpretations\*  
SCREENING RESULTS

Specimen	<i>Toxoplasma</i> antibody non-reactive	<i>Toxoplasma</i> antibody reactive
41T1	6	0
41T2	0	6
41T3	0	6
41T4	6	0
41T5	6	0

\*All Methods

Table 3. Frequency Distribution of Participants' Interpretations  
CONFIRMATORY RESULTS

Specimen	<i>Toxoplasma</i> antibody non-reactive	<i>Toxoplasma</i> antibody reactive
41T1	1	1
41T2	0	2
41T3	1	1
41T4	2	0
41T5	1	1

This **NEWBORN SCREENING QUALITY ASSURANCE PROGRAM** report is an internal publication distributed to program participants and selected program colleagues. The laboratory quality assurance program is a project cosponsored by the **Centers for Disease Control and Prevention (CDC)** and the **Association of Public Health Laboratories**.

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